AIRFRANCE

# INSTRUCTOR MANUAL

Air France B787 (L3) Simulator

BOEING

787

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## 1.1Instructor Manual

### 1.1.1 General

This Instructor Manual is valid for the AIR FRANCE L3 A350 simulator and provides only an overview of the available simulator features, including Malfunctions and Visual Scenes.

This instructor manual will not be amended for minor updates, however major updates on the simulator that has effect on the IOS Manual will be in cooperated.
Make sure you have been provided with the latest copy of this document, an up-to-date overview of the available Malfunctions and Visual Scenes can be obtained by contacting Customer Support or Simulator Engineering.
The available JAR-STD Certified Visual Scenes can be referenced via the Instructor Station, through the Airport Selection page.

### 1.1.2Copyright



### 1.1.2 Contact details

Please note that all relevant and up to date information can be found on our website:
https://midpack.airfrance.fr/flightacad/en/pageStandard/accueil.html

| | |
|---|---|
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## 1.2 Acronyms and Abbreviations

### 1.2.1 6D

| Item | Description | Explanation |
|---|---|---|
| 6DOF | Six Degrees of Freedom | Used to describe the motion system |

### 1.2.2 A

| Item | Description | Explanation |
|---|---|---|
| ABA | ARINC Bus Analyser | A software utility |
| AC | Alternating Current | Electric current where flow alternates in direction |
| ACB(+) | Aircraft Computing Blade | An 8–cpu single board computer used |
| ACP | Audio Control Panel | An aircraft or as-aircraft control unit associated with the communications and intercom / interphone systems |
| Acrobat | A document management system | A trademark of Adobe Incorporated |
| ADAT | Alesis Digital Audio Tape | Originally an eight-track tape format now relates to a protocol for transferring 8 tracks over fibre-optic cables. |
| ADF | Automatic Direction Finder | An aircraft navigation system |
| AFDX | Avionics Full Duplex Switched Ethernet | An aircraft Ethernet protocol now part of ARINC-664 |
| AGP | Accelerated Graphics Port | An interface specification that lets 3D graphics display quickly on personal computers |
| AHU | Air Handling Unit | A free-standing generator of air for equipment cooling and flightdeck environmental control |
| AI | Analogue Input | Input signal (in analogue format) in the interface and computing systems |
| ANCIL | Ancillary | Used as a label |
| AO | Analogue Output | Output signal (in analogue format) in the interface and computing systems |
| APT | Airbus Procedural Trainer | A lower level device used for pilot training. |
| ArCAM | ARINC/CAMIO | ArCAM is a software tool used to send reset command to a VME processor, or to send START, STOP, and RESET commands to CAMIO boards.It can also be used to flash CAMIO boards. |

| Item | Description | Explanation |
|---|---|---|
| ARINC | Aeronautical Radio INCorporated | A United States company that controls standards for communications and navigation systems and associated databuses |
| ARINC 429 | | A data transfer standard for aircraft avionics. |
| ASCII | American Standard Code for Information Interchange | A code for representing english characters as numbers, with each letter assigned a number 0 to 127. |
| ASIC | Application Specific Integrated Circuit | Circuit component programmed for functional operation |
| ATC | Air Traffic Control | Ground-based agency for controlling air traffic. |
| ATC/TCAS | Air Traffic Control/Traffic alert and Collision Avoidance System | Flightdeck transponder and TCAS control unit |
| ATIS | Aerodrome Terminal Information System | A communications system in which a ground station transmits audio messages conveying current airfield weather and operational information to the flight crew |

### 1.2.3 B

| Item | Description | Explanation |
|---|---|---|
| BAM | Backlight Adaption Module | An interface board to provide lighting supplies to simulated aircraft panels. |
| BAM-4 | Quad Backlight Adaption Module | A Backlight Adaption Module with four output channels. |
| BAR | Base Address Register | Associated with PCI memory space allocation |
| BPS | Back Projection Screen | Part of Visual Display System |
| BR | Bus Repeat | |

### 1.2.4 C

| Item | Description | Explanation |
|---|---|---|
| Cab | Cabinet | An assembly or structure used to house equipment and equipment racks both onboard and offboard |
| CABB | Controls Active Buffer Box | An interface box fitted to the control loading system actuators |
| CAMIO | Controls and Motion Input / Output | An interface board used in Control Loading and Motion |

| Item | Description | Explanation |
|---|---|---|
| CAPT | Captain | Panels on the flightdeck in front of the Captain and the associated Repadis |
| CASC | Comms Audio Signal Conditioning | Module related to the sound system |
| CB | Circuit Breaker | A electro-mechanical device used to control and protect electrical power |
| CBT | Computer Based Training | A self-paced learning PC based training tool. |
| CD-ROM | Compact Disc - Read Only Memory | A type of optical disk capable of storing large amounts of data |
| CDF | Central Development Facility | The computer system used for offline data and software development and online as a data server |
| CDU | Control Display Unit | Flightdeck control panel. |
| CFC | Configuration File Compiler | Configuration control register |
| Chan | Channel | One or more similar highways for transmission of voice or data |
| CLDG | Control LoaDinG | Associated or part of the Control Loading System |
| CLS | Control Loading System | Simulator system providing 'feel' for aircraft controls |
| CMOS | Complementary Metal Oxide Semiconductor | A type of semiconductor. CMOS semiconductors use both NMOS (negative polarity) and PMOS (positive polarity) circuits. Since only one of the circuit types is on at any given time, CMOS chips require less power than chips using just one type of transistor. This makes them attractive for use in battery-powered devices |
| COM1 | Communication Port 1 | The name of the standard serial communications port on a PC |
| Controls RTP | Controls Real Time Platform | The Computer that runs the Control Loading real time software. |
| cPCI | Compact PCI Chassis | A PC chassis that contains one or several single board computers and peripheral boards |
| CPU | Central Processing Unit | The principal operating part of a computer |
| CSC | Computer Software Component | |
| CSCI | Computer Software Configuration Item | A Software Element |

| Item | Description | Explanation |
|---|---|---|
| CSR | Control and Status Register | Associated with PCI memory space allocation |
| CVR | Cockpit Voice Recorder | An aircraft system for recording sound on the flightdeck |
| CVS | Concurrent Versioning System | A version control system |
| Cygwin | | A collection of software tools to let Microsoft Windows operate like a UNIX system. |

### 1.2.5 D

| Item | Description | Explanation |
|---|---|---|
| DAT | Digital Audio Tape | A type of magnetic tape that uses a scheme called helical scan to record data. A DAT cartridge is slightly larger than a credit card in width and height and contains a magnetic tape that can hold from 2 to 24 gigabytes of data. |
| DC | Direct Current | Electrical current that flows in one direction only |
| DI | Digital Input | Input signal (in digital format) in the interface and computing systems |
| DIAMOND | DIAgnostic MONitoring and Display | The simulator real-time diagnostic and health warning system |
| DID | Device IDentity | Hardware Confidence Test utility |
| DiGIT | Distributed Graphical Interface Tool | DiGIT is a Graphical User Interface (GUI) tool that provides a touch-screen orientated Human Machine Interface (HMI). The prime use of DiGIT is the IOS. |
| DIMM | Dual In-line Memory Module | A small circuit board that holds memory chips. The DIMM has a 64-bit path compared with the SIMM (Single In-line Memory Module) has a 32-bit path |
| DIP | Dual In-Line Package | A type of Integrated circuit housed in a rectangular casing with two rows of connecting pins on either side |
| DLL | Dynamic Link Library | A library of executable functions or data that can be used by a Windows application. |
| DMA | Direct Memory Access | Transferring data from main memory to a device without passing it through the CPU. |
| DME | Distance Measuring Equipment | Aircraft navigation system that provides distance information. |

| Item | Description | Explanation |
|---|---|---|
| DNS | Domain Name System (or Server) | An Internet service that translates domain names into IP addresses. |
| DO | Digital Output | Output signal (in a digital format) in the interface and computing systems |
| DOM | Dynamic Object Model | |
| DOS | Disk Operating System | Computer operating system |
| Dpool | Data Pool | |
| DTGEN | Device Training Generator | DTGEN is an offline software tool, which is used to define and build ARINC 429 I/O for training devices ranging from full flight simulators to desktop trainers. |
| DRAM | Dynamic RAM | A form of volatile semi-conductor memory |
| DU | Display Unit | Flightdeck Equipment to display information |
| DV | Direct Vision | Part of the flightdeck window |
| DVD | Digital Versatile Disc | Rewritable optical disc for data storage |
| DVM | Digital Volt Meter | Measuring instrument |

### 1.2.6 E

| Item | Description | Explanation |
|---|---|---|
| ECAM | Electronic Centralised Aircraft Monitor | Avionic unit |
| ECL | Electrical Control Loading | Control loading system which is loaded by electrical systems. |
| ECMA | Electric Controls / Motion Auxiliary | Provides control and monitoring for the drawbridge and motion systems. |
| ECMB | Electric Controls / Motion Backplane | Provides the interconnects for the 24VDC Safety Circuit. |
| ECMCU | Electric Controls and Motion Control Unit | Provides power, switching and control for the Electric Control Loading (ECL) and Electric Motion (EM2K) systems. |

| Item | Description | Explanation |
|---|---|---|
| ECPD | Electric Controls Power Distribution. | Provides power, switching and control for the Electric Control Loading (ECL) and Electric Motion (EM2K) systems. |
| EDF | Electronic Documentation Facility | A facility to provide access on the simulator to a Interactive Electronic Technical Manual |
| EEPROM | Electrically Erasable Programmable ROM | A form of semi-conductor memory that can be erased and re-programmed |
| EFCS | Electronic Flight Control System | Aircraft system |
| EFIS | Electronic Flight Instrumentation System | Aircraft system |
| EGB | Electrical Ground Bus | Electrical Ground Return path |
| EGPWC | Enhanced Ground Proximity Warning Computer | Aircraft item part of the EGPWS |
| EGPWS | Enhanced Ground Proximity Warning System | Aircraft system used to give near terrain warnings |
| EIDE | Enhanced Integrated Drive Electronics | An interface for connecting devices like the hard disk to a computer |
| ELAC | Elevator and Aileron Computer | A flight control computer on Airbus aircraft |
| EM2K | Electric Motion 2000 | Motion system which is loaded by electrical means. |
| EMC | Electro Magnetic Compatibility | A standard (and the items associated with compliance) concerned with protection from and the radiation of electro-magnetic signals |
| EMOCU | Electric Motion Operators Control Unit | Provides switching and control for the operation of EM2K motion. |

| Item | Description | Explanation |
|---|---|---|
| EMCP | Electric Motion Control And Power Assembly | Provides power switching and control for the EM2K motion. |
| EPO | Emergency Power Off | Simulator system to remove power in an emergency. |
| EPPD | EGPWC Program Pin Driver | The Program Pin Driver outputs configuration and option setting to the as-aircraft Enhanced Ground Proximity Computer |
| EPROM | Erasable Programmable ROM | A form of semi-conductor memory that can be erased and re-programmed |
| Ethernet | | A packet-based computer networking technology for Local Area Networks. Xerox Corporation Trade Name |

### 1.2.7 F

| Item | Description | Explanation |
|---|---|---|
| FAM | Frequency Adaptation Module | A board used in the interface to provide either variable frequency or pulse coded modulating output |
| FANS | Future Air Navigation System | Aircraft Navigation System |
| FCU | Flight Control Unit | |
| FFIOS | Forward Facing IOS | Seat located onboard which provides the facilities required to control and monitor both crew and simulator equipment |
| FFS | Full Flight Simulator | |
| FIFO | First In First Out | Used to describe a function on a board |
| F/O | First Officer | Used to describe equipment or displays related to the First Officer |
| FPE | Flight Plan Editor | |
| FPGA | Flash Programmable Gate Array | |
| FWD | Forward | Used as a label |

G

| Item | Description | Explanation |
|---|---|---|
| GE | General Electric | Engine Manufacturer |
| GIOC | General Input/Output Compiler | The purpose of GIOC is to manage all Inputs/Outputs between the simulation software and the hardware interface with a database builder, and output different type of files for the real time software (Host and GPIO (General Purpose Input Output)) |
| GPIO | General Purpose Input Output | |
| GSD | Ground Station Data | Data about navigational aids |
| GUI | Graphical User Interface | A program interface that uses the advantages of the computers graphics capabilities to make the program easier to use. An alternative to a command driven interface. |

### 1.2.8 H

| Item | Description | Explanation |
|---|---|---|
| HF | High Frequency | Frequency band or equipment associated with an aircraft communications system |
| HMI | Human Machine Interface | An interface that allows a user to control and monitor a system normally with a touchscreen or a keyboard and mouse and a display. |
| HMON | - | Software utility |
| HMI | Human/Machine Interface | Part of the Simulator or System that is used to enable a person to interact with the simulator |
| Host | | The computing system that controls the simulator and the simulation |
| HSSL | High Speed Serial Link | A fibre-optic serial interface |
| Hub | | A common connection point for devices in a network, usually used to describe the Ethernet Switch |
| HWCT | Hardware Confidence Tests | The HWCT software utility provides a fast test to ensure that the main elements of the system are present and configured correctly. |
| HYD | Hydraulics | Used as a label |

### 1.2.9 I

| Item | Description | Explanation |
|---|---|---|
| I/F | Interface | Interconnection between two systems or items |
| I/O | Input / Output | A part or the passing of information in or out of a computer system, on the simulator it normally relates to the interface between the computer system and the controls/indicators and equipment that is part of the simulated flightdeck and environment. |
| ID | Identification | Hardware Confidence Test utlity |
| IDE | Intelligent Drive Electronics | An interface for mass storage devices in which the controlled is integrated into the disk or CD-ROM drive. |
| IETM | Interactive Electronic Technical Manual | This page is part of an IETM |
| IG | Image Generator | Part of the Visual System that generates the images in a form that can be passed to the display system projectors. |
| ILS | Instrument Landing System | Aircraft navigation system that provides guidance during landing. |
| IO | Input / Output | A part or the passing of information in or out of a computer system, on the simulator it normally relates to the interface between the computer system and the controls/indicators and equipment that is part of the simulated flightdeck and environment. |
| IOS | Instructor Operating Station | Position located on-board which provides the facilities required to control and monitor both crew and simulator equipment and related computer system. |
| IP | Input | To enter data or power to a component , device or system |
| IP address | Internet Protocol address | An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example 1.160.10.240 |
| IP Module | Input Module | A daughter board |
| IPP | Image Post Processor | ASIC component to process image data before its transmission |
| ISA | Industry Standard Architecture | A bus standard used in personal computers |

| Item | Description | Explanation |
|---|---|---|
| ISIS | Integrated Standby Instrument System | An as-aircraft flightdeck display of secondary or standby instruments. |

### 1.2.10 J

| Item | Description | Explanation |
|---|---|---|
| JTAG | Joint Test Action Group | A test connector on a circuit board |
| JDM | Jack Drive Module | Used as part of the motion system provides the motive force to operate two motion actuators |

### 1.2.11 K

| Item | Description | Explanation |
|---|---|---|
| KVM | Keyboard, Video and Mouse | Used to describe connections to computer peripherals |

L

| Item | Description | Explanation |
|---|---|---|
| LAN | Local Area Network | High speed communications network between computers |
| LCD | Liquid Crystal Display | A display |
| LED | Light Emitting Diode | A semi-conductor device used as an indicator on boards |
| LHS | Left-hand Side | |
| Log_Book | Log Book | An electronic logbook to record specific issues to be communicated between team members online, part of the simulator Virtual Master Menu (VMM) |
| LRU | Line Replacable Unit | An item (usually repairable) that is replaced either on the simulator or if not possible as a shop or bench procedure to an assembly (Example - Power Supply) |

### 1.2.12 M

| Item | Description | Explanation |
|---|---|---|
| MADI | Multichannel Audio Digital Interface | An industrial standard communications and interface protocol. |

| Item | Description | Explanation |
|---|---|---|
| MCDU | Multi-function Control and Display Unit | A flightdeck pedestal mounted input and display unit for the flight management and other systems |
| MCP | Mode Control Panel | |
| MGB | Main Ground Bus | Electrical Ground Return path |
| MHI | Modular Input/Output High Speed Serial Link Board | The MHI Board interfaces general I/O to and from the Flight Deck. When used in the Electric Control Loading and Electric Motion Systems, handles I/O to and from the Safety Circuit. |
| MIB | Multifunction Interface Board | Board used to generate signals for the Weather Radar System |
| MIDI | Musical Instrument Digital Interface | Interface standard for serial data related to sound and music. |
| MIC | Microphone | The audio signal from the microphone |
| MIO | Modular Input/Output | Board used in the interface |
| MIO-DSP | Modular Input/Output - DSP | Part of the CAMIO board used in the COS and MOS |
| MISC | Miscellaneous | Used as a label |

### 1.2.13 N

| Item | Description | Explanation |
|---|---|---|
| NDT | Navigation Data Tool | The Navigation Data Tool allows easy management of airport and navigation data and provides a means of converting it into the format required by the simulation. Navigation data is used to support radio communications while airport data is required to control the visual scene. |
| NIC | Network Interface Controller | Computer hardware component to connect the computer to a network. |

### 1.2.14 O

| Item | Description | Explanation |
|---|---|---|
| Offboard | | Used to describe simulator equipment not located on the motion platform |
| Onboard | | Used to describe simulator equipment located on the motion platform |
| OpenPlot | | Software Tool |
| OS | Operating System | |
| OVHD | Overhead | Panels on the flightdeck above the window. |

### 1.2.15 P

| Item | Description | Explanation |
|---|---|---|
| PA | Passenger Address | Aircraft communications system |
| PAF | Pilot Applied Force | Term used in control loading to describe the force applied to a control |
| PAI | PMC ARINC Interface | Board used in the modular Input/Output system. |
| PC | Personal Computer | A general-purpose microcomputer |
| PCI | Peripheral Component Interconnect | A local bus standard |
| PCU | Pre-charge Unit | Gives the (EM2K) motion system pressure by charging the accumulators in the system with hydraulic fluid. |
| PGG | PCI Graphics Generator | |
| PE | Protective Earth | Part of the simulator earthing system |
| PED | Pedestal | That part of the flightdeck between the captain and first-officer typically has the throttles. |
| Pentium | - | A 32-bit microprocessor. Pentium is a trademark of the Intel Corporation |
| PMA | Power Monitoring Assembly | An assembly used to monitor power for the diagnostic system |
| PMC | PCI Mezzanine Card | A daughter board on a PCI board |

| Item | Description | Explanation |
|---|---|---|
| PSU | Power Supply Unit | An assembly used to create or convert electrical power |
| PS/2 | Personal System/2 | A 6-pin Min-DIN connector used for keyboard and mice |
| PTT | Press to Transmit | Usually a button or switch related to the communication system. |
| PW | Pratt and Whitney | Engine Manufacturer |
| PWR | Power | Used as a label |

### 1.2.16 Q

| Item | Description | Explanation |
|---|---|---|
| QTG | Qualification Test Guide | Acceptance Testing Document |

### 1.2.17 R

| Item | Description | Explanation |
|---|---|---|
| RA | Resolution Advisory | TCAS Warning |
| RACE | Retargeted Avionics Computing Element | A proprietary processor board |
| RAID | Redundant Arrays of Independent Disks | A data storage and backup system |
| RAM | Random Access Memory | A type of computer memory that can be accessed from time to time, that is, any byte of memory can be accessed. There are two basic types of RAM - Dynamic RAM (DRAM) and Static RAM (SRAM) |
| RCS | Revision Control System | The Revision Control System (RCS) manages multiple revision of files. RCS automates the storing retrieval, logging, identification, and merging of revisions. |
| RGB | Red Green Blue | A signal standard for video |
| RJ-45 | Registered Jack-45 | An 8-wire modular connector used as a connector on the ethernet network |

| Item | Description | Explanation |
|---|---|---|
| RM | Reflective Memory | A connection between multiple computers to share memory at high speed. When any of the computers update the shared memory block it is reflected in all other connected computers. |
| RMB | Reflective Memory Bus | A mode of communications associated with a HSSL board |
| RMP | Radio Management Panel | Avionics controller |
| RS-232 | Recommended Standard-232 | A standard interface for connecting serial devices. Can be either a 25-pin D-Type connector or a 9-pin D-type connector. |
| RS-422 | Recommended Standard-422 | A standard interface for connecting serial devices. |
| RTP | Radio Tuning Panel | Communications system control unit. |
| RTX | Real Time eXecutive | |
| RX | Receive or Receiver | To receive or input voice or data (associated with communications systems) |

### 1.2.18 S

| Item | Description | Explanation |
|---|---|---|
| SATCOM | Satellite Communications | Aircraft communications system |
| SBC | Single Board Computer | A complete computer built on a single circuit board, with microprocessor(s), memory, input/output (I/O) and other features required of a functional computer. |
| SCAN | Software Change Authorisation Note | SCAN is the name of both the utility and the process by which the user nominates software changes that have been developed and tested on the 'dev' load and submitted to RCS for inclusion into the current controlled 'ref' load. |
| SCIN | Software Change Implementation Note | Software Configuration Utility |

| Item | Description | Explanation |
|---|---|---|
| SCL | Software Component Library | A software version control system |
| SCM | Software Control Management | Part of the Virtual Master Menu |
| SCSI | Small Computer Systems Interface | A parallel interface standard for attaching peripheral devices to computers |
| SDPC | Simulated Display Personal Computer | Simulator computer system that generates the output for the flightdeck displays. |
| SDRAM | Synchronous Dynamic Random Access Memory | A form of volatile semi-conductor memory |
| SEC | Spoiler and Elevator Computer | A flight control computer on Airbus aircraft |
| SEFCS | Soft Electronic Flight Control System | Airbus software package that simulates the aircraft Electronic Flight Control System |
| SELCAL | Selective Calling | A function of aircraft communications systems, allows the airline operational staff to selective call one aircraft. |
| SIFONIN | | A software controlled relay used to monitor board status |
| SGU | Signal Generator Unit | Avionics unit |
| Sim Control | Simulator Control | Is a container of generic scripts to control the loading, starting and stopping of both RACE and native Windows applications. It also provides a set of template start scripts and task CFC files. |
| SimPing | Simulator Ping | SimPing network monitor uses the diagnostics built into the IP (Internet Protocol) architecture to test each of the machines on a network. |
| SimSpy | SimSpy | The SimSpy is a simulator timing utility used for the gathering, formatting and display of module and frame timing information from remote PC RACE boards. It also displays summary information for each configured RACE board. |
| Sim Support | Simulator Support | A software tool that includes a Disc Clean utility |

| Item | Description | Explanation |
|---|---|---|
| SMART | Software Monitoring and Analysis Report Tool | Part of a family of SCL support tools, provides functionality to generate a series of reports about a simulator programme. The reports fall into three broad categories: Integrity, Status, and Metrics, which are collectively used to aid the the control and management of simulator programmes |
| SMS | System Management Server | File storage server |
| SOLiD | Simulator On-LIne Documentation | An Interactive Electronic Technical Manual proprietary to Link Simulation & Training |
| SRAM | Static Random Access Memory | SRAM is a type of memory that is faster and more reliable than the more common DRAM (dynamic RAM). The term static is derived from the fact that it not necessary to refresh it like dynamic RAM |
| SRI | Shop Replaceable Item | An item that is replaced as a workshop or bench procedure |
| SSP | Simulator Support Platform | Computer used to support Simulator sounds and software loading of the Host Real Time Platform. |
| SW | Switch | Used as a label |

### 1.2.19 T

| Item | Description | Explanation |
|---|---|---|
| T123 | | Type 1, 2 and 3 rehosted software from Airbus |
| TA | Traffic Advisory | TCAS Warning |
| TCAS | Traffic alert and Collision Avoidance System | Aircraft avionics system used to warn and advise the flight crew of possible hazards caused by other aircraft being near |
| TCP/IP | Transmission Control Protocol / Internet Protocol | A suite of communications protocols used to connect hosts on the Internet. TCP/IP uses a number of protocols, the two main ones being TCP and IP. TCP/IP is built into the UNIX operating system and is used by the Internet, making it the de facto standard for transmitting data along networks. |
| TEL | Telephone | The audio signal to a headset or loudspeaker |
| TopView | - | TopView is a stand alone software tool that is used to display the status of each of the simulation devices on a site, integrate each |

| Item | Description | Explanation |
|---|---|---|
| | | of the diagnostic tools into one interface and display the health of the whole site network. |
| TX | Transmit or Transmitter | To broadcast or output voice or data (associated with communications systems) |

### 1.2.20 U

| Item | Description | Explanation |
|---|---|---|
| UDP | User Datagram Protocol | A connection less protocol that runs on top of IP networks. It provides little recovery services, offering instead a direct way to send and receive datagrams on an IP network. It is used primarily for broadcasting messages on a network. |
| UHF | Ultra High Frequency | Frequency band or equipment associated with an aircraft communications system |
| UPS | Uninteruptable Power Supply | A power source independent from the building wall isolators |
| USB | Universal Serial Bus | An external bus standard, used to connect peripherals to a computer |

### 1.2.21 V

| Item | Description | Explanation |
|---|---|---|
| VAU | Vector Arc Unit | ASIC component for drawing lines and arcs |
| VDIM | Voltage Dimmable | Aircraft lighting supply, voltage varies to control flightdeck panel lighting |
| VDK | Vertex Development Kit | |
| VGA | Video Graphics Adaptor | A signal standard for video |
| VHF | Very High Frequency | Frequency band or equipment associated with an aircraft communications system |
| VID | Vendor Identity | Hardward Confidence Tests utility |
| VM | Virtual Machine | A computing platform embedded within another computer |
| VME | Verse Module European | A standard for modular chassis |
| VMM | Virtual Master Menu | Web-based pages used to control the simulator |
| VOR | VHF Omni-Range | Aircraft navigation system, provides bearing to/from fixed ground beacons. |

| Item | Description | Explanation |
|---|---|---|
| VPC2+ | VME PMC Carrier | A HSSL BR driven carrier board used in the I/O Modules to interface up to two PMC (PCI Mezzanine Card) Boards to the module backplane |
| VPC-E | VME PMC Carrier-Ethernet | An Ethernet driven carrier board used in the I/O Modules to interface up to two PMC (PCI Mezzanine Card) Boards to the module backplane |
| VU | | Panel Designator on Airbus aircraft |

### 1.2.22 W

| Item | Description | Explanation |
|---|---|---|
| W3C | World Wide Web Consortium | Standards body for the Internet |
| WAGS | Windows Autotest Generation System | An integrated collection of tools that can be used for testing and recording the performance of simulation software. |
| WXR | Weather Radar | Aircraft navigation system |

### 1.2.23 X

| Item | Description | Explanation |
|---|---|---|
| XHTML | Extensible Hypertext Markup Language | W3C Format used for SOLiD |
| XML | Extensible Markup Language | W3C Format |

### 1.2.24 Z

| Item | Description | Explanation |
|---|---|---|
| ZIP | | A popular data compression format. Files that have been compressed with the ZIP format are called "ZIP files" and usually end with a .zip extension |
| Zip Drive | | A high-capacity floppy disk drive developed by Iomega Corporation. Trademark of Iomega Corporation |

[ CHAPTER 2 ]

# 2 General

## 2.1 Instructor Station Pre-flight checklist

When starting a training session, the instructor should determine its readiness.

Before entering the simulator the instructor must ensure that the Programmable Entrance Sign states that the simulator is **RUNNING**. This display is located on the outside and to the left of the flight compartment door and shows the current status of the simulator.


## 2.2 Control Loading

Before you operate the control loading system:

- Make sure that no persons are in areas of the flight deck where they could be exposed to hazards when the control loading system is operated.
- Make sure that all items (tools, spare parts, personal belongings, test and access equipment) are clear of the control loading system.
- Make sure that all persons on the flight deck know that the control loading system is to be engaged.

## 2.3 Motion System

Before you operate the motion system:

- Make sure that no persons are in areas of the flight deck where they could be exposed to hazards when the motion system is operated.
- Make sure that all loose items (tools, spare parts, personal belongings, test and access equipment) are clear of the motion system and safe.
- Make sure that all flight compartment doors and access panels are safely closed.
- Make sure that all persons on the flight deck know that the motion system is to be engaged.
- Make sure that all persons on the flight deck are seated and seat belts are fastened.

## 2.4 During Operation

- If the simulator or building fire alarm operates evacuate the flight compartment immediately.
- If you discover a fire, operate an emergency stop then evacuate the simulator. There is a portable fire extinguisher in the flight compartment - fight the fire only if you feel it is safe to do so - DO NOT put yourself or others in danger.
- If the electrical or hydraulic power fails for an unknown cause and the simulator does not settle, contact the maintenance team to determine the reason.
- If the motion or control loading operates in an unsafe condition, operate an emergency stop. Make sure that all persons remain seated with their seat belt fastened until the flight compartment settles to the access position.
- When the motion is disengaged make sure that all persons stay seated with their seat belt fastened until the simulator settles to the access position.
- In normal use the instructor seat should only be moved using the seat FWD and BACK controls on the IOS control panel, make sure that the simulator is in the parked or flight freeze position before moving. If the electrical power fails the instructor seat can be moved manually after the seat is unlocked using the manual override lever.

## 2.5 Instructor Station Post flight checklist

At the end of a training session, it is desirable to return the simulator to normal conditions. To achieve this, follow the step outlined below.

-. **Pressing TOTAL RESET from the Freezes and Resets IOS page to perform a total reset.**

# IOS Station

## TABLE OF CONTENTS

# 3 Instructor System

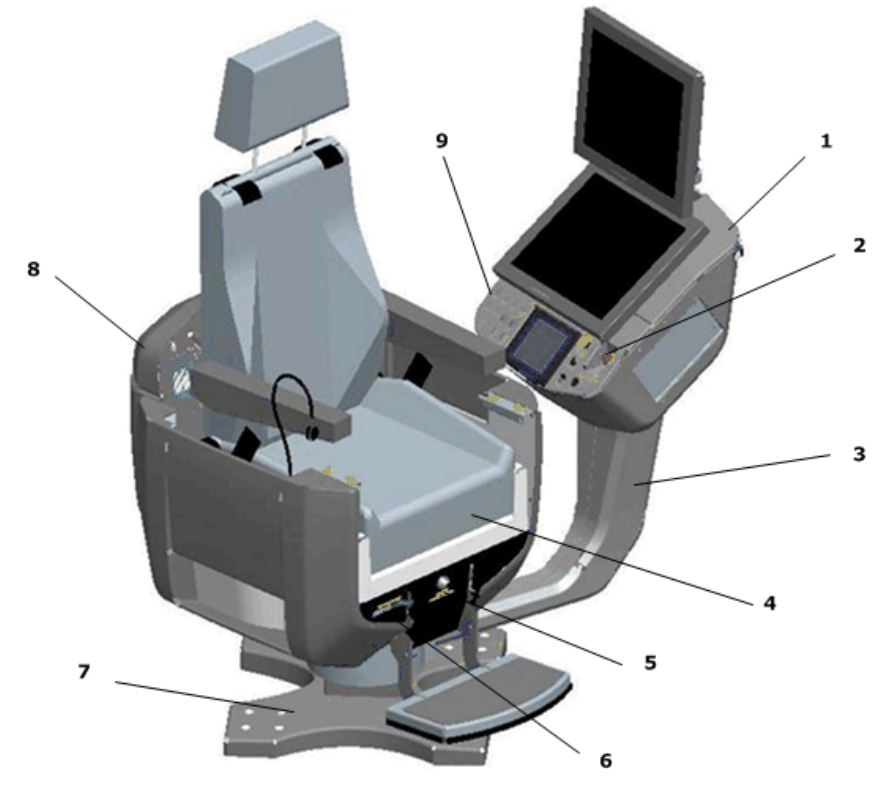
## 3.1 Description of Instructor System

The Instructor System consists of:

- Instructor Operating Station (IOS)
  - Seat Assembly
  - Main Control Assembly
- Instructor Operating System Computer

The Instructor Seat Assembly is located on-board the simulator and in the rear enclosure behind the flight deck, the Main Control Assembly contains all the control and displays required by the instructor to control and monitor the actions of both the crew and the simulator are mounted on the instructors seat.

### Instructor Seat and Main Control Assembly




1. **Main Control Assembly**
2. **Emergency Stop Button (Forward Control Panel)**
3. **Support Arm Assembly**
4. **Seat Mounting Plate Assembly**
5. **Swing Arm Adjustment Lever**
6. **Horizontal Adjustment Lever**
7. **Seat Base Assembly**
8. **Back Panel Assembly**
9. **Control Panel Assembly**

## Bump Switch & Emergency Stop (Pilot side)


a1760

## Oxygen Stowage Box and Mask


a1758

## 3.2 Emergency Stop Buttons

The Emergency Stop buttons form part of the Emergency Power Off (EPO) system. When pressed they will remove power from the simulator except for the offboard computer cabinets.

## 3.3 Horizontal and Swing Arm Assembly Adjustment Lever

The horizontal adjustment lever (Clutch Lever Assembly) unlocks the rack and pinion and allows the seat to be manually moved forward or backwards. The swing arm adjustment lever unlocks the swing arm enabling the swing arm to be manually rotated, allowing access to Main Control Panel.
The horizontal and swing arm adjustment levers are located at the base of the seat.

⚠CAUTION Do not use when extrem motion is in use ( uprt, buffets…)

## 3.4 Main Control Assembly

The Main Control Assembly contains the 19” touch screen display screens, control panel, local PSUs, single-phase distribution, terminal blocks, bump switch control and an Audio Interface Assembly.

## 3.5 Audio Interface Assembly

The Instructor has the following equipment associated with communications:

- Audio Control Panel
- Comms Sockets Panel
- Loudspeakers
- Personnel Equipment

### 3.5.1 Audio Control Panel

The Audio Control Panel is displayed on the IOS touch screen, replicating the aircraft device that enables the instructor to control input, output and distribution of radio and intercommunications.

### 3.5.2 Audio and USB interface assembly

The Audio Interface Assembly forms part of the Communication System and provide connections for:

- Hand Microphone (with Press To Transmit (PTT) function)
- Boom Mic (Headset with boom microphone)

Two USB ports allow auxiliary items to be connected to the IOS computer.

### 3.5.3 Loudspeaker

The Instructor Loudspeaker is part of the IOS Back Panel Assembly and forms part of the simulator speaker system to enable the flight crew and Instructor to listen to audio outputs without the use of headsets.

### 3.5.4 Personal Equipment

The Instructor has:

- A Hand Microphone for communication.
- Headphone and boom microphone with headset available located in the seat storage locker.

## 3.6 Oxygen Mask

The Oxygen Mask is located in an Oxygen Stowage Box part of the Main Control Panel Assembly. The Oxygen Mask enables medically clean air to be provided on demand from a breathing air system when simulated smoke is in use. The mask also contains a microphone to allow the instructor to talk to the flight crew.

## 3.7 IOS Buttons

### 3.7.1 Seat Controls

The seat can be moved electrically using the Seat Control Panel which has the following controls:

- FWD
- BACK
- UP
- DWN

The seat may also be moved manually using the Horizontal Travel Lever: This lever disconnects the drive from the horizontal motor and allows the user to manually move the seat backwards and forwards along the seat track (e.g. during Emergency Power Off)
⚠CAUTION Do not move the seat when extrem motion is in use. ( uprt, buffets…)

### 3.7.2 Control Panel

The IOS Control Panel includes the following controls:

- SOUND - Adjusts the volume of the simulated (aural cue) sound excluding warnings
- COMMS - Adjusts the volume of the IOS Comms speaker behind the IOS seat
- PANEL - Adjusts the back-lighting on the IOS Panels (LED Plate)
- MOTION - Enables and indicates status of the motion system
- PTT - Press to Transmit button
- CONTROLS- Enables and indicates status the control loading system
- TASK - Adjusts IOS overhead LED lighting
- AMBIENT- Adjusts the cabin rear LED lighting
- CABIN - Controls the LED lighting either side of the Visual Access Hatch
- MAINT CALL - Maintenance Call Switch
- SEAT CONTROLS (UP, DOWN, FWD, BACK) - Adjusts the seat position
- Emergency Stops
- Emergency Motion Off

Section/Title | Page

## 4.1 Flat Panel Displays


Typical B787 display configuration

## 4.2 Page Display Area

This area displays the interactive pages that allow you to control and monitor the training exercise.

There are five types of page:

- Control, which allow you to set up the conditions for the training exercise, and to control and monitor the progress of the exercise.
- Map, which provide a graphical representation of the flight relative to the radio navigational facilities, or to the runway on approach and take-off.
- Malfunctions, which allow you to enter simulated faults into the aircraft systems.
- Maintenance, which allow the technicians to set up the IOS and run acceptance tests in the simulator. These pages are password-protected.
- Lesson, which allow you to select and control the lesson plans.

Page selection, indicated by the small arrow at the bottom right corner of the button. When selected, displays another page. (In this example, Preset Weather page would be displayed).

### Buttons

Three types of button are used on the pages:


Direct action. When selected, associated function is activated or deactivated immediately. (In this example, Standard Day weather conditions would be set up).


Page selection, indicated by the small arrow at the bottom right corner of the button. When selected, displays another page. (In this example, Preset Weather page would be displayed).


Variable selection. When selected, displays an overlay to enable the value of the variable to be changed. (In this example, the numeric keypad would be displayed to enable a new value for runway visible range (RVR) to be entered).

Selecting a button causes that button to change to the relief-effect selected state. When you remove your finger directly from the button, the selection becomes active.

If you slide your finger off the button and then off the screen, the function will not be selected and the button will revert to its previous state.

### Colours

Buttons will be displayed in different colours depending on their current condition:

| | Condition | Colour |
|---|---|---|
| ***General Buttons*** | Permanently Unavailable | Dark Grey |
| | Currently Unavailable | Light Grey |
| | Available/Normal | Blue |
| | Active | Amber |
| ***Malfunction Button*** | Available | Blue |
| | Armed | Magenta or Yellow |
| | Active | Red |

## 4.3 Parameter Readout

The parameter readout displays the current status of a number of flight parameters (e.g., altitude, heading), details of the currently active airport (ICAO code, runway in use, ILS frequency), and also displays a dynamic readout showing messages relating to simulator status (e.g., malfunction active, wind shear selected, freeze selected).
This information is displayed on all pages, except:

- Plot pages
- Lesson pages
- Maintenance pages
- Area Map display (full screen)
- Circuit Breaker pages

## 4.4 Overlays

Overlays allow you to change the value of a parameter. The following overlays are provided:

- Numeric Keypad
- Slew Tool
- Alphanumeric Keypad
- Pop-Up Menu

**Numeric Keypad**


The Numeric Keypad (see right) or the Slew Tool (see 5.4.1) is displayed automatically when a touch point is selected which requires a numeric data input. The overlay displayed is determined by which format was last used. A button on each overlay (Slew/Keypad) allows you to select the other format for display.

The current value for the parameter is displayed on the overlay. Maximum and minimum values for the parameter are also displayed where appropriate.

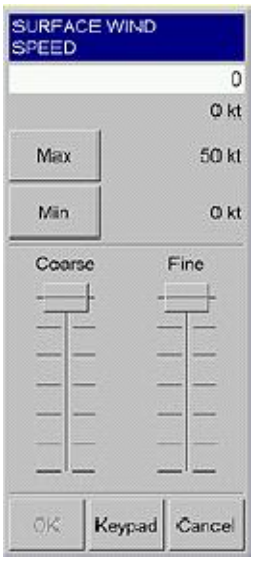
The display line at the top of the overlay shows the value being entered. When you are satisfied with the entry, select OK and the new value will be entered into the simulation. The overlay is removed from the display.
If you are not satisfied with the entry, select AC to clear the complete entry or select CLR to clear the last input.
If you select Cancel, the overlay is removed from the display and the parameter reverts to its previous state.

When entering data, you will need to enter the figures exactly as required; except when entering heading values when the leading zeros are not required (030 can be entered as 30). Latitude and longitude values can be entered as N, S, E or W in degrees, minutes, seconds and tenths of second (e.g., N42_27’02.0”) (it is not necessary to type the degrees, minutes and seconds symbols). Latitude and longitude will be displayed on the IOS in degrees, minutes and tenths of minutes, regardless of the format used to enter the values on the overlay. For example, a value entered as N42_27’30” will be displayed as N42_27.5.

If the selected parameter has pre-defined maximum and minimum limits, buttons to select maximum and minimum are displayed. If the entered value exceeds the maximum or minimum limits for the selected parameter, the OK function is disabled and the entered value is displayed in red.

### 4.4.1 Slew Tool

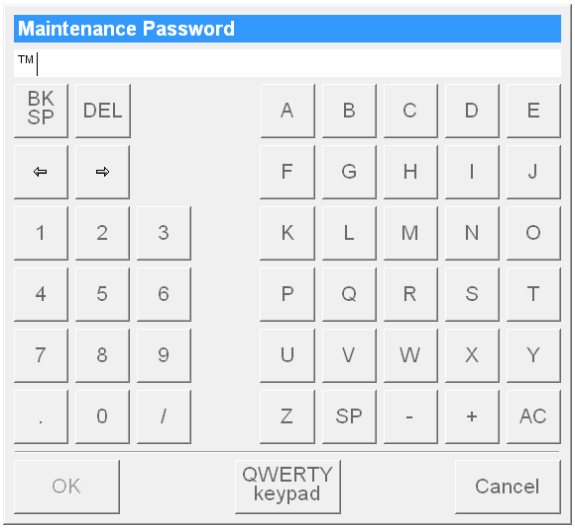
The Slew Tool (see below) provides an alternative to the Numeric Keypad for entering numeric data when the selected parameter has maximum and minimum limits. The Slew Tool is not available when editing latitude and longitude.




Two slider bars are provided: course, to set the value of the parameter approximately to the required setting, and fine, to adjust the value to exactly the right setting.
To change the value of the parameter, use your finger to move the slider bar up or down until the required value is achieved.
Select OK to confirm the entry.

### 4.4.2 Alphanumeric Keypad

The Alphanumeric Keypad (see below) is displayed automatically when a touch point is selected which requires an alphanumeric data input.




Two formats of the keypad are available: CDU and PC QWERTY. The format displayed is determined by which format was last used. A button (PC/CDU) on the keypad will allow you to select the other format.

The current entry is shown on the overlay. The display line at the top of the overlay shows the data being entered.

When you are satisfied with the entry, select OK and the new data will be entered into the simulation.

If you are not satisfied with the entry, select AC to clear the complete entry or select CLR to clear the last input. If you select Cancel, the overlay is removed from the display and the parameter reverts to its previous state.

### 4.4.3 Pop-Up Menu

A Pop-Up Menu will be displayed automatically if the selected parameter has a number of alternative states (eg. cobblestone). The menu (see example below) will display a title, a 3D–style button for each selection and a CANCEL button. The button corresponding to the currently selected state will be displayed in relief–effect.

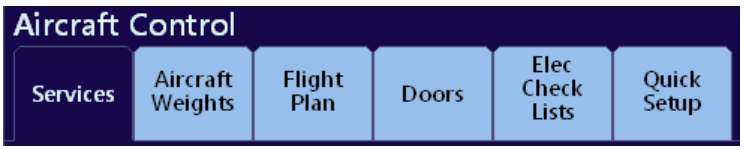
Selecting a button causes that button to change to the relief–effect selected state. When you remove your finger directly from the button, the selection becomes active and the pop-up menu is removed from the display. If you slide your finger off the button area then then off the screen, the function will not be selected and the button will revert to its previous state.

## 4.5 Side Toolbar

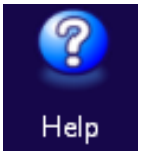
This area displays a number of buttons which provide access to the pages. The same buttons are displayed on control pages and malfunction pages. On map pages, some of the buttons are replaced with buttons providing access to functions which are only relevant to map page operation.

On lesson pages, plot pages, the CB Panels Index page and the ECL Normal Checklist page, the page display extends the full width of the screen and toolbar buttons relevant to the operation of the page are displayed horizontally at the bottom of the page.

The function of each of the buttons is detailed in below table:
**Note:** Each of the buttons will pop up a “tabular” bar presenting one or more sub topics related to the selected button. For instance if you select the A/C control button the following TAB bar wil show:

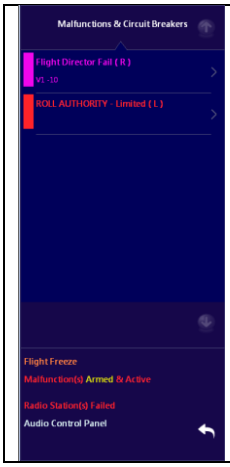



| | |
|---|---|
|   | **A/C Control**<br>Through various tabs you can access controls and Services which allows you to perform functions normally undertaken on the ground, Tabs presented are:.<br>• Services<br>• Aircraft Weight.<br>• Flight Plan<br>• Doors<br>• Electronic checklists<br>• Quick Setup<br>• |
| | |

| | |
|---|---|
|  | **Malfs/CB's**<br>Displays Malfunction and Circuit Breakers Index page which lists the available malfunction and CB pages by aircraft system (ATA) to assist you in loading the required malfunction. Tabs presented are:<br>• Malf Index<br>• Circuit Breaker Index |
|  | **Posn Ctrl**<br>Displays Repositions page which allows you to reposition the aircraft relative to the currently active airport and runway. Tabs presented are:<br>• Reposition<br>• Aircraft Slew<br>• Pushbacks |
|  | **Freeze/Reset**<br>Displays the Freeze/Reset page which allows you to suspend and restart all or some of the simulated systems, and to reset the aircraft systems to normal operating conditions. Tabs presented are:<br>• Main Freezes / Resets<br>• System Resets |
|  | **Help**<br>Displays the Instructor Reference Manual page associated with the displayed page. |
|  | **Print**<br>Prints a copy of the page on the hard copy printer (located outside the simulator, in the computer room) |
|  | **Plots/Data**<br>Displays the first of the Plot pages (Approach Plot) which allows you to monitor the performance of the flight crew during an approach, during departure, and during take–off and landing operations at the runway. Tabs presented are:<br>• Approach<br>• Runway<br>• Departure<br>• T/O and Landing Performance |
| | |

| | |
|---|---|
|  | **Env Ctrl**<br>All Weather pages which allow you to set up the weather conditions for the training exercise several Tabs are presented such as:<br>• Basic Weather setup<br>• Cloud<br>• Atmos<br>• Visual/Runway conditions<br>• Airfield Lighting<br>• SMGCS (Surface Movement Guidance Control System)<br>• Windshear<br>• Microbursts / predictive windshears<br>• Multi Weather |
|  | **Area Map**<br>Displays Area Map page which provides a graphical representation of the aircraft's flight relative to the radio navigational facilities.<br>Also additional buttons are presented on the RH side of the screen, such as:<br>• Mode/Range<br>• De-Clutter<br>• Full Screen<br>• A/C Slews<br>• Wind Slew<br>• Rng / Brg<br>• Sel On Map<br>• Storm Control |
|  | **Lesson Plan**<br>Displays Lesson Plans Control drop down list, which lists the available lesson plans to allow you to select the appropriate lesson plan for your training exercise.<br>When selecting a lesson plan additional buttons on the RH side will be:<br>• Refresh Table<br>• Installed Lessons<br>• View<br>  ○ Lesson plan control button to start lesson<br>  Lesson plan control button to stop lesson<br>  ○ Back & Forward buttons to scroll through lessonplan steps |

| | |
|---|---|
|  | Recalls last displayed page. Up to 31 of the previous page displays are retrievable. |
|  | **Toggle Disp**<br>Toggles between the Quick Access Buttons and Parameter Readout Header. |
|  | **ACARS**<br>Allows selecting and setup several ACARS possibilities |
|  | **Traffic**<br>Access to TCAS scenarios tabs |
|  | **Arpt Traff**<br>Access to Airport Traffic tab, additional buttons;<br>• Scenario control (Play & Stop & Load) |
|  | **Sim Ctrl**<br>Access to simulator control tabs;<br>• Devices / Tools<br>• Snapshot<br>• IOS e-Print<br>• Lesson Plan<br>• Aircraft Upsets<br>• Smoke |
|  | **Status**<br>Shows the following tabs<br>• Malf / CB Status<br>• Crash Conditions<br>• Flight Conditions<br>• CNIA (Controls not in agreement)<br>• Motion Interlocks<br>• Sim message log<br>• Repeats (allows selection of the CAPT & FO HUD Repeater on the IOS) |




**Status Window**

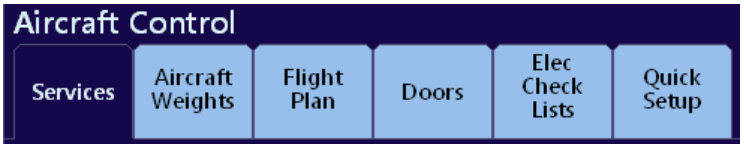
Displays the Malfunction/CB Status on the LH page which displays the status of malfunctions, circuit breakers, radio stations and other entities.

TABLE OF CONTENTS

# 5 General

This chapter in describes the general options and selections typical for the AF A350 simulator. Lay-outs may be slightly different than described, however basic functionality will not be affected.

## 5.1 Aircraft Control.

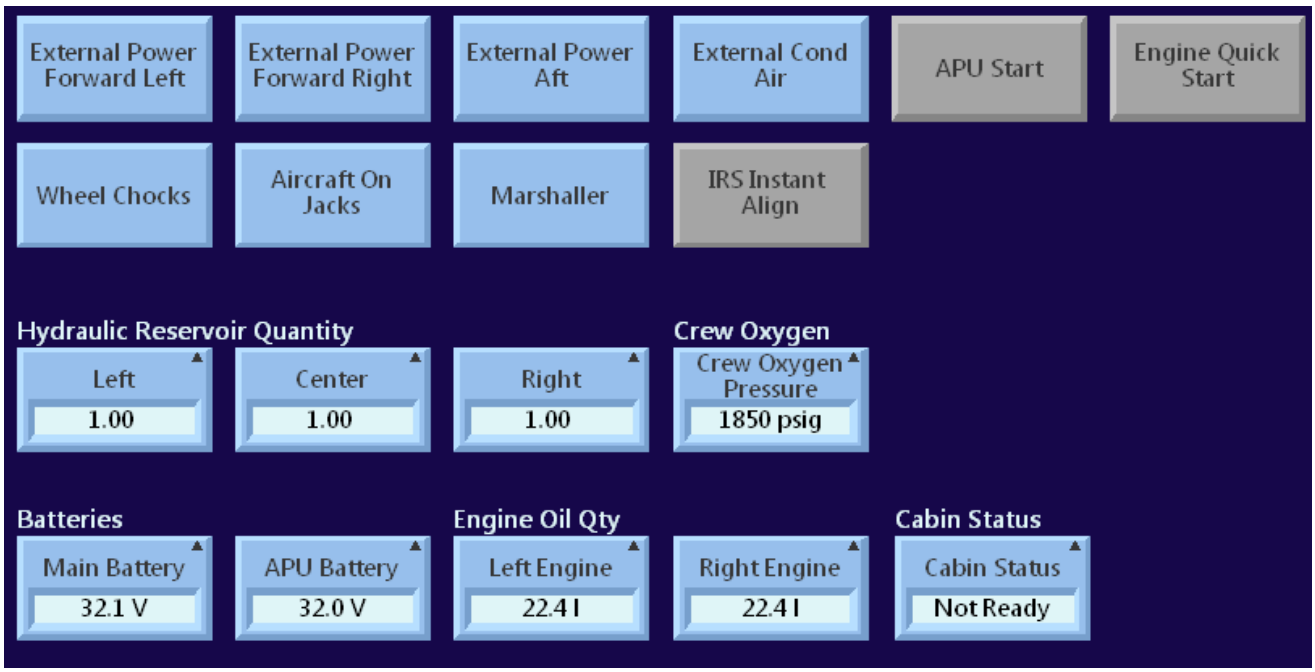



Selectable from the Page Navigation Toolbar, the Aircraft Control tab suite comprises 5 tabs providing access to the following pages:

- **Services** page which allows you to perform functions normally undertaken on the ground.
- **Aircraft Weights** page which allows you to select the fuel loading and centre of gravity for the aircraft.
- **Flight Plan** page which allows you to configure the FMC with route information.
- **Doors** page which allows you to control the aircraft doors.
- **Quick Setup** page which allows you to quickly set up a training exercise from a single page.

### 5.1.1 Services

This page is selectable from the Aircraft Control tab suite and allows you to perform functions normally undertaken on the ground.



| | |
|---|---|
| External Power 1<br>External Power 2 | Simulates connection of external power supply when aircraft is stationary on the ground. |
| Ground Air | Simulates connection of external conditioned air supply when the aircraft is stationary on the ground. |
| APU Start | Starts APU immediately regardless of air, fuel, oil or electrical supplies, provided APU master switch is on. APU will continue to run if fuel and oil supplies are available. |
| Engine Start | Starts all engines immediately regardless of air, fuel, oil or electrical supplies, provided the fuel cut-off switches are in the flow position. Engines will continue to run if fuel and oil supplies are available. |
| Wheel Chocks | Simulates aircraft on wheel chocks. |
| Aircraft On Jacks | Simulates aircraft on jacks. |
| Marshaller | Selects marshaller on/off. The Marshaller is available when the aircraft is positioned at the gate (but not at generic airports). The marshaller is automatically deselected by:<br>• instructor action<br>• when the aircraft has stopped at the gate and the park brake has been applied for 10 seconds<br>• during gate reposition<br>• when pushback is in progess |
| IRS Instant Align | Initiates an instantaneous re-alignment of the inertial reference system. |

**Hydraulic Reservoir Quantity**

| | |
|---|---|
| Left/Center/Right | Allows you to set the oil quantity for individual hydraulic reservoirs. |

**Crew Oxygen**

| | |
|---|---|
| Crew Oxygen Pressure | Allows you to set the Crew Oxygen Pressure |

**Batteries**

| | |
|---|---|
| Main Battery | Allows you to set battery voltage between 20.0V and 32.2V. |
| APU Battery | Allows you to set battery voltage between 20.0V and 32.2V. |

**Oil Quantity**

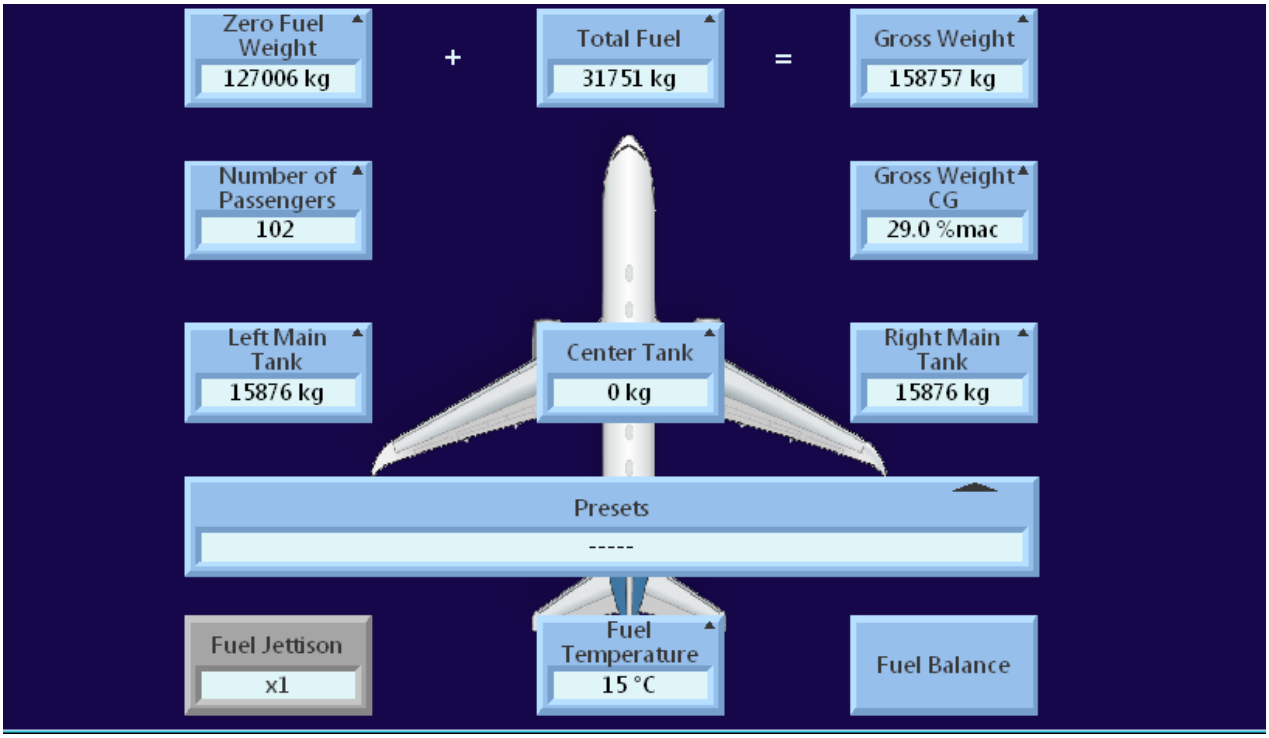
| | |
|---|---|
| Left Engine<br>Right Engine | Allows you to set the oil quantity for individual engines. |

**Cabin Status**

| | |
|---|---|
| Cabin Status (Default: Not Ready) | Cabin Status when Ready emulates activation of the forward cabin ready control by the flight attendant to indicate that all the flight checks in the cabin have completed and the passenger cabin is ready. |

### 5.1.2 Aircraft Weights

This page is selectable from the Aircraft Control tab suite and allows you to select the fuel loading and centre of gravity for the aircraft.




| | |
|---|---|
| Zero Fuel Weight | Allows you to set the zero fuel weight of the aircraft. |
| Total Fuel | Allows you to set the total fuel load in the aircraft. The fuel will be evenly loaded between the fuel tanks. |
| Gross Weight | Displays the gross weight of the aircraft. |
| Number of Passengers | Allows you to set the number of passengers (but maximum is limited by Aircraft variant) |
| Gross Weight CG | Allows you to select the centre of gravity as a percentage of mean aerodynamic chord (MAC). |
| Left Main Tank<br>Center Tank<br>Right Main Tank | Allows you to select the fuel load in each of the fuel tanks on the aircraft. |
| Presets | Displays a pop-up menu which allows you to select from a number of preset values for zero fuel weight, fuel load and centre of gravity. |
| Fuel Jettison Speed Up | Allows you to increase the fuel jettison rate. |
| Fuel Temperature | Allows you to set the fuel temperature between -40° to 100° |
| Fuel Balance | Balances the fuel load between the tanks. |

### 5.1.3 Flight plan

This page is selectable from the **Aircraft Control** tab suite and allows you to configure the FMC with route information.

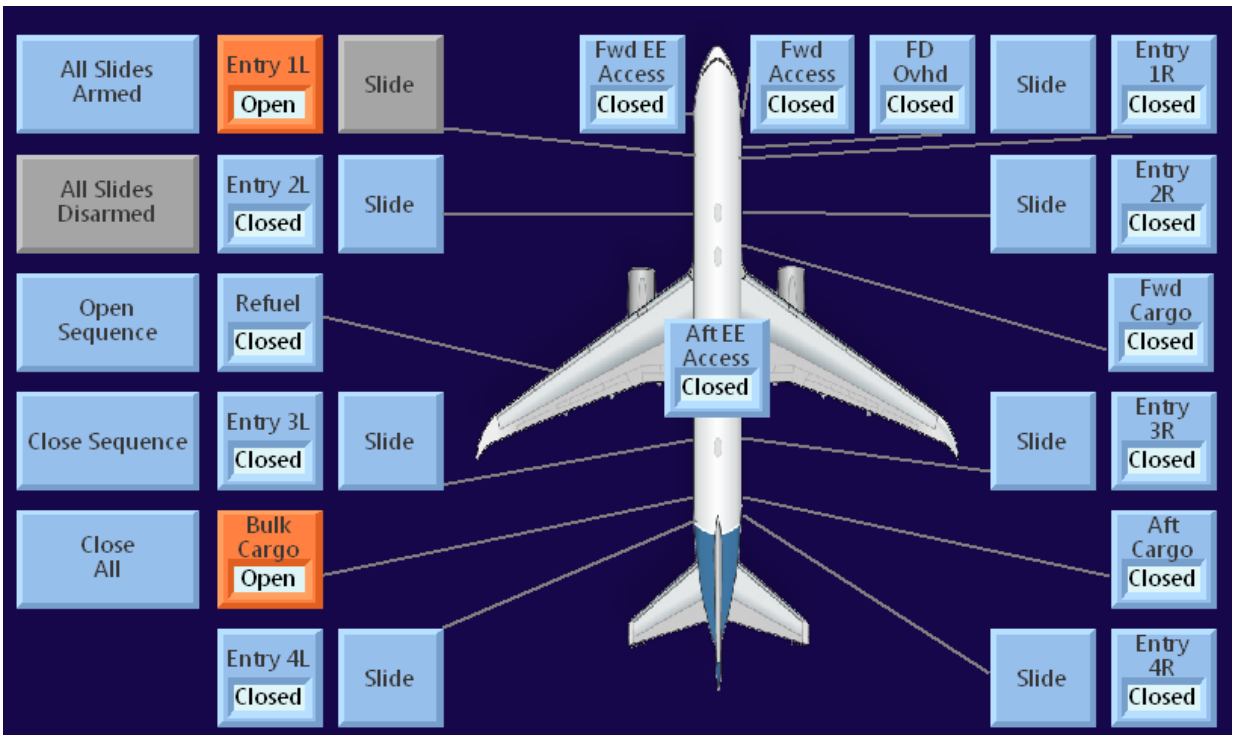
To select a Flight Plan click on the row containing the required plan in the table.

| | |
|---|---|
| Page Up/Page Down | Allow you to scroll up/down through the list of available flight plans. |

| | |
|---|---|
| Load to FMC | Programs the FMC with the information from the selected stored route. |
| Save from FMC | Saves the existing FMC load configuration to the selected route number for future use. |
| Delete | Delete selected flight plan. |
| Edit Cmmnt | Allows you to edit the comment for the selected flight plan. |

### 5.1.4 Doors

This page is selectable from the Aircraft Control tab suite and allows you to control the aircraft doors.



| | |
|---|---|
| Close All Doors & Arm Slides | Closes all doors and arms slides. |
| Slides | Arms/disarms operation of the emergency passenger slides. |
| All Slides Armed | Arms operation of the emergency passenger slides |
| All Slides Disarmed | Disarms operation of the emergency passenger slides |
| Open Sequence | Opens all doors in sequence |
| Close Sequence | Closes all doors in sequence |
| Close All | Closes all doors |

Note: picture shown currently no ECL and may differ when in use in simulator

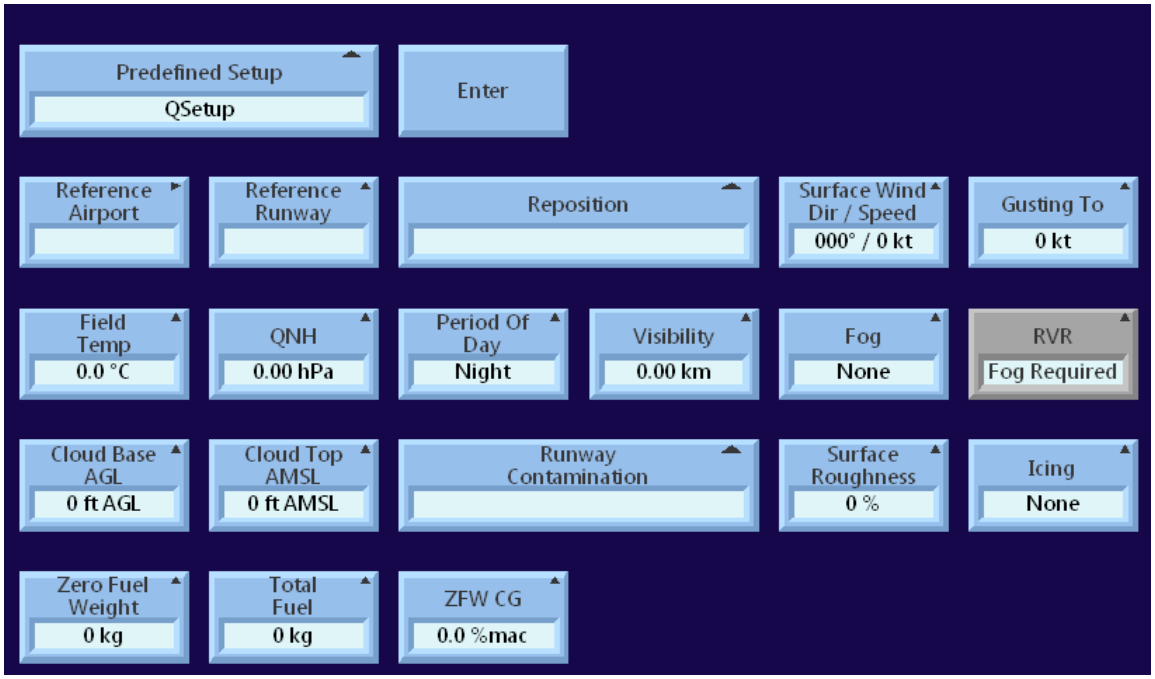
| | |
|---|---|
| Non Norm Complete | Access the non-normal checklist page |
| Override All | Override the current flight plans |
| Reset All | Resets all the non-normal checklist to idle |
| Norm Complete | Access the normal checklist page |

### 5.1.5 Quick Setup

This page is selectable from the **Aircraft Control** tab suite and allows you to quickly set up a training exercise from a single page.

To set up a training exercise:

- Select Predefined Setup. A pop-up menu is displayed listing the available setups.
- Select the required setup. The predefined values are displayed in each of the buttons on the page.
- To modify the values, select the appropriate button and enter the new value.
- Select Enter to confirm the set up values. Flight Freeze is set and the new values are entered into the simulation. While the data is being entered, the Enter button text changes to Setup in Progress (Will Take ~ 45s).
- Deselect Flight Freeze to continue the training exercise.



## 5.2 Position Control

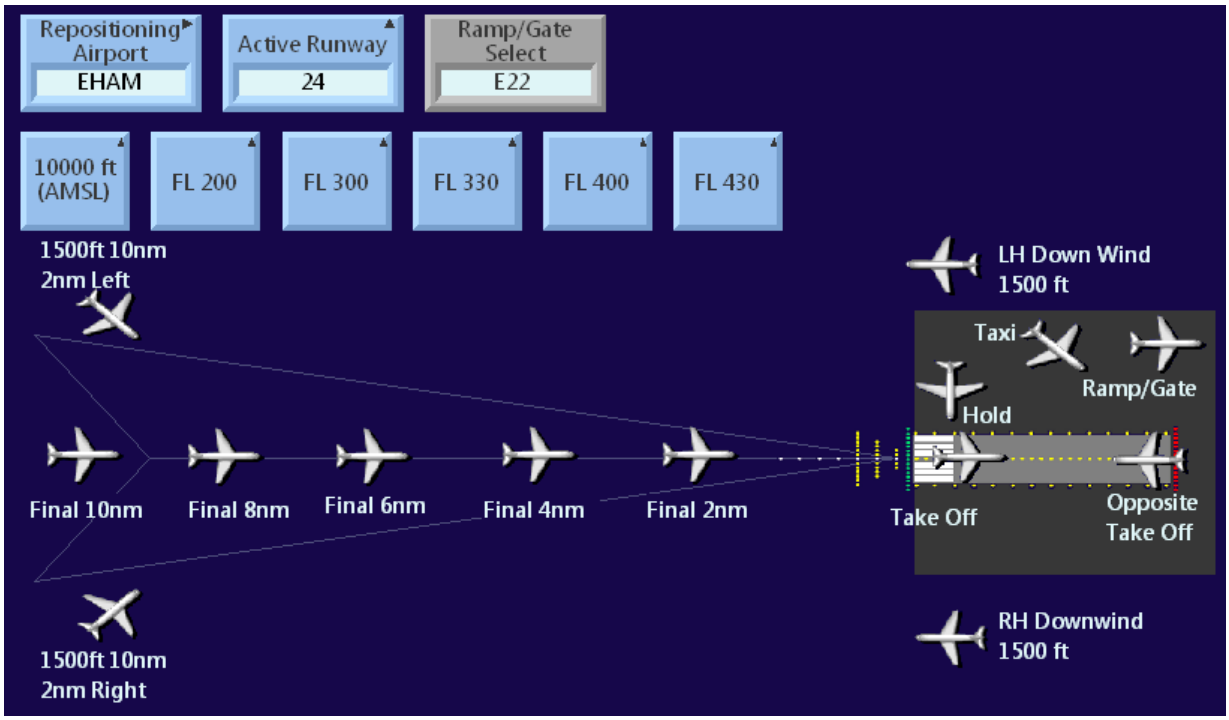
Selectable from the **Page Navigation Toolbar**, the Position Control tab suite comprises 3 tabs providing access to the following pages:


- **Reposition** page which allows you to reposition the aircraft relative to any selected airport and runway.
- **Aircraft Slew** page.
- **Pushbacks** page.

### 5.2.1 Reposition

This page is selectable from the **Position Control** tab suite and the **Crash Conditions** page and allows you to reposition the aircraft relative to any selected airport and runway.

To initiate a reposition, select the appropriate touchpoint. Flight freeze is set automatically during the reposition. When the reposition is completed, deselect Flight Freeze to continue the training exercise.



| | |
|---|---|
| Repositioning Airport | Displays the Airport Select page which allows you to select the airport that will be used for the next reposition. When reposition is selected, the selected airport becomes the active airport. The currently selected airport is displayed in the button. |
| Active Runway | Displays a pop-up menu which allows you to select the runway that will be used for the next reposition. When reposition is selected, the selected runway becomes the active runway. The currently selected runway is displayed in the button. |
| Ramp/Gate Select | Displays a pop-up menu which allows you to select the ramp and gate to be used for the reposition. |
| Special Repositions | Special Repositions allow unique in air repositions to be set up for a particular airport and runway. This is in addition to the normal in air repositions available from the Reposition page. The Special Reposition button on the IOS is only authorised when Special Repositions have been set up for the reposition airport.<br><br>When a Special Reposition is selected it triggers the same sequence of events as a normal in air reposition including visual blanking, CNIA popup, aircraft trimming and flight freeze activation. The required latitude, longitude, heading, altitude etc. for special repositions cannot be modified by the Instructor, but can be set by a technician via the apts XML file. |

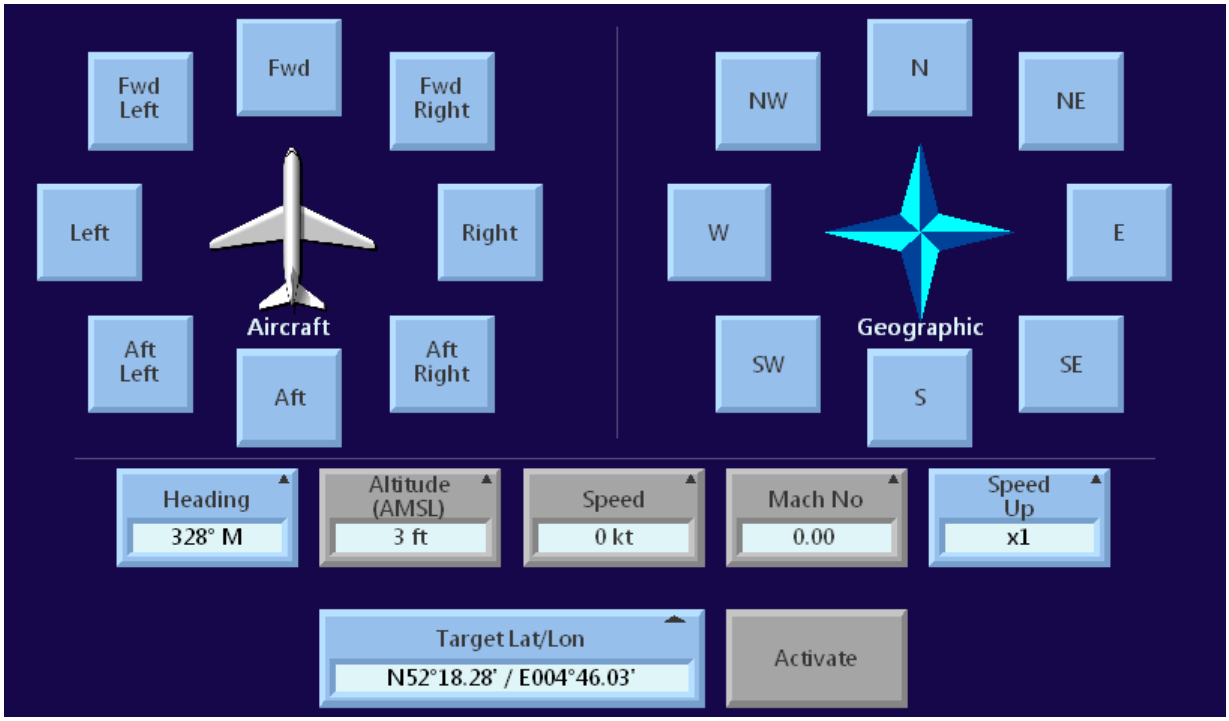
Details of each of the repositions are given below:

| | Distance along extended centreline, or "On G/S" | Cross Track | Heading | Altitude | Speed | Configuration Gear | Flaps | Speedbrake |
|---|---|---|---|---|---|---|---|---|
| **On Ground** | | | | | | | | |
| Takeoff | According to the Airport/Runway in use. Hold point aligned will be the hold closest to the landing strip end. Taxi point will be approximately 2000 ft back from the hold position. | | | | - | Down | 2 | armed |
| Opposite Takeoff | | | | ON GND | - | Down | 2 | armed |
| Taxi | | | | ON GND | - | Down | 1 | armed |
| Hold | | | | ON GND | - | Down | 1 | armed |
| Ramp / Gate | According to Airport in use | | | ON GND | - | Down | 0 | armed |
| **In Air** | | | | | | | | |
| 10 nm 2 nm Left | 10 nm | 2 nm Left | | 3000 ft | Calculated | Up | 1 | stowed |
| 10 nm 2 nm Right | 10 nm | 2 nm Right | RW | On G/S | Calculated | Up | 1 | stowed |
| Final 10 nm | 10 nm | ON LOC | RW | On G/S | Calculated | Up | 1 | stowed |
| Final 8 nm | 8 nm | ON LOC | RW | On G/S | Calculated | Up | 1 | stowed |
| Final 6 nm | 6 nm | ON LOC | RW | On G/S | Calculated | Up | 2 | stowed |
| Final 4 nm | 4 nm | ON LOC | RW | On G/S | Calculated | Down | Full | armed |
| Final 2 nm | 2 nm | ON LOC | RW | On G/S | Calculated | Down | Full | armed |
| LH Down Wind | -2.0 nm | 3 Nm Left | RW+180 | 1500 ft | Calculated | Up | 1 | stowed |
| RH Down Wind | -2.0 nm | 3 Nm Right | RW+180 | 1500 ft | Calculated | Up | 1 | stowed |
| **Air Work** | | | | | | | | |
| FL100 | | | RW | 10000 ft | | Up | 0 | stowed |
| FL200 | | | RW | 20000 ft | | Up | 0 | stowed |
| FL300 | | | RW | 30000 ft | | Up | 0 | stowed |
| FL330 | | | RW | 33000 ft | | Up | 0 | stowed |
| FL400 | | | RW | 40000 ft | | Up | 0 | stowed |
| FL430 | | | RW | 43000 ft | | Up | 0 | stowed |

### 5.2.2 Aircraft Slew

This page is selectable from the **Position Control** tab suite.

**NOTE:** Flight Freeze is set automatically during reposition.



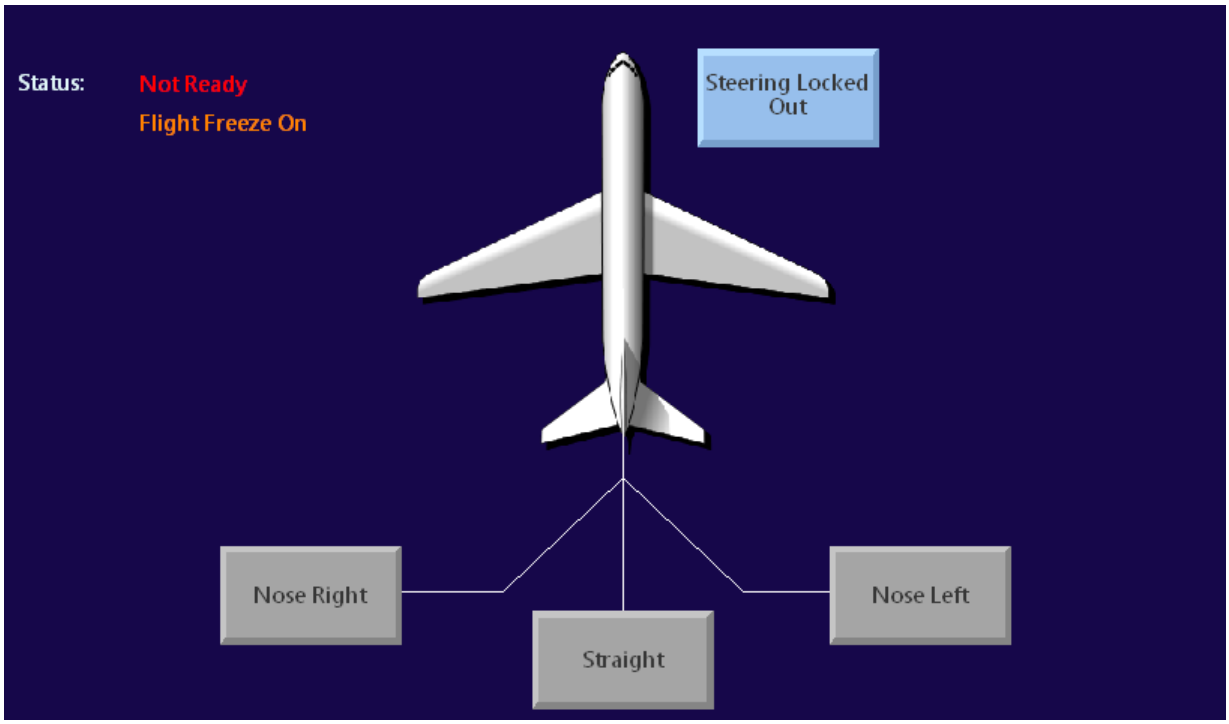

| | |
|---|---|
| Aircraft | Allows aircraft to be repositioned relative to its current position. Selecting a touchpoint moves the aircraft in that direction. Releasing the touchpoint stops the action. |
| Geographic | Allows aircraft to be repositioned relative to its geographic heading. Selecting a touchpoint moves the aircraft in that direction. Releasing the touchpoint stops the action. |
| Heading<br>Altitude (AMSL)<br>Speed<br>Mach No | Allow value of associated parameters to be changed. |
| Speed Up | Allows aircraft ground speed to be changed (other aircraft parameters are not affected). |
| Target Lat/Lon | Allow geographic position of the aircraft to be set. Select Activate to confirm setting. |
| Activate | Confirms the requested LAT/LONG setting. |

### 5.2.3 Pushbacks

This page is selectable from the **Position Control** tab suite.

Selection of any pushbacks is prevented by:

- Flight Freeze selected ON
- Position Freeze selected ON
- Resposition being actioned
- Ground Cart connected to the aircraft
- External Air connected to the aircraft
- Thrust to high, such that the tug would be pushed back
- Aircraft moving
- Aircraft in Flight



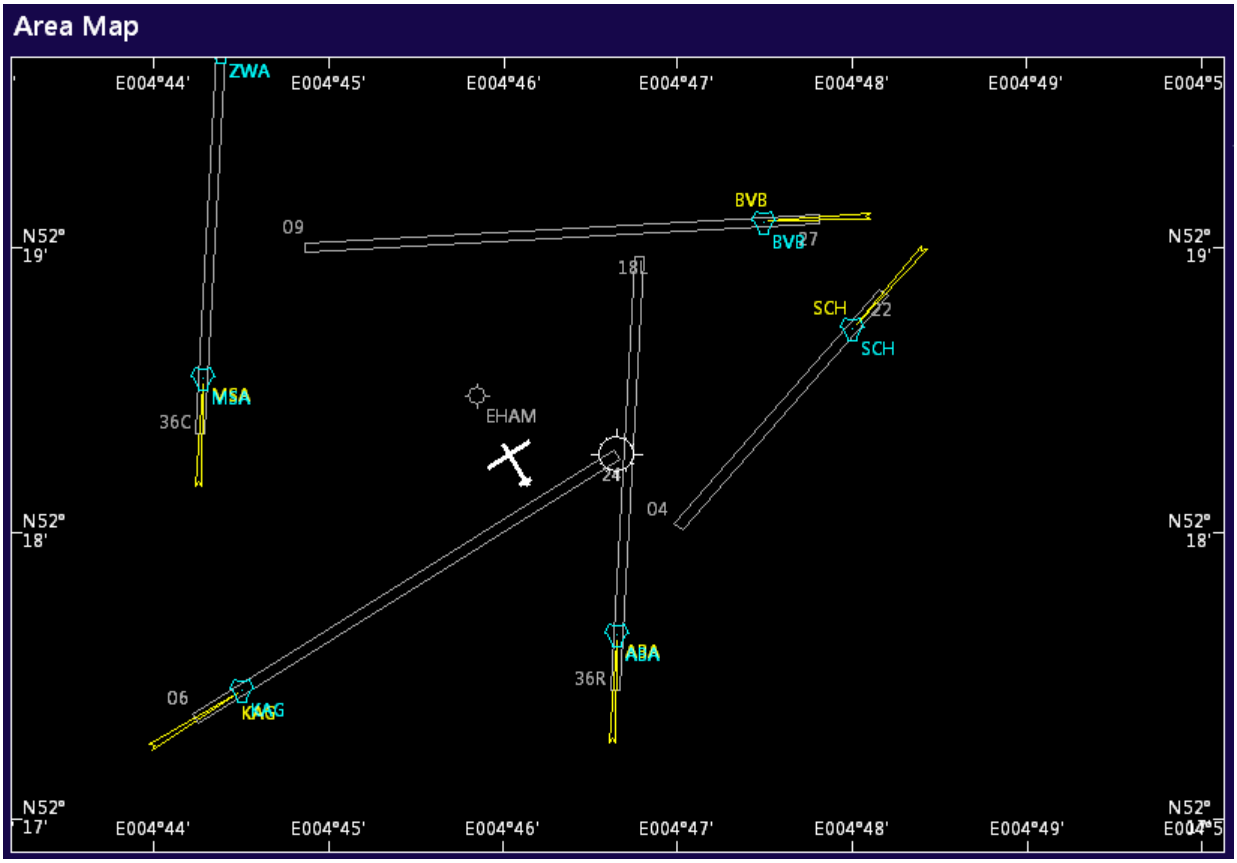

Note: to activate / selected any pushback prior, the Steering Locked Out needs to be activated.

| | |
|---|---|
| Steering Locked Out | Disconnects nose wheel steering from rudder pedals. |
| Nose Right | Aircraft is reversed from ramp and turned 90° to the left. |
| Nose Left | Aircraft is reversed from ramp and turned 90° to the right. |
| Straight | Aircraft is reversed from ramp in a straight line. |

## 5.3 Area Map

This page is selectable from the Page Navigation Toolbar and displays the aircraft flight path relative to the airport and the navigational facilities in the area defined by the scale of the map. The following display modes are available:

- Ref Airport
- A/C North Up
- A/C Heading Up




### 5.3.1 Ref Airport

The map is centred on the currently active airport with true north at the top of the screen.

The following elements can be displayed:

| | Colour | Comments |
|---|---|---|
| NDB Radio Navigation Stations | **Green** | Normal. Displayed with appropriate symbols, identification code and frequency. |
| VHF Radio Navigation Stations and waypoints | **Cyan**<br><br>**Magenta**<br>**Red** | = Normal. Displayed with appropriate symbols, identification code and frequency.<br><br>= When stations are tuned.<br>= Failed. |
| Airports(with ICAO code) | **Grey** | Map centre airport. |

| | | |
|---|---|---|
| Aircraft track | **Red** | Last 16 minutes displayed. |
| Storm | **Green**, **Yellow**, **Amber**, **Red Magenta** | Outlines only when selected but not active. Full colour image when active. Colours depict storm reflectivity (intensity). |
| Snapshot | **Red** | Red “S” in a circle and snapshot number. |
| Microburst | **Magenta** | |
| Windshear | **Magenta** | |
| Lat/Long grid | White | |
| Spider Web | White | |
| Aircraft location | White | |
| TCAS traffic | | If applicable. The relative altitude and a vertical speed arrow (where applicable) are displayed for each traffic symbol. |
| | **Red** square | Resolution advisory. |
| | **Amber** circle | Traffic advisory. |
| | White lozenge (solid) | Proximate traffic. |
| | White lozenge (wire frame) | Out-of-range aircraft. |

By default the following are only displayed when the map scale is less than 20nm:

| | **Colour** | **Comments** |
|---|---|---|
| Outer markers | **Yellow** | |
| Middle markers | **Yellow** | |
| Inner markers | **Yellow** | |
| ILS and LDA fans | **Yellow** | Orientated to the true heading of the localiser beam. |
| Identification code and frequency of ILS and LDA | **Yellow** | |
| Runways | **Grey** | Orientated to the true heading of the runway axis. |
| Identification code of runway in use | **Grey** | |

The map range can be set to one of a number of preset values to maintain the present map centre and the current aircraft position on the map.

The aircraft track is shown as a line drawn from the centre towards the edge of the display. As the edge of the display is reached, the scale of the map automatically changes to the next available. When the aircraft approaches the edge of the largest map, the map mode changes automatically to A/C North Up (with the aircraft at the centre).

### 5.3.1 A/C North Up

The map is centred on the aircraft with true north at the top of the screen. The navigational facilities move in relation to the aircraft and the track is shown as a line leading backwards from the aircraft. All other features are the same as Active Airport Mode.

### 5.3.2 A/C Heading Up

The aircraft symbol is fixed at the mid-point between the centre and lower edge of the map with aircraft true heading at the top of the screen. The navigational facilities move in relation to the aircraft. All other features are the same as Active Airport Mode.

### 5.3.3 The following selections are available


### 5.3.4 Map Toolbar

When Map pages are displayed, the Map Toolbar appears directly beneath the Page Navigation Toolbar.

| | |
|---|---|
| Mode/Range | Displays Map Mode/Range popup which allows the map display mode to be set and the map range to be selected manually or automatically.<br><br>The map display mode defines the map centre. The currently selected mode is shown on the icon. The following options are available; Active Airport, A/C North Up and A/C Heading Up.<br><br>The map range allows the diameter of the map to be selected manually or automatically. If Auto is selected, the range changes as the aircraft nears the edge of the map, maintaining the current map centre and ensuring the current aircraft position remains on the display. |
| De-clutter | Displays the Map Declutter keypad which allows you to control the quantity and type of information shown on the map display. |
| Full Screen | Displays the map over the whole screen (page title, permanent readouts and toolbars are removed from the display).<br><br>Touching the screen again restores the display format to normal. |
| A/C Slews | Displays the A/C Slew keypad which allows you to change the geographical position, speed, heading and altitude of the aircraft. |
| Wind Slew | Allows you to change the wind speed and direction. When selected, a white circle with a projecting arrow and the Surface Wind Slew keypad are displayed. |

| | |
|---|---|
| | Touch the area map display to change the wind speed and direction. The keypad readouts and the size and direction of the arrow will change accordingly. Select OK on the keypad to confirm the selection. |
| Rng/Brg | Allows you to determine the range and bearing to radio facilities or a lat/long position. When selected, a white square frame (centred at the map reference position) and the **Range & Bearing** keypad are displayed.<br><br>Move the white square frame to select a lat/long position and use the keypad to determine the range and bearing. |
| Sel On Map | When selected, a while circle and the **Select Entity On Map** keypad are displayed. Move the white circle to select an area of interest and use the keypad to select required facility.<br><br>When a facility has been successfully selected, the Select Station menu is displayed to allow you to:<br><br>• Display station information<br>• Fail/restore the facility<br>• Display range/bearing information<br>• Set the facility as the map centre<br><br>Selecting range/bearing displays the ident, bearing and range of the facility in the map display title bar. |
| Storm Ctrl | Displays the Storm Control menu to allow you to control and modify the storm models. |

### 5.3.5 Map Declutter

This popup is displayed when De-clutter is selected on the Map Toolbar.

| | |
|---|---|
| Auto | Selects/deselects Auto mode.<br><br>In Auto mode, the display of symbols is automatically and selectively controlled as the area covered increases or decreases.<br><br>In Manual mode, the display of the symbols is controlled by this keypad. |
| Freq | Displays radio station broadcast frequency details. |
| APT | Displays airport positions and ICAO codes, and enables the RWY button. |
| RWY | Only operable when APT is selected on. Displays and identifies airport runways, and enables ILS and MKR buttons. |
| ILS | Only operable when RWY is selected on. Indicates where runway ILS facilities exist. |
| MKR | Only operable when RWY is selected on. Displays location of runway outer, middle and inner marker beacons. |

| | |
|---|---|
| VHF lo pwr | Displays location of low–powered VHF stations. |
| VHF hi pwr | Displays location of high–powered VHF stations. |
| NDB | Displays location of NDB stations. |
| AWY MKR | Displays locations of airway marker beacons. |
| Approach Data | Displays active runway identification and approach radio facilities. |
| Snapshots | Identifies locations where snapshots were taken. |
| Terminal Waypoints | Displays location of waypoints in the terminal area. |
| Enroute Waypoints | Displays location of route waypoints incidental to the flight plan. |
| Storm | Displays storm data. |
| Traffic | Displays location of traffic. |
| Web | Overlays the display with a 'spider web' (compass rose) with radials at 45° intervals and circles at full and half range from the centre, annotated in accordance with the current display range. Mutually exclusive with Grid. |
| Grid | Overlays the display with a latitude/longitude grid of lines, identified with their co-ordinates. The interval between the lines varies with map range. Mutually exclusive with Web. |
| Track | Displays a trace of the aircraft flight path. |
| Erase Track | Momentary action. Deletes existing trace of aircraft flight path. |
| Close | Removes keypad from display. |

### 5.3.6 A/C SLEW

| | |
|---|---|
| Position | Displays a white square frame (centred at the aircraft position) and the Position Slew keypad.<br><br>Move the white square frame and use the keypad to set a target value for aircraft position. |
| Heading | Displays a white circle with a projecting arrow (at the map centre), and the A/C Heading Slew keypad.<br><br>Move the arrow around the circle to set the target value for the aircraft heading and confirm selection using the keypad. |
| Heading Left, Heading Right | Move the aircraft in the associated direction, relative to its current position. |

### 5.3.7 Range & Bearing

| | |
|---|---|
| Readouts | Display current range and bearing to the radio facility or lat/long position selected by the white square frame. |
| Zoom In | Steps down through the map ranges with each selection. |
| Zoom Out | Steps up through the map ranges with each selection. |
| Rng/Brg Reference | Updates the range and bearing information in the map display title bar with the range and bearing to the facility or lat/long position selected by the white square frame. |
| Set as map centre | Causes the map to be redrawn with the facility or lat/long position selected by the white square frame as the map centre. |
| Slew aircraft to selected | Slews the aircraft to the selected range & bearing. |

| | |
|---|---|
| Enter Ident | Displays the alphanumeric keypad to allow a facility to be selected by its ident. When a facility has been successfully selected, the Select Station menu is displayed to allow you to:<br><br>• Display station information<br>• Fail/restore the facility<br>• Display range/bearing information<br>• Set the facility as the map centre<br><br>Selecting range/bearing displays the ident, bearing and range of the facility in the map display title bar. |
| Close | Removes keypad from display. |

### 5.3.8 Select Entity On Map

| | |
|---|---|
| APT<br><br>RWY<br><br>ILS<br><br>MKR<br><br>VHF lo pwr<br><br>VHF hi pwr<br><br>NDB<br><br>AWY MKR | Allow the associated facilities to be displayed / hidden during station selection. Refer to Declutter for a description of each station type. |
| Zoom In | Steps down through the map ranges with each selection. |
| Zoom Out | Steps up through the map ranges with each selection. |
| OK | Displays the Select Station menu of details for those stations within the area of interest defined by the white circle. The menu displays “Nothing Found” if there are no stations within the area of interest. |
| Enter Ident | Displays the alphanumeric keypad to allow a facility to be selected by its ident. |
| Cancel | Removes the keypad from the display. |

### 5.3.9 Storm Control

This toolbar is selectable from the Map Toolbar and allows you to control and modify the storm models.

| | |
|---|---|
| SELECT | Displays the Storm Select keypad which shows the available storm models pictorially and dimensionally. When a storm is first selected, it is inactive and is displayed in outline form in its default position on the Map display, but it will not be shown on the weather radar display. |

**NOTE:** It may be necessary to change the map range to make the storm visible.

| | |
|---|---|
| STATUS | Activates/deactivates the selected storm model. When a storm is activated, the complete image is displayed on the Map display and the storm is shown on the weather radar display.<br>If the storm characteristics (position, rotation and drift) are changed, the button legend shows Modified. Selecting the button activates the modified storm. |
| POSITION | Displays a white square frame (at the centre of the storm model) and the Storm Position keypad.<br>Move the white square frame and use the keypad to select a position for the storm. |
| ROTATION | Displays a white circle with a projecting arrow (at the centre of the storm model) and the Storm Rotation keypad.<br>Move the arrow round the circle to set the storm rotation and confirm the selection using the keypad. |
| DRIFT | Displays a white circle and arrowhead (at the map centre) and the Storm Drift keypad to allow you to select the storm drift speed and direction.<br>Move the arrowhead around the circle to select the direction and away from the circle to select the speed. Confirm the selection by selecting OK on the keypad. |
| BRIGHTNESS | Displays the Storm Brightness keypad to allow you to control the intensity of the storm image on the Map display. Select High, Medium or Low.<br>**NOTE:** The outline storm display is always shown at High brightness. |
| MAP RANGE | Displays the RANGE keypad which allows the diameter of the map to be selected manually or automatically. If AUTO is selected, the range changes as the aircraft nears the edge of the map, maintaining the current map centre and ensuring the current aircraft position remains on the display. |

### 5.3.10 Storm Position

| | |
|---|---|
| Readout | Displays current geographical position of the storm. |
| Zoom In | Steps down through the map ranges with each selection. |
| Zoom Out | Steps up through the map ranges with each selection. |
| OK | Used to confirm the position selected by the white square frame as the storm position. |
| Enter Ident | Displays the alphanumeric keypad to allow a radio facility to be selected by its ident. The position of facility will then be the position of the storm. |

| | |
|---|---|
| Cancel | Removes the keypad from the display. |
| Manual Lat/Lon | Allows you to set the geographical position of the storm. |
| Active Rwy | Centre the storm at the active runway. |

#### 5.3.11 Storm Rotation

| | |
|---|---|
| Readout | Displays current storm rotation. |
| Zoom In | Steps down through the map ranges with each selection. |
| Zoom Out | Steps up through the map ranges with each selection. |
| OK | Used to confirm the rotation selected by the white arrow as the storm rotation. |
| Cancel | Removes the keypad from the display. |

## 5.4 Navigation/Communications

Selectable from the **Page Navigation Toolbar**, the Navigation/Communications tab suite comprises 5 tabs providing access to the following pages:

- **Comms** page which allows you to simulate radio communication between the ground and the flight crew.
- **ATIS (US)** page which allows you to manually control ATIS messages.
- **ACARS** page.
- **Radio Stations** page which allows you to fail and subsequently restore radio stations.
- **GPS** page.
- **ATC Data** page.

### 5.4.1 Comms

This page is selectable from the Navigation/Communications tab suite and allows you to simulate radio communication between the ground and the flight crew.

**Tuned Frequencies**

| | |
|---|---|
| SELCAL | The display in each of the buttons (VHF 1, VHF 2, VHF 3, HF 1, HF 2) indicates the currently tuned frequency of each of the radio receivers. |

| | |
|---|---|
| Mech Call | The display above the button indicates the station called from the flight deck. No display when there is no transmission. Selecting this button when station displayed above allows you to respond to a call from the flight deck. Selecting this button when no station displayed initiates a call from the ground crew to the flight deck. Chimes continue to sound until call acknowledged by flight crew, or self-cancel after 30 seconds. |

| | |
|---|---|
| Purs Call | Initiates a cabin to cockpit call. |

**Private Interphone**

| | |
|---|---|
| Capt<br>Obs<br>F/O | Allow you to communicate directly with the flight crew. Once selected, the boomset of the associated crew member is connected to your boomset in a separate audio system, allowing direct communication between you and the crew member. You do not need to use the mic PTT as a hot mic system is active. While private interphone is active, other crew members can receive and transmit as normal. |

**Miscellaneous**

| | |
|---|---|
| Ground Call | Allows you to simulate a call from the ground crew. |
| Attendant Call | Allows you to simulate a call from one of the attendant stations. |
| Attendant Location | Selecting this button displays a pop-up menu to allow you to select the attendant location. When station is displayed in button, select the equivalent station to respond to the call from the flight deck. When no station is displayed, selecting an attendant location initiates a call from the ground crew to the flight deck. Chimes continue to sound until call acknowledged by flight crew, or self-cancel after 30 seconds. |
| Satcom Voice Priority | Allows you to see the priority (Emergency/Safety/Non-Safety/Public) of the satcom voice call |
| Service Interphone | Switches flight interphone comms from the instructors station to 'service interphone' mode. The crew can only communicate with the instructor using flight interphone if the overhead panel service interphone switch is selected on. Normal crew flight interphone operation is unaffected. |
| Comm Noise | Allows you to set a level of noise interference on the communications channels. |
| RT Chatter | Starts/stops radio chatter transmission.<br><br>Chatter stops automatically when the instructor or flight crew transmit, and resumes two seconds after the end of the transmission. |
| Real/Training Override | Allows you to select either TRAINING or REAL WORLD modes |

### 5.4.2 ATIS

This page is selectable from the **Navigation/Communications** tab suite and allows you to manually control ATIS messages.

ATIS messages are automatically created for each airport according to the weather conditions selected for the airport. When the conditions at the airport are changed, the associated ATIS message is automatically updated, and its information letter is incremented.

**NOTE:** The ATIS messages will be displayed in US format for all airports in the USA and in ICAO format for all other airports.

To manually update an ATIS message:

Select ATIS Override which stops the ATIS message automatically updating when the weather conditions for the airport change.

- Select Airport, which displays **Airport Select** page.
- Select the airport where you want to update the ATIS message. ATIS page is redisplayed.
- The values of the parameters in the current ATIS message are displayed.
- Select the parameter you want to change and enter the new value.

The function of each touchpoint is described below:

| | |
|---|---|
| Airport | Displays Airport Select page to allow you to select the required airport. |
| Information | Indicates the information letter (revision level) of the ATIS message (A to K). Selecting the button allows you to select previous revisions of the message for transmission. |
| Approach Type | Allows you to select the type of radio navigation station used on approach. |
| Runway In Use | Allow active runway to be changed for currently selected airport. |
| ILS Status | Allows you to select the type of failure associated with the ILS on the currently active runway. |
| UTC,<br>Runway Condition,<br>Precip,<br>Visibility Restriction,<br>Cloud 1 Condition,<br>Cloud 2 Condition | Allow the condition of the associated parameter to be changed |
| Wind Direction,<br>Wind Speed,<br>Visibility,<br>Cloud 1 Height,<br>Cloud 2 Height,<br>Field Temperature,<br>Dew Point<br>QNH (ICAO format only),<br>QFE (ICAO format only) | Allow the value of the associated parameter to be changed. |
| RVR T/Down,<br>RVR Midfield,<br>RVR Rollout | Allow the runway visual range (RVR) to be set for the associated points on the runway. |
| RVR Inop | Displays a pop-up menu, with selection options TDZ INOP, Midfield INOP and Rollout INOP, which allow you to suppress the broadcast of RVR information for the associated runway area. |
| SIGMET | Displays significant meteorological information. |
| Complementary Message No | Displays Complementary ATIS Message page. |
| ATIS Override | Stops the ATIS message updating automatically to allow you to edit the message using the buttons on the page. |

### 5.4.3 ACARS

This page is selectable from the Navigation/Communications tab suite.

| | |
|---|---|
| Voice Contact Frequency | Allows you to select the frequency for voice contact. |
| Ground Stn Status | Allows you to select the ground station status. |
| Transmit Voice Contact Request | Sends uplink requesting voice contact on selected frequency. |
| AOC Flight Plan/Wind Profile | Allows selection and transmission of a predefined flight plan and associated wind profile data. |
| ACARS Ground Station Reset | Performs a total reset on the ACARS system. |
| AOC Message Suite Selection | Allows selection of a predefined message suite. |
| Message Log | Displays ACARS Message Log Page. |

### 5.4.4 Radio Stations

This page is selectable from the Navigation/Communications tab suite and allows you to fail and subsequently restore radio stations. The buttons on the right of the page allow you to select a radio station. The display at the left of the page lists the currently failed radio stations.

**Select by Identifier**

| | |
|---|---|
| VHF NavAid<br>NDB NavAid<br>Airway Marker<br>ILS | Display the alphanumeric keypad to allow you to enter a radio station identifier. After the identifier has been entered, a pop-up menu is displayed to allow you to select a specific radio aid at the station.<br><br>**NOTE:** If the keypad identifier is unknown, the message Nothing Found is displayed on the pop-up menu. |

**Select by Airport / Runway Reference**

| | |
|---|---|
| Airport ICAO Code | Displays the Airport Select page to allow you to select the airport to be used as a reference for the ILS, Comm Stations and Landing Markers buttons. |
| Runway | Displays pop-up menu to allow you to select the runway to be used as a reference for the ILS, Comm Stations and Landing Markers buttons. |
| ILS / GLS<br><br>Comm Stations<br><br>Landing Markers | Display a pop-up menu listing the appropriate radio stations for the selected airport/runway. When you select a radio station, another pop-up menu is displayed to allow you to fail individual radio aids at the station. |
| Restore All Failed Stations | Restores all failed radio stations. |

### 5.4.5 GPS

This page is selectable from the Navigation/Communications tab suite.

| | |
|---|---|
| No of Usable Satellites | Allows you to change the number of usable satellites. |

### 5.4.6 ATC Data

This page is selectable from the Navigation/Communications tab suite.

| | |
|---|---|
| CPDLC Connection | Initiates a CPDLC link between you (as air traffic controller) and the flight crew. |
| CPDLC Disconnect | Disconnects a CPDLC link. |
| CPDLC Log | Displays the CPDLC Log page which displays a chronological list of all previous uplink and downlink messages. |
| Create CPDLC Messages | Displays the CPDLC page which allows you to set up a CPDLC message for transmission to the flight crew, and to read messages from the flight crew. |
| ADS Periodic Reports | Displays the ADS Periodic Reports page which allows you to select period or demand-driven reports from the aircraft. |
| ADS Event Reports | Displays the ADS Event Reports page which allows you to select an event-driven report from the aircraft. |
| AOC/CPDLC Predefined Messages | Displays the AOC/CPDLC Predefined Messages page which allows you to select from a list of pre–defined messages. |
| Inhibit Local Centre Change | The local center is unaffected by aircraft position and maintains its current value. ATC logon/disconnection is independent of changes in aircraft position. |
| Inhibit ATC Logon | Logon requests initiated either by the crew or automatically in response to a change in local centre are refused. Existing ATC connection are terminated on receipt of a logon request. |
| Ground Stn Status | Displays a popup menu to allow you to change the status of the ground station. |
| ATC Data Reset | Resets the ATC DATA simulation to status at start of training exercise:<br>• Message log is cleared<br>• All existing ADS and CPDLC links are disconnected<br>• Any messages queued for transmission are deleted |

**ADS Periodic Reports**

This page is selectable from the ATC Data page and allows you to select period or demand-driven reports from the aircraft. The report is displayed on the page.

| | |
|---|---|
| Period (Seconds) | Allows you to set the time period between reports. |
| Request Periodic Report | Sends signal to the aircraft requesting reports to be sent at the specified time period. |
| Cancel Periodic Report | Sends signal to the aircraft cancelling the periodic report. |
| Demand Report | Sends signal to the aircraft requesting an immediate report. |
| Clear Display | Clears the report window. |
| Basic Group | Allow you to select which groups of parameters are reported in a periodic report. |

| | |
|---|---|
| Flight Ident Group<br><br>Met Group<br><br>Predicted Route Group<br><br>Earth Ref Group<br><br>Air Ref Group<br><br>Int Proj Intent Group<br><br>Fixed Intent Group | The buttons change colour to indicate selection status:<br><br>Blue - not included in the report<br><br>Green - included in the report, but not currently displayed<br><br>Amber - included in the report and currently displayed in the report window<br><br>**NOTE:** The Basic Group are always included in the report; the others are optional. |

**ADS Event Reports**

This page is selectable from the ATC Data page and allows you to select an event-driven report from the aircraft.

| | |
|---|---|
| Vertical Rate<br><br>Lateral Deviation<br><br>Altitude Ceiling<br><br>Altitude Floor<br><br>Active Waypoint Change | Allow you to set the event parameters that will initiate the report. |
| Request Event Report | Sends signal to the aircraft requesting report to be sent when the specified event is reached. |
| Cancel Event Report | Sends signal to the aircraft cancelling the event report. |

**Create CPDLC Messages**

This page is selectable from the **ATC Data** page and allows you to set up a CPDLC message for transmission to the flight crew, and to read messages from the flight crew.

| | |
|---|---|
| Downlink window | Displays the message from the flight crew. |
| Uplink window | Displays the message to be sent to the flight crew. Selecting CLEAR removes the message from the window. |
| Message buttons | Allow you to select a message for editing and subsequent transmission.<br><br>The buttons initially display the groups of messages available. Selecting a group displays the messages associated with the |

| | |
|---|---|
| | group against the right–hand set of buttons. Selecting a message displays the associated parameters against the right–hand set of buttons. Selecting a parameter displays the value of the parameter in the Uplink window and you can use the keypad to edit the value. |
| Send Uplink | Transmits the message in the Uplink window to the aircraft. |
| ATC Data Reset | Resets the ATC DATA simulation to status at start of training exercise:<br>• Message log is cleared<br>• All existing ADS and CPDLC links are disconnected<br>• Any messages queued for transmission are deleted |

**CPDLC Log**

This page is selectable from the **ATC Data** page and allows you to select from a list of pre-defined messages. Up to 20 routes are available with up to 20 messages per route. Select the required route and message, then select SEND UPLINK to send the message to the aircraft. Use the SCROLL UP/SCROLL DOWN buttons to scroll through the routes messages.

| | |
|---|---|
| Send Uplink | Transmits the message in the Uplink window to the aircraft. |
| ATC Data Reset | Resets the ATC DATA simulation to status at start of training exercise:<br>• Message log is cleared<br>• All existing ADS and CPDLC links are disconnected<br>• Any messages queued for transmission are deleted |

**CPDLC Log**

This overlay displays a chronological list of all previous uplink and downlink messages. Each entry provides an abbreviated version of the associated message, the time received/sent and the status of the message. Selecting the button associated with a message displays the **CPDLC Log Overlay 2** which provides the full text of the message.

**CPDLC Log Overlay 2**

This overlay displays the full text of an uplink or downlink message. If the status of a downlink message is OPEN, then the SELECT RESPONSE button is enabled. Selecting this button displays the CPDLC page to allow you to prepare and send a response to the aircraft.

**Downlink Message Overlay**

This overlay is displayed automatically when a downlink is received from the aircraft. The downlink message is displayed, together with three possible responses. Select SEND to send the associated uplink response. If you do not want to use one of the pre-selected messages, select OTHER which displays the CPDCL page to allow you to prepare and send an alternative response.

## 5.5 Lesson Plans

### 5.5.1 Lesson plan index

This page is selectable from the **Page Navigation Toolbar** and allows you to select the appropriate lesson plan for the training exercise. Selection may be from either the displayed table or loaded from a USB drive.

The lesson plan system enables a training session to be run automatically or semi-automatically with minimum instructor intervention.

Each lesson plan consists of a series of events which are executed sequentially. The events can be activated automatically when a condition is satisfied (for example, when a quantity reaches a specific level, or a pre-defined altitude is reached), or manually by selecting a button. In addition, it is possible to have non-sequential events in the lesson plan which do not form part of the sequential flow but can be selected at any time.

The lesson plans are created off-line using the Lesson Plan Editor utility.

The lesson plans can be displayed in either Profile view or List view.

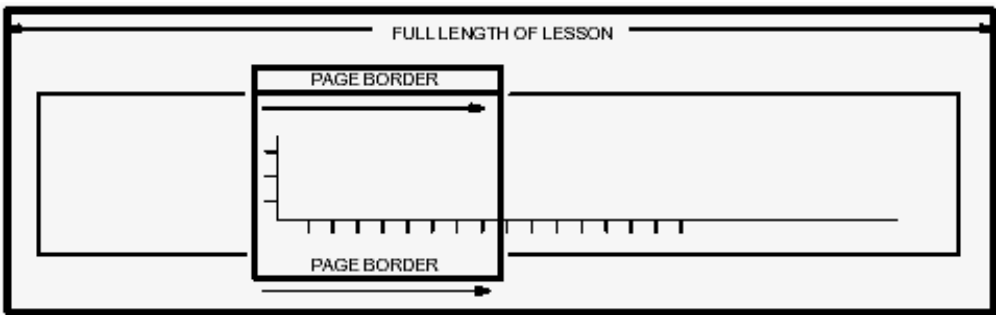
**NOTE:** A lesson plan may be 'locked' in either view from the Editor.

When a lesson plan is selected, the associated lesson plan is displayed in either Profile view or List view, as defined in the Editor when the lesson plan is created.

Only one lesson plan can be active (running) at any time.

### 5.5.2 Profile View

The lesson plans are displayed graphically as a plot of altitude (vertical axis) against time (horizontal axis). Each lesson plan can be several hours in duration, but only a section of the plan can be displayed at any one time. Therefore, the display scrolls automatically from left to right as the lesson proceeds, keeping the current section of the lesson on the screen. Scroll arrows are provided to allow you to manually scroll through the lesson plan. A 'time-bar' is displayed along the horizontal axis indicating the elapsed time since the lesson plan started.




Each lesson plan consists of a series of numbered events which are displayed as buttons on the screen. As the lesson progresses, the events are activated sequentially. Automatic events (indicated by an A) occur when the pre-set conditions are met; manual events (indicated by an M) require action by you before they become active. To execute a manual event, either touch the button and then select Execute from the pop-up menu, or select Enter Item. To override the preset conditions for an automatic event, either touch the button and select Execute form the pop-up menu, or select Enter Item. In addition, you can override the event sequence to repeat or skip a particular section (for example). To jump to a particular event, select the appropriate button and then select Goto from the pop-up menu.

The status of each event in the lesson plan is indicated by the colour of the associated button. The button is normally blue and changes to orange when the event is active (ie., it is the current event), then to red when the event is executing. The button changes to dark green when the event is completed. If the lesson plan is not running, all the buttons are grey and cannot be selected.

Events may have more than one set of associated actions and you can change the set that is active for the current lesson plan. To select a different set of actions, touch the button and then select the appropriate button on the pop-up menu. The selection of a non-default set has to be made before the corresponding event is executed. The sets of actions are mutually exclusive so that only one set will be activated during the execution of the lesson plan.

If an event has multiple actions, the actions will be executed sequentially

In the Lesson Plan Editor, it is possible to create complete sequencing scenarios by linking two events that would otherwise be disjointed. At run time, once the first linked event has been completed, the second linked event will become the current event; all intervening events are ignored.

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**List View**

The lesson plans are displayed in a vertically sequenced list with the initial event at the top of the screen. As the lesson progresses, the display scrolls vertically to keep the current section

of the lesson on the screen. Scroll arrow buttons are provided to allow you to manually scroll through the lesson plan. Operation of the lesson plan is the same as in Profile view.

**Operating a Lesson Plan**

Buttons are provided in the Lesson Toolbar to allow you to control the lesson:

- Play (or Stop). Selecting Play starts the lesson plan. Selecting Stop stops the lesson plan.
- Enter Item, which allows you to activate manual events. Automatic events also respond to Enter Item and act as if the associated preset conditions have been satisfied.
- Mode, which allows you to switch between Manual and Automatic modes. In Manual mode, automatic events must be manually selected before the event will start to monitor the preset conditions.

  **NOTE:** A lesson plan can be 'locked' in either mode from the Lesson Plan Editor.

- View, which switches between Profile and List view.
- Back and Forward arrow buttons, which allow you to scroll through the lesson plan.

The lesson stops automatically when the last event has finished executing.

## 5.6 Maintenance Index

This page is selectable from the **Page Navigation Toolbar** and lists all the available Maintenance pages which are provided for use by the technician to set up the IOS and to run acceptance tests on the simulator.

Use of the pages is password-protected.

## 5.7 Malfunctions / Circuit Breakers

Selectable from the **Page Navigation Toolbar**, the Malfunctions/Circuit Breakers tab suite comprises 2 tabs providing access to the following pages:

- **Malf Index** page which displays a list of available malfunctions.
- **Circuit Breaker Index** page which allows you to trip the circuit breakers associated with the aircraft equipment specified on the button.

### 5.7.1 Malfunction Index

This page is selectable from the **Malfunctions/Circuit Breakers** tab suite and lists the available malfunction pages by aircraft system to assist you in locating the required malfunction.

Selecting one of the aircraft system touchpoints displays the associated malfunction page which lists the available malfunctions for that system.

A Malfuncton Mode selection touchpoint is available in the Toolbar area.

Two types of malfunction are available:

- Discrete (eg., Landing Gear Fail)
- Variable, where you can set the value for the malfunction (eg., Fuel Leak)

The selection procedure for discrete and variable malfunctions is similar, although that for a variable malfunction allows for the associated parameter to be changed.

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### 5.7.2 Malfunction Selection

The malfunctions can be set to take immediate effect, or can be armed to take effect when specified aircraft parameters reach a pre-determined value.

The Malfunction Mode touchpoint allows you to select either Direct or Arm.

In Direct mode, selecting a malfunction touchpoint immediately activates or de-activates the associated malfunction.

In Arm mode, selecting a malfunction displays a pop-up menu with selections according to malfunction status and type:

| | |
|---|---|
| Arm | Displays the **Arm Expression** popup menu which allows you to select the arming conditions for the malfunction. One or more conditions can be specified, as required.<br><br>When arming conditions have been set, the malfunction becomes active when the corresponding parameters reach the selected values. |
| Activate | Only operable when the selected malfunction is inactive. Activates the malfunction immediately. |
| Clear | Only operable when the selected malfunction is already armed or active. De–activates the malfunction immediately. |
| Close | Removes the menu from display. |

### 5.7.3 Arm Expression

This menu is displayed when a malfunction is selected in Arm mode and allows you to set one or more parameter conditions to trigger the selected malfunction.

| | |
|---|---|
| ( | Used to identify the start of a trigger component in a trigger definition that includes more than one condition. |
| ) | Used to identify the end of a trigger component in a trigger definition that includes more than one condition. |
| CLR | Only operable following data entry. Clears the last data item entered. |
| AC | Only operable following data entry. Clears all the components that have been entered. |
| OK | Only operable when valid selection has been made. Used to confirm your selections. Selected values will be entered into the simulation. |
| Cancel | Removes the menu from the display. |

### 5.7.4 Trigger Parameters:

| | |
|---|---|
| User Trigger | Activates the malfunction when User Malf Trigger on Direct Actions Area is selected. |
| Speed crosses V2<br><br>Speed crosses V1 | Discrete selections. |
| Flap Lever | Displays the Flap Lever pop–up menu which allows you to select one of a number of flap lever positions as the trigger condition. |
| Ldg Gear Lever | Displays the Ldg Gear Lever pop-up menu which allows you to select either UP or DOWN as the trigger condition. |
| Heading | Displays transition options (see below). Selecting an option displays the numeric keypad to allow you to enter a heading value as the trigger condition. |
| Speed (IAS) | Displays transition options (see below). Selecting an option displays the numeric keypad to allow you to enter a speed value as the trigger condition. |
| Altitude(AMSL) | Displays transition options (see below). Selecting an option displays the numeric keypad to allow you to enter an altitude (above mean sea level) value as the trigger condition. |
| Altitude(AGL) | Displays transition options (see below). Selecting an option displays the numeric keypad to allow you to enter an altitude (above ground level) value as the trigger condition. |
| Timer | Displays the Timer keypad to allow you to enter a time as the trigger condition. |

When a trigger component has been defined, **and** and **or** selections are displayed to allow further conditions to be added, if required.

### 5.7.5 Transition Options

The transition options displayed depend on the type of parameter selected:

**Angular parameters (heading)**

| | |
|---|---|
| <@ backs thru | Sets the condition to activate when the aircraft turns left through the specified angle. |
| @ crosses | Sets the condition to activate when the parameter crosses the specified angle from a greater or lesser angle |
| >@ veers thru | Sets the condition to activate when the aircraft turns right through the specified angle |

**Non-angular parameters (speed, altitude)**

| | |
|---|---|
| <@ sinks below | Sets the condition to activate when the parameter changes to any value below the specified value from a greater value. |
| @ crosses | Sets the condition to activate when the parameter crosses the specified value from a greater or lesser value. |
| >@ rises above | Sets the condition to activate when the parameter changes to any value above the specified value from a lesser value. |
| < less than | Sets the condition to activate whenever the value is less than the specified value. |
| > greater than | Sets the condition to activate whenever the value is greater than the specified value. |

## 5.8 Plots

Selectable from the Page Navigation Toolbar, the Plots tab suite allows you to monitor the flight crew's performance on take-off and landing. This page comprises 4 tabs providing access to the following pages:

- Approach page.
- Runway page.
- Departure page.
- T/O and landing Performance page.
- Tail Clearance page.

### 5.8.1 Approach

This page is selectable from the **Plots** tab suite and consists of three graphs:

- Localiser deviation plot (distance left/right from the localiser; Y axis scale is dependent on localiser beam width and X axis scale is dependent on Scale button selection)

- Glideslope deviation plot (distance above/below the glideslope; Y axis scale is dependent on glideslope beam width and X axis scale is dependent on Scale button selection)
- Approach Speed plot (aircraft speed and a reference speed; Y axis scale is 120 to 220 kt, X axis scale is dependent on Scale button selection).

The approach plots are active when the aircraft is in proximity to the active runway. The 'box' limits around the runway are:

- Front: 12 nm
- Back: Runway length
- Side: 7000 ft either side
- Top: 10 000 ft

The 'zero' point on the graphs is the latitude and longitude co-ordinate of the glideslope beam as defined in the Navigation Data, offset laterally to be on the runway centreline.

The localiser beam width and glideslope beam width and angle are obtained from the Navigation Data. If no data exists, the following defaults are used:

- Localiser beam width: 4º
- Glideslope beam width: 1.44º
- Glideslope angle: 3º

By default, the localiser and glideslope beams are displayed with deviation lines at 1 and 2 dots either side of the beam centreline.

By default, the localiser and glideslope lines flash when the aircraft is within the proximity `box' (4Nm) of the active runway but outside of the glideslope beam.

The plots are erased under the following conditions:

- Change in active runway
- When the Erase Track button is selected by the instructor

The lateral and vertical deviation graphs display a vertical yellow bar across the plot as an 'incident' marker. This is displayed when any malfunction is activated while these plots are active. The position of the marker is determined by the aircraft position at the time of the incident.

The position of Approach Landing Markers are displayed graphically (as cones) on the vertical deviation graph. The localiser and glideslope beams and the approach marker cones are displayed in red if the associated radio navigation stations are failed.

The position of Microbursts and Windshears are displayed using representative symbols (a shear sign and a spiral with a down arrow) on the lateral and vertical deviation graphs. The symbols are displayed in magenta.

The speed graph plots two parameters: aircraft speed (red) and a reference speed (Vref) (green).

The following data readouts and buttons are displayed in the plot toolbar area (directly below the Page Navigation Toolbar):

- Elevation
- Rwy Cond
- Gusting To
- C/L Dev
  This is the current deviation distance in dots from the active runway centre line. It is always calculated, irrespective of the aircraft's position.
- G/S Dev
  This is the current deviation distance in dots from the active runway glideslope beam centreline (or virtual glideslope if non-GS equipped). It is always calculated, irrespective of aircraft position.
- Max C/L Dev
  This is the maximum localiser deviation from the active runway. It is always calculated, irrespective of the aircraft's position.
- Max G/S Dev
  This is the maximum glideslope deviation from the active runway. It is always calculated, irrespective of the aircraft's position.
- TCH
  This is the height at which the aircraft crosses the runway threshold as it flies down the ILS glideslope.
- T/D Dist
  This is the point to point distance from the aircraft to the active runway touchdown zone. This touchdown zone is represented on most runways as 2 large white blocks either side of the runway centreline, approximately 1000ft from the runway threshold.
- T/D ROD

| | |
|---|---|
| Erase Track | Erases the current plot. |
| Scale | Allows you to change the scale of the plot (auto, high, medium, low). |

### 5.8.2 Runway

This page is selectable from the **Plots** tab suite and consists of four graphs:

- A/C Position (aircraft position on the runway; Y axis scale is dependent on runway width, X axis scale is dependent on runway length)
- Brakes (left and right pedal deflection; Y axis scale is 0 to100 %, X axis scale is dependent on runway length
- Speed (aircraft speed; Y axis scale is 0 to 200 kt, X axis scale is dependent on runway length)
- Rudder Pedals (deflection left (negative) and right (positive) in degrees; Y axis scale is -20º to +20º, X axis scale is dependent on runway length)

The runway plots are active when the aircraft is on the active runway or less than 35 ft above it.

The 'zero' point on the graphs is the active runway threshold.

The graphs are sized to the actual active runway length as defined in the Navigation Data. There is no Scale control.

The plots are erased under the following conditions:

- Change in active runway
- When the Erase Track button is selected by the instructor

The position of Microbursts and Windshears are displayed using representative symbols (a shear sign and a spiral with a down arrow) on the aircraft position graph. The symbols are displayed in magenta.

The aircraft position graph displays a vertical yellow bar as an 'incident' marker. This is displayed when any malfunction is activated while this plot is active.

The following data readouts and buttons are displayed in the plot toolbar area (directly below the Page Navigation Toolbar):

- Elevation
- Rwy Cond
- Gusting To

| | |
|---|---|
| Erase Track | Erases the current plot. |

### 5.8.3 Departure

This page is selectable from the Plots tab suite and consists of three graphs:

- Lateral deviation (distance left/right from the extended runway centreline; X and Y axis scales are dependent on Scale selection)
- Altitude (aircraft altitude; X and Y axis scales are dependent on Scale selection)
- Speed (aircraft speed; Y axis scale is 100 to 250 kt, X axis scale is dependent on Scale button selection)

The departure plots are active when the aircraft is in proximity to the active runway. The 'box' limits around the runway are:

- Front: 0 nm (ie., active runway threshold)
- Back: 12 nm
- Side: 15 000 ft either side
- Top: 10 000 ft

The 'zero' point on the graphs is the active runway threshold.

The runway image on the lateral deviation graph is sized to the actual runway length as defined in the Navigation Data.
The plots are erased under the following conditions:

- Change in active runway
- When the Erase Track button is selected by the instructor

The lateral and vertical deviation graphs display a vertical yellow bar across the plot as an 'incident' marker. This is displayed when any malfunction is activated while these plots are active. The position of the marker is determined by the aircraft position at the time of the incident.
The position of Microbursts and Windshears are displayed using representative symbols (a shear sign and a spiral with a down arrow) on the lateral deviation and altitude graphs. The symbols are displayed in magenta.
The following data readouts and buttons are displayed in the plot toolbar area (directly below the Page Navigation Toolbar):

- Elevation
- Rwy Cond
- Gusting To

| | |
|---|---|
| Erase Track | Erases the current plot. |
| Scale | Allows you to change the scale of the plot (auto, high, medium, low). |

### 5.8.4 T/O and Landing Performance

This page is selectable from the Plots tab suite and displays the values of various aircraft parameters during take-off, landing or go-around phases to enable the performance of the flight crew to be checked.
The values of the parameters are displayed automatically when the aircraft enters the appropriate phase of the flight. The parameters are grouped into two types:

- Type 1, which are snapshots at a particular moment in time and are cleared whenever a new Take–off or Landing Phase is detected.
- Type 2, which are updated in real time and change as the value of the parameter changes.

### 5.8.5 Takeoff Performance

The takeoff phase is initiated when:

- Aircraft is on ground
  and
- Aircraft < 200ft from runway centreline
  and
- Ground speed > 0.1 kt
  and

- Either TLA ≥ 50°

This is the origin for calculations of distance and time.

The Takeoff phase ends when:

- Gear and flaps are up
  or
- Takeoff Reset is selected
  or
- In–air Reposition is selected
  or
- Aircraft On Jacks is selected

| | |
|---|---|
| T/O Posn (Type 1) | When above conditions are satisfied. |
| V1 (Type 1) | If T/O detected and calibrated airspeed ≥ V1 as calculated by the host software using the QRH data. |
| VR (Type 1) | If T/O detected and calibrated airspeed ≥ VR as calculated by the host software using the QRH data. |
| V2 (Type 1) | If T/O detected and calibrated airspeed ≥ V2 as calculated by the host software using the QRH data. |
| VLOF (Type 1) | If T/O detected and aircraft no longer on ground. |

After calibrated airspeed has exceeded 40 kt:

| | |
|---|---|
| Eng Fail (Type 1) | If N1 on either engine ≤ 70% and both TLAs have not changed by more than 1° |
| Power Idle (Type 1) | If on ground and both TLAs ≤ 5° |
| Brake On (Type 1) | If on ground and either of the outboard tyre forces = 1000 lbs |
| Reversers (Type 1) | If on ground and either TLA ≤ –90° |
| VStop | |
| 15 Ft Ht AGL (Type 1) | If radio altitude ≥ 15 ft |
| 35 Ff Ht AGL (Type 1) | If radio altitude ≥ 35 ft |
| 2nd Seg Grad (Type 2) | Updated in real time with the average climb gradient to the current point from where the gear has been raised and there is a positive rate of climb. This is continually updated to the point where the flaps are moved from take-off setting. This last calculated gradient (which is effectively the average over the whole segment) is held after the flaps start to move. This value is held until the initiation of another T/O Phase is detected. |

### 5.8.6 Landing Performance

The Landing Phase is initiated when:

- Aircraft is not on ground
  and
- Rate of climb ≤ –200ft/min
  and
- Radio altitude ≤ 100 ft
  and
- Calibrated airspeed ≥ 1.5 x (stall speed of current configuration)

The Landing Phase ends when:

- Takeoff Reset is selected
  or
- In-air Reposition is selected
  or
- Aircraft On Jacks is selected

| | |
|---|---|
| 50 Ft AGL (Type 1) | When radio altitude ≤ 50 ft |
| T/D Point (Type 1) | When any strut has load on it. This is the origin for the time and distance calculations for 50 FT AGL and VSTOP. |
| VStop (Type 1) | When aircraft is on ground and ground speed ≤ 10 kts |

### 5.8.7 Go-around (GA) Phase

The GA Phase is initiated when:

- Aircraft is in Landing Phase
  and
- Either TLA ≥ 50°
  and
- Rate of climb is positive
  and
- Radio altitude < 2000 ft

| | |
|---|---|
| App Climb Grad (Type 2) | Updated in real time with the average gradient to the current point from where a GA Phase has been detected and the gear is up. This is continually updated to the point where the GA Phase is no longer valid. This last calculated gradient is effectively the average over the whole of the segment. This value is held until initiation of another landing is detected. |
| Ldg Climb Grad (Type 2) | Updated in real time with the average gradient to the current point from where a GA Phase has been detected and the gear is down. This is continually updated to the point where the GA Phase is no longer valid. This last calculated gradient is effectively the average over the whole of the segment. This value is held until initiation of another landing is detected. |

### 5.8.8 Tail Clearance

This page is selectable from the Plots tab suite and consists of a graph that displays the tail proximity to the ground.

| | |
|---|---|
| Erase Track | Allows you to clear the display |

## 5.9 Airport Traffic

This page is selectable from the Traffic tab suite and allows you to control the appearance and movement of up to 6 repeating and 2 non-repeating routes. These incidents are normally designed to present the aircrew with a hazard, in the vicinity of the runway, during take-off or landing. They may, additionally, be used to provide traffic scenarios in and around the airport.

### 5.9.1 Repeatable Routes

Repeatable Routes initialise a number of entities using the Separation time specified for the runway the route uses. The separation is constant for any entities using that runway, if the separation time is changed, any new entities created by the system will have the new time. Select a row to load, clear or stop a repeatable route.

### 5.9.2 Non-Repeatable Routes

Non-Repeatable Routes either start when the scenario play button is pressed or when triggered by an ownship event (see Play Trigger Structure). Select a row to load, clear or stop a non-repeatable route.

### 5.9.3 Runway Touchdown Intervals

| | |
|---|---|
| Configure Intervals | Displays a popup menu to allow you to set touchdown intervals. Selected intervals times are displayed for each runway. |

### 5.9.4 Scenario Options

| | |
|---|---|
| Ownship Priority | Ownship Priority is used when the ownship is taking off and can be set to either Manual or Automatic. If in manual mode then the instructor has to decide if the ownship has enough space to take-off in respect to other landing aircraft. If in Automatic, the system will temporarily suspend the creation of new landing entities to give the ownship space to take-off. Once the ownship has taken off, the normal creation at that separation will be resumed. |
| Runway For Gen Routes | For airports with more than one runway (auto-generics or specifics) the Runway for Gen Routes button allows all generic routes (routes recorded at a generic airport, which can be used anywhere) within a scenario to use an alternative reference runway to the active runway. The button will only be active before the scenario begins, as the routes cannot be altered once a scenario has started. |

| | |
|---|---|
| Load | Displays the Scenario Select page. |

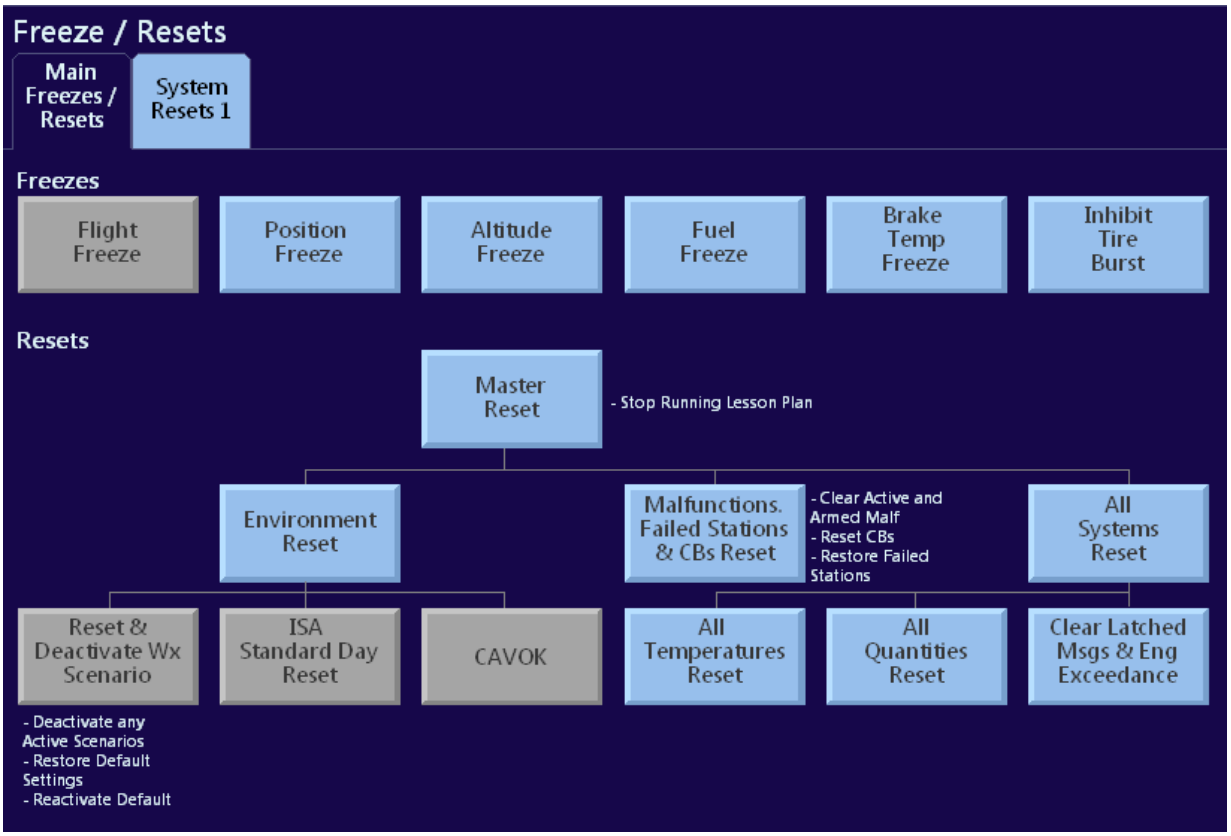
## 5.10 Freeze/Resets

Selectable from the Page Navigation Toolbar, the Freeze/Resets tab suite comprises 3 tabs providing access to the following pages:

- Main Freezes/Resets page which allows you to suspend and restart all or some of the simulated systems, and to reset the main aircraft systems to normal operating conditions.
- System Resets 1 page which allows you to reset aircraft systems and temperatures to normal operating conditions.
- System Resets 2 page which allows you to reset the associated comptuers to normal operating conditions.

### 5.10.1 Freeze / Resets

This page is selectable from the Freeze/Resets tab suite and allows you to suspend and restart all or some of the simulated systems, and to reset the main aircraft systems to normal operating conditions.




**NOTE:** IOS remains operational during all freeze states.

**Freezes**

| | |
|---|---|
| Total Freeze | Complete freeze of all simulated systems, except FMS. Simulator returns to level position and sound system is inhibited. Inputs to simulation from IOS and cockpit controls have no effect. |
| Flight Freeze | Freezes aerodynamic parameters (aircraft speed, attitude, altitude and geographical position). Aircraft systems remain operational. |
| Position Freeze | Freezes aircraft at current geographical location. All other aerodynamic and aircraft systems remain operational. |
| Altitude Freeze | Freezes aircraft altitude at current setting. All other aerodynamic and aircraft systems remain operational. |
| Fuel Freeze | Freezes fuel quantities at current value. Engine fuel flows unaffected, but no fuel depletion occurs. |
| Brake Temp Freeze | Freezes brake temperature, avoiding rising temp on brakes |
| Inhibit Tire Burst | Inhibits tires from bursting |

**Resets**

| | |
|---|---|
| Master Reset | Resets all systems and temperatures defined on the second page to normal operating conditions. Resets all active and armed malfunctions, restores all failed navigational facilities and clears all circuit breaker trip conditions.<br><br>**NOTE:** Popped circuit breakers must be manually reset. |
| Environment Reset | No storms, standard atmosphere, no icing conditions, no weather effects, no microburst/wind shear, no wind and no wind gradient, CAVOK, Horizon bright, Runway dry and smooth, visual day conditions, no turbulence, no TCAS, no ground traffic, Airport lighting reset. |
| ISA Standard Day Reset | Selects standard day weather conditions:<br>Tropopause level: FL 360<br>QNH: 1013.2 mb<br>Temperature gradient: -1.98°C/1000 ft<br>Sea level temperature: 15°C<br>Delta ISA: 0°C |
| Reset & Deactivate Weather Scenario | Deactivates any active scenarios, restores default setings and reactivates defined default scenario. |
| CAVOK | Clear All weather settings, sky clear |
| All Systems Reset | Resets all systems defined on the page to normal operating conditions. |
| All Temperatures Reset | Resets all temperatures defined on the page to normal operating conditions. |
| Malfunctions, Failed Stations & CBs Reset | Resets all active and armed malfunctions and restores all failed radio stations. |
| All Quantities Reset | Refills all quantities to default (hydraulic etc.) |
| Clear Latched Messages & | Clears latched messages from the CCR Status |

| | |
|---|---|
| Engine exceedance | |

### 5.10.2 System Resets 1

This page is selectable from the Freeze/Resets tab suite and allows you to reset aircraft systems and temperatures to normal operating conditions.

**NOTE:** IOS remains operational during all freeze states.

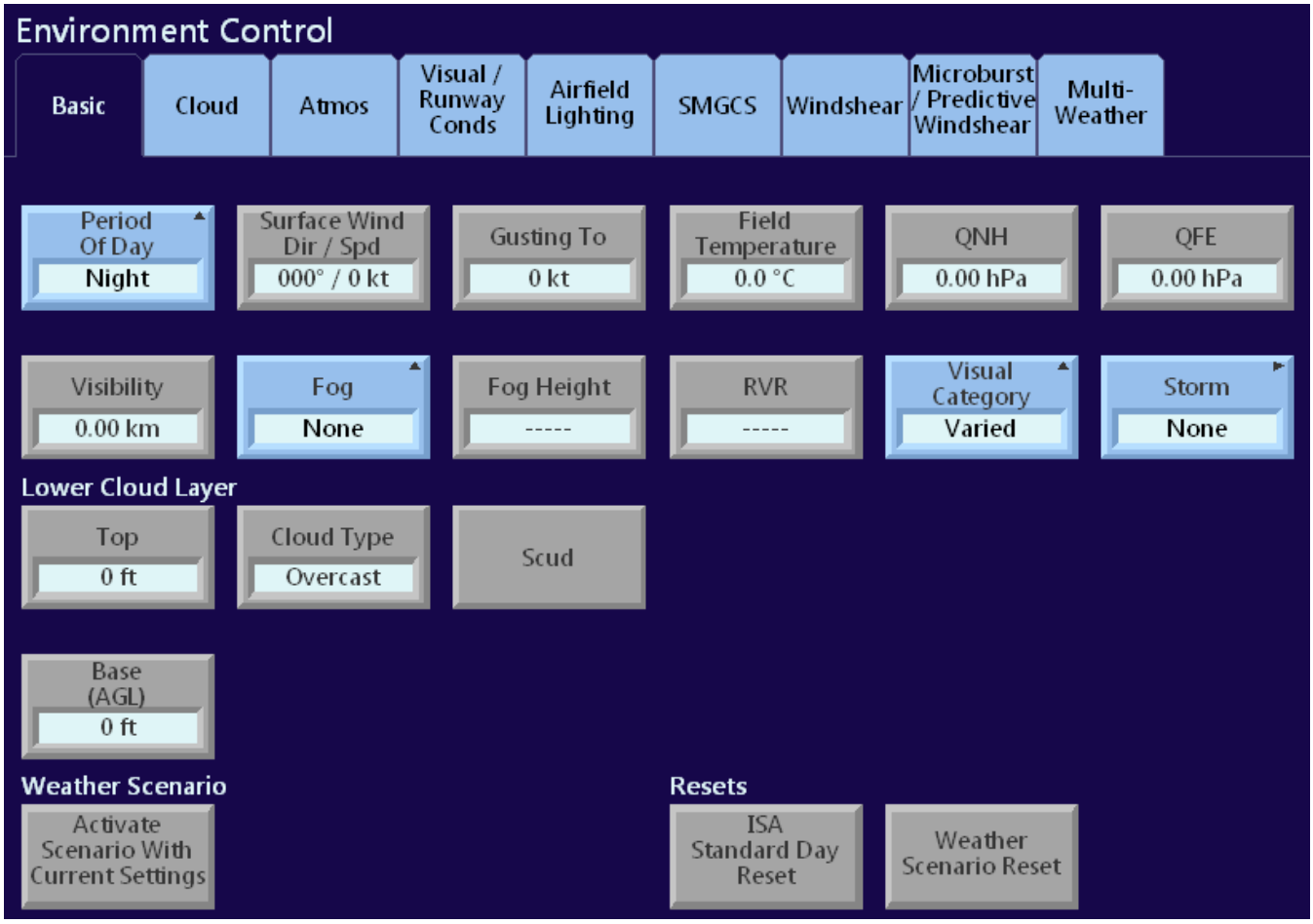
**Systems**

| | |
|---|---|
| ATA 21 Air Systems | Resets all ATA related systems |
| ATA 23 Comms | Resets all ATA related systems |
| ATA 24 Elec | Resets all ATA related systems |
| ATA 26 Fire | Resets all ATA related systems |
| ATA 27 Flt Ctrls | Resets all ATA related systems |
| ATA 28 Fuel | Resets all ATA related systems |
| ATA 29 Hyds | Resets all ATA related systems |
| ATA 30 Anti-Ice | Resets all ATA related systems |
| ATA 31 Instr | Resets all ATA related systems |
| ATA 32 Gear & Brakes | Resets all ATA related systems |
| ATA 34 Navigation | Resets all ATA related systems |
| ATA 35 Oxygen | Resets all ATA related systems |
| ATA 49 APU | Resets all ATA related systems |
| ATA 52 Doors | Resets all ATA related systems |
| ATA 71 Engines | Resets all ATA related systems |
| Sound | Resets the sound system |
| Malfunction Auto Reset | |

## 5.11 Environment Control

Selectable from the Page Navigation Toolbar, the Environment Control tab suite comprises 8 tabs providing access to the following pages:

- Basic page which allows you to control basic weather conditions.
- Cloud page which allows you to control cloud conditions.
- Atmos page which allows you to control atmospheric conditions.
- Visual/Runway Conds page which allows you to set various visual and runway conditions.
- Airfield Lighting page which allows you to set airfield lighting conditions.
- SMGCS page.
- Windshear page which allows you to select from a number of pre-defined windshear profiles.
- Microburst/Predictive Windshear page.
- Multiweather page which allows you to setup multiweather scenarios.




### 5.11.1 Basic

This page is selectable from the Environment Control tab suite and allows you to control basic weather conditions.

| | |
|---|---|
| Period of Day | Allows you to select the time of day (Day, Dusk, Dawn or Night) for the visual scene. |
| Surface Wind Dir/Spd | Allows you to set the surface wind direction/speed. |
| Gusting To | Allows introduction of pseudo-random gusts. A surface wind of at least 10 knots must be active for this function to be selectable. |
| Field Temperature | Allows you to set the temperature at the airport. |
| QNH | Allows you to set the QNH value. |
| QFE | Allows you to set the QFE value. |
| Visibility | Allows you to set the visibility range for the visual scene. |
| Fog | Allows type of fog to be selected from pop-up menu.<br>Selecting FOG automatically sets an RVR value. Likewise, setting an RVR value automatically inserts FOG. |
| Fog Height | Allows you to set the height of the fog layer. |
| RVR | Allows you to set the runway visible range. |
| Visual Category | Allows you to select from a number of pre-defined visual set-ups. |

| | |
|---|---|
| Storm | Displays the Area Map with the Storm Control Popup menu to allow you to control and modify the storm models. |

**Lower Cloud Layer**

| | |
|---|---|
| Top | Allows you to set the height of the lower cloud layer top above mean sea level. |
| Cloud Type | Allows you to select normal, scattered or broken cloud types. |
| Scud | Selects scud effects. |
| Base | Allows you to set the height of the lower cloud layer base. |

**Weather Scenario**

| | |
|---|---|
| Activate Scenario with Current Settings | Activates the currently selected Multiweather Scenario using the current settings. |

**Resets**

| | |
|---|---|
| ISA Standard Day Reset | Selects standard day weather conditions:<br>Tropopause level:FL360<br>QNH:1013.2 mb<br>Temperature gradient:-1.98°C/1000 ft<br>Sea level temperature:15°C<br>Delta ISA:0°C |
| Weather Scenario Reset | Restarts an active multi-weather scenario using the default values loaded upon initial activation of the scenario. |

### 5.11.2 Cloud

This page is selectable from the Environment Control tab suite and allows you to set various cloud conditions.

**High Altitude Cloud**

| | |
|---|---|
| Type | Allows you to select Blue Sky or one of a variety of different types of cloud. |

**Upper Cloud Layer**

| | |
|---|---|
| Top | Allows you to set the height of the upper cloud layer top above mean sea level. |
| Type | Allows you to select normal, scattered or broken cloud types. |
| Scud | Selects scud effects. |
| Base | Allows you to set the height of the upper cloud layer base. |

**Lower Cloud Layer**

| | |
|---|---|
| Top | Allows you to set the height of the upper cloud layer top above mean sea level. |
| Type | Allows you to select normal, scattered or broken cloud types. |
| Scud | Selects scud effects. |
| Base | Allows you to set the height of the upper cloud layer base. |

### 5.11.3 Atmos

This page is selectable from the Environment Control tab suite and allows you to set various atmospheric conditions.

**Cruise Layer**

| | |
|---|---|
| Wind Dir/Spd | Allows you to set the wind direction/speed. |
| Altitude | Allows you to set the altitude AMSL. |
| Turbulence | Allows you to select cobblestone or rough air turbulence conditions.<br>**NOTE:** Conditions are mutually exclusive. |
| Icing | Allows you to select icing conditions. |
| Jet Upset | Allows you to select special wind effects at the aircraft. |

**Intermediate Layer**

| | |
|---|---|
| Wind Dir/Spd | Allows you to set the wind direction/speed. |
| Altitude | Allows you to set the altitude AMSL. |
| Turbulence | Allows you to select cobblestone or rough air turbulence conditions.<br>**NOTE:** Conditions are mutually exclusive. |
| Icing | Allows you to select icing conditions. |

**Surface Layer**

| | |
|---|---|
| Wind Dir/Spd | Allows you to set the wind direction/speed. |
| Gusting To | Allows introduction of pseudo-random gusts. A surface wind of at least 10 knots must be active for this function to be selectable. |
| Turbulence | Allows you to select cobblestone or rough air turbulence conditions.<br>**NOTE:** Conditions are mutually exclusive. |
| Icing | Allows you to select icing conditions. |

**Temperature**

| | |
|---|---|
| Field Temperature | Allows you to set the Field Temp. |
| Lapse Rate | Allows you to set the Lapse rate. |

**Tropopause**

| | |
|---|---|
| Altitude (AMSL) | Allows you to set the height of the tropopause level. |

**Pressure**

| | |
|---|---|
| QNH | Allows you to set the QNH value. |
| QFE | Allows you to set the QFE value. |

**Temperature Inversion**

| | |
|---|---|
| Lower Altitude | Allows you to set lower altitude level. |
| Upper Altitude | Allows you to set upper altitude level. |
| Inversion Lapse Rate | Allows you to set the inversion lapse rate. |
| Activate Inversion | Select to enter the selections into the simulation. |

### 5.11.4 Visual/Runway Conds

This page is selectable from the Environment Control tab suite and allows you to set various visual and runway conditions.

| | |
|---|---|
| Period of Day | Allows you to select the time of day (Day, Dusk, Dawn or Night) for the visual scene. |
| Ambient Lighting | Allows you to set the level of ambient lighting to automatic, always on or always off. |
| Surface Roughness | Allows you to set the surface roughness as a percentage. |
| Contamination | Allows you to select from a list of available runway contaminations. |
| Visibility | Allows you to set the amount of visibility in kilometers. |
| Fog | Allows type of fog to be selected from pop-up menu. |
| Fog Height | Allows you to set the height of the fog layer. |
| RVR | Allows you to set the runway visual range. |
| Visual Category | Allows you to select from a number of pre-defined setups, detailed below: |

| Scenario | CAVOK | CAVU | CAT I | CAT II | CAT IIIA | CAT IIIB | Non precision | Circling | Min T/O |
|---|---|---|---|---|---|---|---|---|---|
| Upper Cloud Top ASL (ft) | - | - | - | - | - | - | - | - | - |
| Upper Cloud Base ASL (ft) | - | - | - | - | - | - | - | - | - |
| Upper Cloud Scud (Y/N) | No | No | No | No | No | No | No | No | No |
| Lower Cloud Top ASL (ft) | None | None | 10000 | 10000 | 10000 | 10000 | 8000 | 8000 | 10000 |
| Lower Cloud Base AGL (ft) | None | None | 230 | 130 | 70 | 40 | 1100 | 1000 | 400 |
| Lower Cloud Scud (Y/N) | No | No | No | No | No | No | No | No | No |
| Visibility (km) | 100 | 400 | 2 | 2 | 2 | 2 | 3 | 6 | 2 |
| RVR (meters) | None | None | 600 | 300 | 200 | 100 | None | None | 125 |
| FOG* | None | None | Ground | Ground | Ground | Ground | None | None | Ground |
| Fog Height AGL (ft) | None | None | 230 | 130 | 70 | 40 | None | None | 400 |

**NOTES:** (1) * Available Fog: None, Ground or Patchy
(2) Cloud Transition Depth is automatically defined by these settings.

| | |
|---|---|
| Scene | Displays a pop-up menu to allow you to select the type of visual scene. |
| Rain | Displays a popup menu which allows you to select the level of rain intensity. |
| Hail | Displays a popup menu which allows you to select the level of hail intensity. |

**Visual Effects**

| | |
|---|---|
| Lightning<br>Falling Snow<br>Blowing Snow<br>Blowing Sand<br>Sand Storm<br>Converging Birds<br>Volcanic Ash<br>Fire Trucks<br>Runway Incursion Vehicle<br>Animate Incursion Vehicle | Select the associated effect on/off. |

### 5.11.5 Airfield Lighting

This page is selectable from the Environment Control tab suite and allows you to set airfield lighting conditions.

| | |
|---|---|
| Runway Lighting | Displays popup menu listing all the available runways at the currently active airport to allow you to select a runway for lighting control. Currently selected runway is displayed on the button. |
| Rwy Lighting Control Mode | Allows you to select Auto or Manual mode. The currently selected mode is displayed in the button. In Auto mode, lighting levels are set to default whenever a new active runway is selected. In Manual mode, manually set levels are retained regardless of the runway in use. |
| All Lights Intensity | Displays popup menu to allow you to set the intensity of all the runway lights to the same level (0 = off, 5 = max). |
| Randomize | Sets the lighting intensities to random levels. |
| Env Lights | Display popup menu to allow you to set the intensity of the lights around the airport (0 = off, 5 = max). Current setting is displayed on the button. |
| Taxi | Display popup menu to allow you to set the intensity of the lights around the airport (0 = off, 5 = max). Current setting is displayed on the button. |
| Stop Bars | Allows you to switch on/off the stop bars lights. Current setting is displayed on the button. |
| VASI/PAPI<br>Centre<br>Edge<br>App<br>Strobe/Reil<br>T/Hold<br>TDZ | Display popup menu to allow you to set the intensity of individual sets of lights (0 = off, 5 = max). Current settings are displayed on the buttons. |

### 5.11.6 SMGCS

This page is selectable from the Environment Control tab suite.

**Surface Movement Guidance Control System (SMGCS)**

On change of airfield, if SMGCS are available this page will be populated with SMGCS route descriptions.

| | |
|---|---|
| Active Route | Selection of this button will cause 'ordinary' taxiway lights to be extinguished and only the appropriate taxiway lights in the near vicinity of the aircraft will be illuminated. |
| Activate Stop Bar | When selected, the next stop bar encountered will remain illuminated thus preventing onward travel. |
| Proceed Onto Runway | For SMGCS routes that convey the aircraft to a runway, the taxiway lighting from the final HOLD to the runway will only be illuminated when this button is selected. |
| Scroll Up/Scroll Down | These will only be authorised if the page cannot display all of the available SMGCS routes. |

### 5.11.7 Windshear

This page is selectable from the Environment Control tab suite and allows you to select from a number of pre-defined windshear profiles.

**Intensity**

| | |
|---|---|
| Profile Intensity | Allows you to select the intensity of the selected windshear profile as a percentage |

**Wind Training Aids**

- **WTA 1 Prior to Vr Vr -8 kts**
- **WTA 1 (Rotation 3° Pitch)**
- **WTA 1 (Landing) (300 ft)**
- **WTA 2 (Takeoff) (200 ft)**
- **WTA 3 (Takeoff) (100 ft)**
- **WTA 4 (Landing) (1200 ft)**

**FAA Approved Profiles**

- **Neutral**
- **Thunderstorm 1**
- **Thunderstorm 2**
- **Thunderstorm 3**
- **Thunderstorm 4**
- **Thunderstorm 5**
- **Thunderstorm 6 (JFK)**

- Frontal 1 (Tokyo 1966)
- Frontal 2 (Logan)
- Frontal 3

Select the required profile above to view a graphical representation of the associated profile.

### 5.11.8 Microburst/Predictive Windshear

This page is selectable from the Environment Control tab suite and allows you to select the position and intensity of the microburst.

**Predictive Windshear**

| | |
|---|---|
| Detection System | Enables/disables the predictive windshear function of Weather Radar. |

**Microburst**

| | |
|---|---|
| Intensity | Allows you to change the preset intensity value in percent from 10% to 100%. |

The pred-defined options are given below:

| Position | Intensity | Distance | Distance from Centreline |
|---|---|---|---|
| Takeoff | 50% | 1.0 NM | On CL |
| Takeoff | 50% | 1.8 NM | On CL |
| Approach | 50% | 3.0 NM | On CL |
| Approach | 50% | 1.2 NM | On CL |
| Approach | 50% | 1.2 NM | 0.5 NM Left |
| Approach | 50% | 1.2 NM | 0.5 NM Right |
| Approach | 50% | 0.8 NM | On CL |

### 5.11.9 Multi-Weather

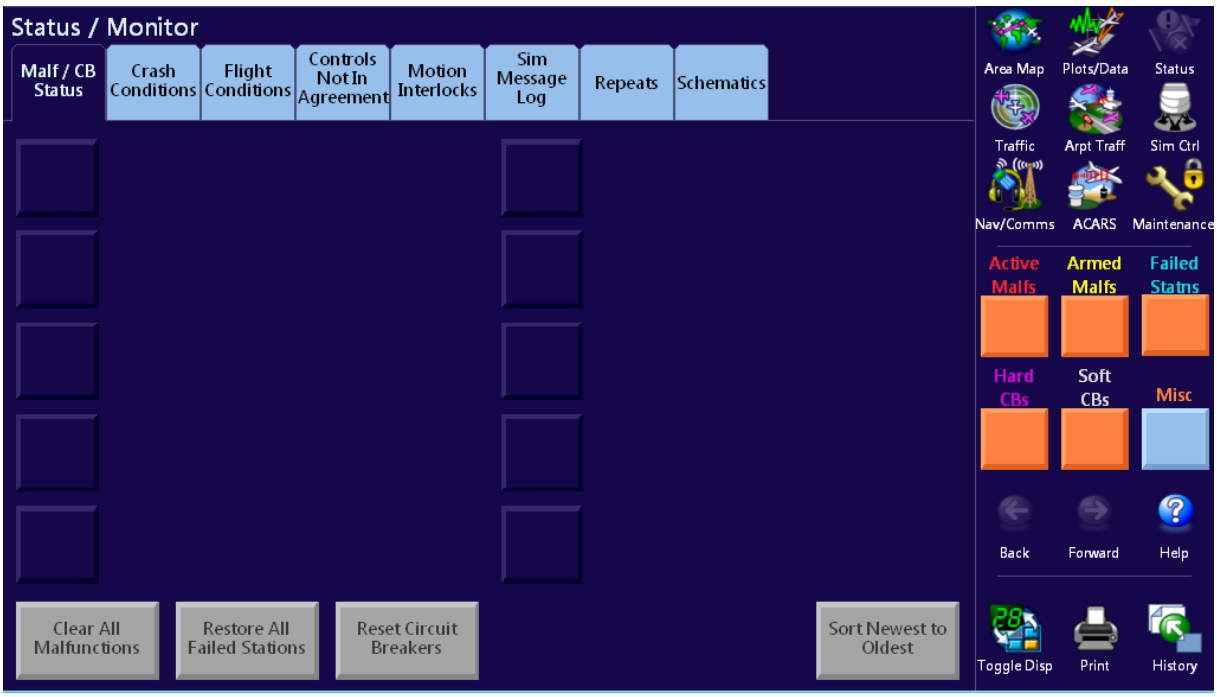
This page is selectable from the Environment Control tab suite to allow you to set up a variety of environmental parameters at each airport defined within the currently selected Multiweather Scenario. These parameters may only be edited when a Multiweather Scenario is active. At all other times the buttons are grey and unavailable for selection.
The Scenario Control functions and Closest Airport Data readouts are displayed on each of the four Multiweather Scenario Setup pages.

| | |
|---|---|
| Select Default Scenario | Displays the Multi-Weather Scenario Select page. This button is unavailable when a Scenario is active. |
| Airport | Displays the Multi-Weather - Airport page. |
| Scenario Storms | Toggles the Scenario Storms function on and off. Only available if a storm was defined within the Scenario when it was created. |
| Cloud | Displays the Multi-Weather - Cloud page that allows you to edit the cloud parameters at the selected airport. |
| Atmos | Displays the Multi-Weather - Atmos page that allows you to edit the wind, turbulence and icing parameters at the selected airport. |
| Visual/Runway Conds | Displays the Multi-Weather - Visual/Rwy Conds page that allows you to edit the visual effects and runway conditions at the selected airport. |
| Windshear | Displays the currently selected windshear profile. |
| Microburst | Displays the currently selected microburst profile. |
| Activate Scenario With Current Settings | Activates the currently selected settings. |
| Weather Scenario Reset | Resets weather scenario to normal operating conditions. |

### 5.12 Status / Monitor

Selectable from the Page Navigation Toolbar, the Status/Monitor tab suite comprises 6 tabs providing access to the following pages:

- Malf/CB Status page which displays the status of malfunctions, circuit breakers, radio stations and other entities.
- Crash Conditions page which lists available crash conditions.
- Flight Conditions page which displays current value of listed aircraft and environment parameters.
- Controls Not In Agreement page which identifies those flying controls not in agreement with the current aircraft configuration.
- Motion Interlocks page which displays the status of all the motion system interlocks.
- Sim Message Log page.
- Repeats page which display a repeat of the HUD.
- **Schematics** page showing active schematics




### 5.12.1 Malf / CB Status

This page is selectable from the Status/Monitor tab suite and displays the status of malfunctions, circuit breakers, radio stations and other entities.

Descriptive text lines appear, chronologically, at the display, with a time stamp on their incidence. When the number of incidents registered exceeds the page capacity, further pages are generated and linked.

Those conditions which may be reset are provided with selection buttons.

The information and control provided by this page are as follows:

| | |
|---|---|
| Active Malfunctions | These are identified in red text. Selection of an associated button displays a keypad, which allows the malfunction definition to be displayed, or for it to be set inactive. |
| Armed Malfunctions | These are identified in yellow text, each with its selected arming conditions. Selection of an associated button displays a keypad, which allows the malfunction definition to be displayed, for the arming conditions to be changed, for the malfunction to be activated, or for it to be disarmed. |
| Failed Stations | Failed radio stations are identified in cyan text. Selection of an associated button displays a keypad, with options to view the station information, to restore the station (or to fail or restore co-located facilities), or to select it as the area map reference centre. |
| Circuit Breakers | These are circuit breakers which are within the simulated area and have been thermally tripped, and are identified in magenta text. |
| Misc | These are typically simulation "freeze" conditions and are identified in green text. Selection of an associated button resets the condition. |

In the Malf/CB Status toolbar area selection buttons are provided to "de-clutter" the information display. These correspond to the above condition categories and their alternate action may be used to display or suppress the related information:

| | |
|---|---|
| Active Malfs | Controls the display of active malfunctions, coloured amber when their display is enabled, blue when it is suppressed. |
| Armed Malfs | Controls the display of armed malfunctions, coloured amber when their display is enabled, blue when it is suppressed. |
| Failed Stations | Controls the display of failed radio stations, coloured amber when their display is enabled, blue when it is suppressed. |
| Hard CBs | Controls the display of thermally tripped, physically present circuit breakers, coloured amber when their display is enabled, magenta when it is suppressed. |
| Soft CBs | Controls the display of tripped software circuit breakers, coloured amber when their display is enabled, grey when it is suppressed. |
| Misc | Controls the display of other conditions, coloured amber when their display is enabled, blue when it is suppressed. |

**NOTE:** Popped circuit breakers must be manually reset.

### 5.12.2 Crash Conditions

This page is selectable from the Status/Monitor tab suite.
If the aircraft crashes, Total Freeze is set and this page is displayed with the reason for the crash highlighted:

**Recoverable Crashes**

| | |
|---|---|
| Excessive IAS | IAS > VMO + 60 knots (VD) |
| Excessive MACH | Mach > MD (Mach Drive) |
| Excessive Normal Load Factor | Vertical acceleration > 3.5g or < -2.0g with gear up, or Vertical acceleration > 3.0g or < -1.0g with gear down. |
| Collision With Moving Object | Aircraft collides with any moving object in air or on ground. |

**Non Recoverable Crashes**

| | |
|---|---|
| Excessive Rate of Descent At Touchdown | Rate of descent at touchdown >1200 ft/min. |
| Nosewheel Landing | Nosewheel touches down first before the main gear. |
| Excessive Bank At Takeoff / Touchdown | Left or right wing tip contacts the ground at takeoff or touchdown with nose gear and opposite main gear off ground. |
| Excessive Landing Gear Sideforce | Lateral acceleration >0.7g on touchdown. |
| Impact With Terrain | Aircraft approaches the ground at >25 ft/s. |
| Collision With Fixed Object | Aircraft collides with any fixed object on ground. |

**Advisory Conditions**

| | |
|---|---|
| Tail Strike | Rear fuselage height above ground < 0. |
| Engine Pod Contact | Left/right engine pod height above ground < 0. |
| Landing Gear Not Down And Locked At Touchdown | Landing gear not locked fully down and strut has compressed. |
| Burst Tyre(s) | Any tyre burst detected. |

If an In-flight Limitation is indicated, select Crash Reset 20s. The pilot will then have 20s to fly out of the condition before Total Freeze is reset.

If a Crash is indicated:

- Select Crash Reset 20s to reset the aircraft to the take-off position on the currently active runway, or
- Select Reposition Page which displays Reposition page to allow you to select a reposition for the aircraft.

If you want the aircraft to continue flying even if an in-air crash is detected, select Crash Inhibit. This disables the crash monitoring system so that the simulation does not stop if one of the in-air crash conditions is detected.

Select Reset Advisory to cancel advisory warnings.

### 5.12.3 Flight Conditions

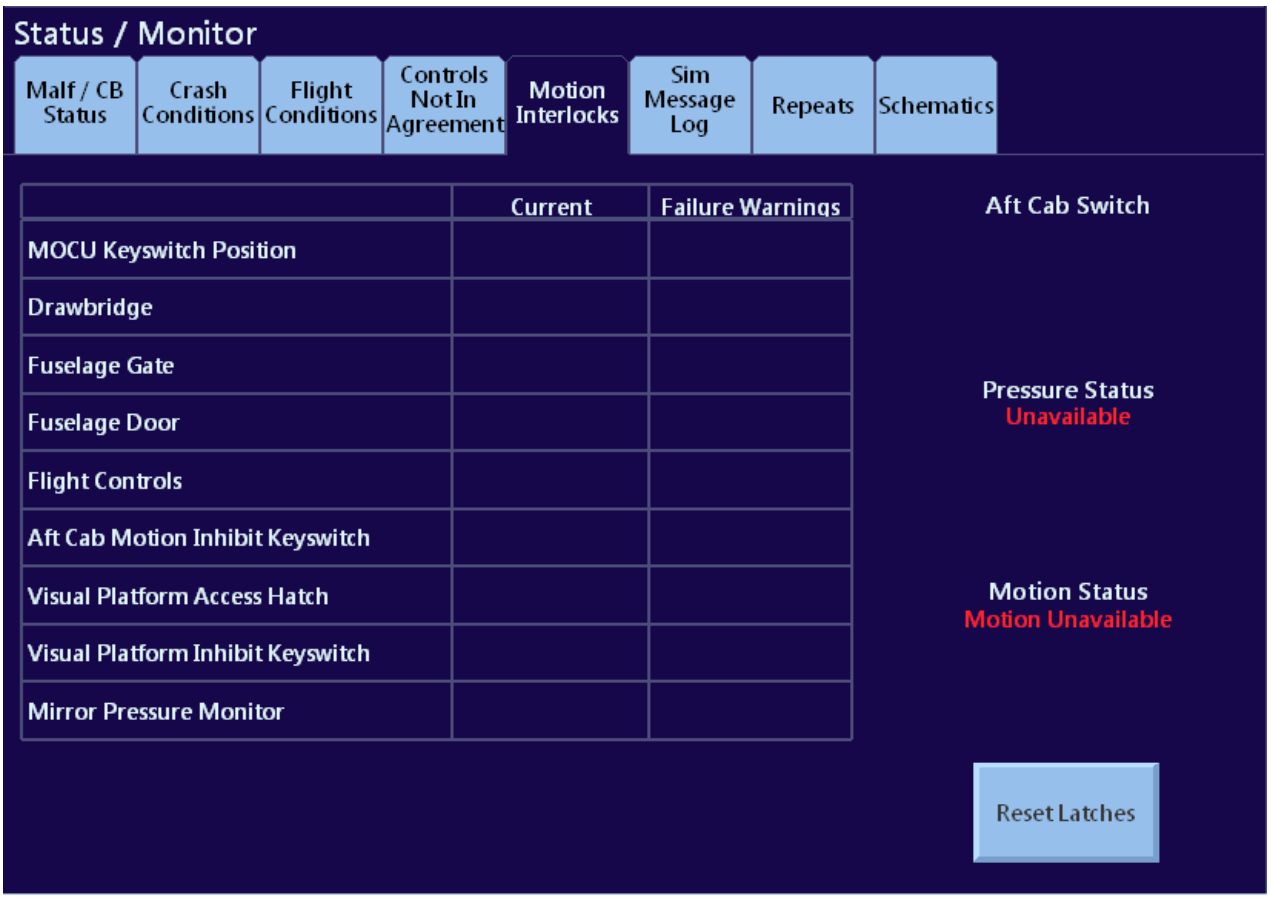
This page is selectable from the Status/Monitor tab suite and displays current value of listed aircraft and environment parameters.

### 5.12.4 Controls Not In Agreement

This page is selectable from the Status/Monitor tab suite and identifies those flying controls not in agreement with the current aircraft configuration.

### 5.12.5 Motion Interlocks

This page is selectable from the Status/Monitor tab suite and displays the status of all the motion system interlocks. The page is also displayed automatically when Motion is requested but one or more of the interlocks are not safe. If any of the interlocks are not safe, then the motion system cannot be activated.




The status of the interlocks when the unsafe condition was detected is shown in the Failure Warnings column. The current status of the interlocks is shown in the Current column. This allows you to check whether the unsafe condition has been cleared since the circuit detected the failure.

If all of the interlocks are safe and the motion system cannot be activated, check the Maintenance Operators Display Unit (MODU) at the motion cabinet in the simulator hall for messages.

| | |
|---|---|
| Reset Latches | Resets latched conditions to current. |

### 5.12.6 Sim Message Log

This page is selectable from the Status/Monitor tab suite and is used to display critical software error messages that have been logged by software systems that impact training in some way.

For example, errors detected during the loading of some or all of the Nav Databases will impact the ability to perform repositions and select airports/runways etc.

The instructor has visibility of when critical software errors occur that would impact the training session.

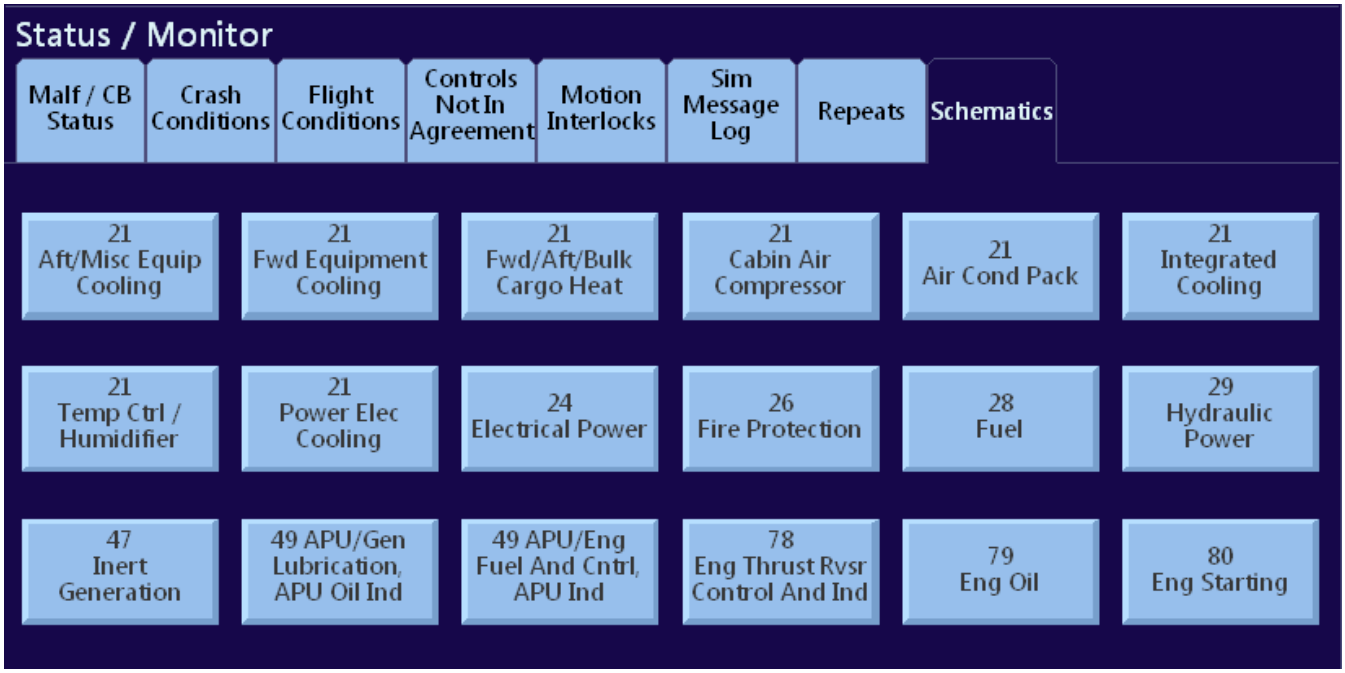
### 5.12.7 Repeats

This page is selectable from the Status/Monitor tab suite and displays a repeat of the Captain or F/O HUD display.

| | |
|---|---|
| Capt HUD | Displays a repeat of the Captain's HUD display. |
| FO HUD | Displays a repeat of the First Officer's HUD display. |

### 7.12.1 Schematics

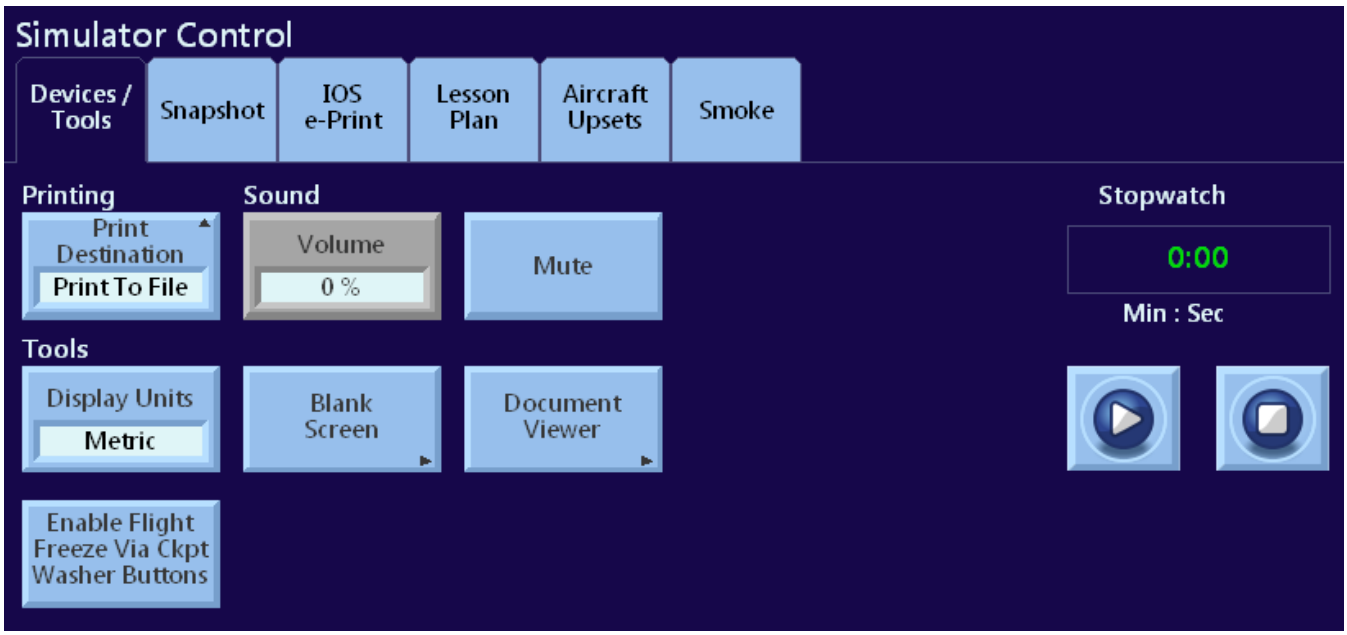
This page is selectable from the Status/Monitor tab suite and displays **active schematics** for the associated ATA chapter.




## 5.13 Simulator Control

Selectable from the Page Navigation Toolbar, the Simulator Control tab suite comprises 5 tabs providing access to the following pages:

- Devices/Tools page.
- Snapshot page.
- IOS e-Print page.
- Lesson Plan page.
- Aircraft Upsets page.
- Smoke page.




### 5.13.1 Devices / Tools

This page is selectable from the Simulator Control tab suite.

**Printing**

| | |
|---|---|
| Print Destination | Allows you to select to print to either offboard or virtual printers. |

**Sound**

| | |
|---|---|
| Volume | Allows you to select the level of volume, from a 0 to 100 %. |
| Mute | Toggle button allowing you to mute the volume. |

**Tools**

| | |
|---|---|
| Display Units | Allows you to choose between metric and US units. |
| Blank Screen | Displays a blank screen. Click anywhere on blank screen to return to previous page. |
| Document Viewer | Displays the Document Viewer page. |

**Stopwatch**

| | |
|---|---|
| Play | Select to start stopwatch. |
| Stop | Select to stop and reset stopwatch. |

### 5.13.2 Snapshot

This page is selectable from the Simulator Control tab suite.

The snapshot system allows you to record the condition of the simulator during a flight so that you can re-configure the simulator to that condition at a later time in order to repeat an exercise or incident. The system is capable of storing ten selectable snapshots.

| | |
|---|---|
| Number | Displays a pop-up menu to allow you to select the number of the snapshot which is to be used to store the snapshot data. |

| | |
|---|---|
| Take | The simulator conditions are stored in the snapshot and displayed on the page. |
| Release | Allows you to release the simulator to carry on training from the selected snapshot position. |
| Recall | Resets the simulator to the configuration specified by the selected snapshot (as shown in the SNAPSHOT display). |
| Lock | Locks the data in the selected snapshot so that it cannot be erased. Second selection unlock the data. |
| Erase | Erases the data from the selected snapshot (only available if not locked). |
| Erase All | Erases the data from all the unlocked snapshots. |
| Actual Value | Displays the current value of the listed parameters. |
| Snapshot Value | Displays the stored values of the listed parameters for the selected snapshot. |

**Taking Snapshots**

- Select Number and from the pop-up displayed, select the number (between 1 and 10) of the snapshot where you want to store the data.
- If the snapshot slected contains data, the snapped values are displayed on the page. If you no longer require this snapshot, select Erase to clear the data. If you do want to retain the snapshot, select another number.
- Select Take. The simulator conditions are stored in the snapshot and displayed on the page.

**NOTE:** Armed malfunctions are not recorded as part of the snapshot as they are not active and do not for part of the current state of the simulator.

**Recalling Snapshots**

- Select Number and from the pop-up displayed select the number of the snapshot you want to recall.
- Select Recall to re-configure the simulator to the conditions in the snapshot. Flight Freeze is set automatically during the reposition.
- Deselect Flight Freeze in the Direct Actions Area to re-run the exercise from the point of snapshot.

**NOTE:** Armed malfunctions will be cleared and any active lesson plan will be stopped following a snapshot recall.

**Clearing Snapshots**

- Select Erase All to remove all unlocked snapshot data.
- Select Erase to to remove the data from the selected snapshot (if unlocked).

**Locking Snapshots**

- Select Lock to prevent the selected snapshot from being erased.
- Re-select Lock to unlock the snapshot so that the data can be erased and a new snapshot taken.

### 5.13.3 IOS e-Print

This page is selectable from the Simulator Control tab suite.

| | |
|---|---|
| Open Folder | Allows you to select the required folder |
| File type / File name | Lists files in the selected folder |
| Session Name | Allows you to add a name to the session |
| Refresh Table | Allows you to refresh the table of file types and names |
| View | Allows you to view a file |
| Print Hard Copy | Allows you to print the selected files |
| Print Options | Opens the Image Operations pop-up which allows you to:<br><br>Push Selected Image To Network<br>Push All Images To Network<br>Push Selected Image to USB<br>Push All Images to USB<br>Delete Selected Image<br>Delete All Images<br>Cancel |

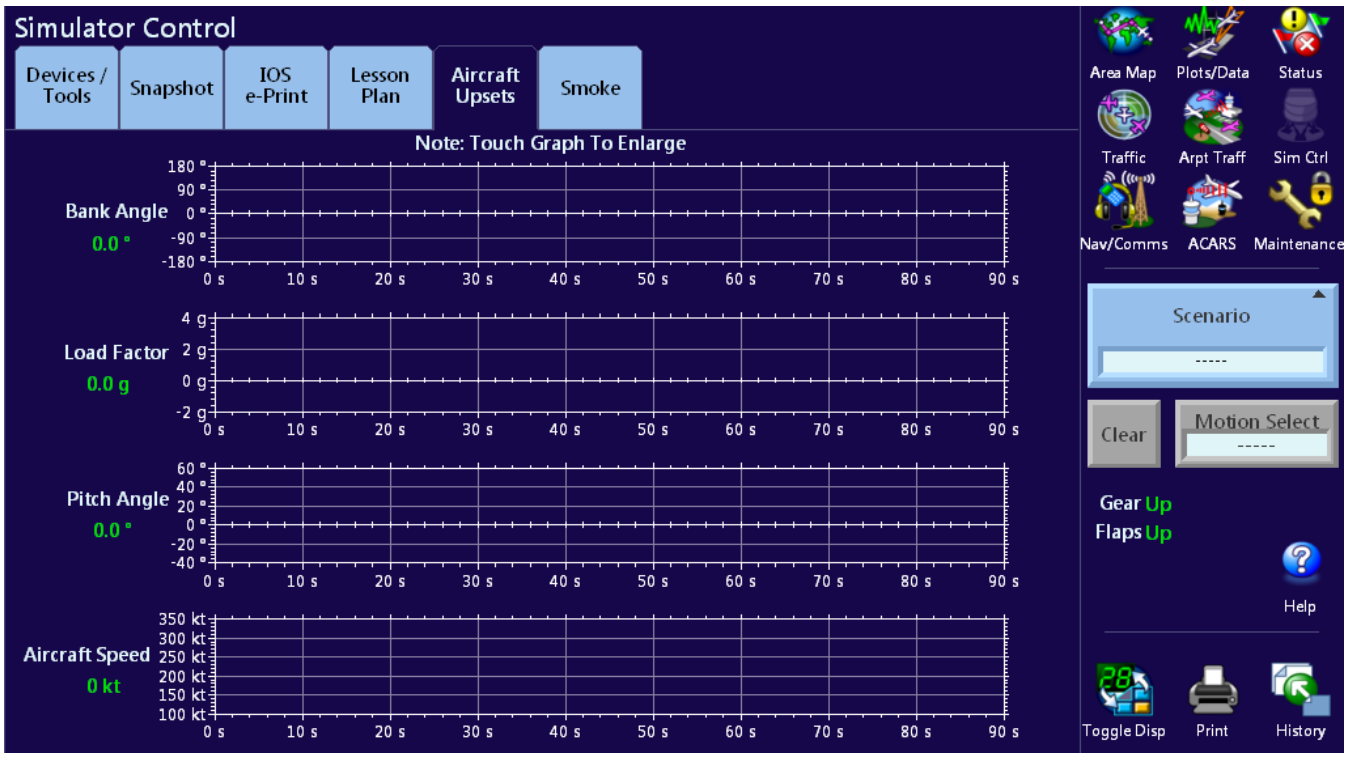
### 5.13.4 Lesson Plan Index

Refer to chapter 7.5

### 5.13.5 Aircraft Upsets

This page is selectable from the Simulator Control tab suite.

| | |
|---|---|
| Scenario | Select a scenario |
| Clear | Aborts any scenario that is currently active |
| Motion Select | Display a popup which allows you to choose between motion active or motion neutral |




## 5.13.6 Available Upsets


| | |
|---|---|
| UAT 1<br>Pitch: 27 Nose: Up Bank: 30 Left | UAT 2<br>Pitch: 27 Nose: Up Bank: 30 Right |
| UAT 3<br>Pitch: 15 Nose Dn Bank: 30 Left | UAT 4<br>Pitch: 15 Nose: Dn Bank: 30 Right |

| | |
|---|---|
| URT 3<br>Pitch: 30 Nose: Up  Bank: Level | |
| URT 4A<br>Pitch: 25 Nose: Dn  Bank: 60 Left | URT 4B<br>Pitch: 25 Nose: Dn  Bank: 60 Right |
| URT 5A<br>Pitch: 25 Nose: Dn  Bank: 120 Left | URT 5B<br>Pitch: 25 Nose: Dn  Bank: 120 Right |
| Spiral Climb - Left | Spiral Climb - Right |
| Bank: Left 115  Pitch: Level | Bank: Right 115 Pitch: Level |
| Pitch: 20 Nose: Up  Bank: Level | Pitch: 15 Nose: Dn  Bank: Level |
| Pitch: 10 Nose: Dn  Bank: Level | |

### 5.13.7 Smoke

This page is selectable from the Simulator Control tab suite.

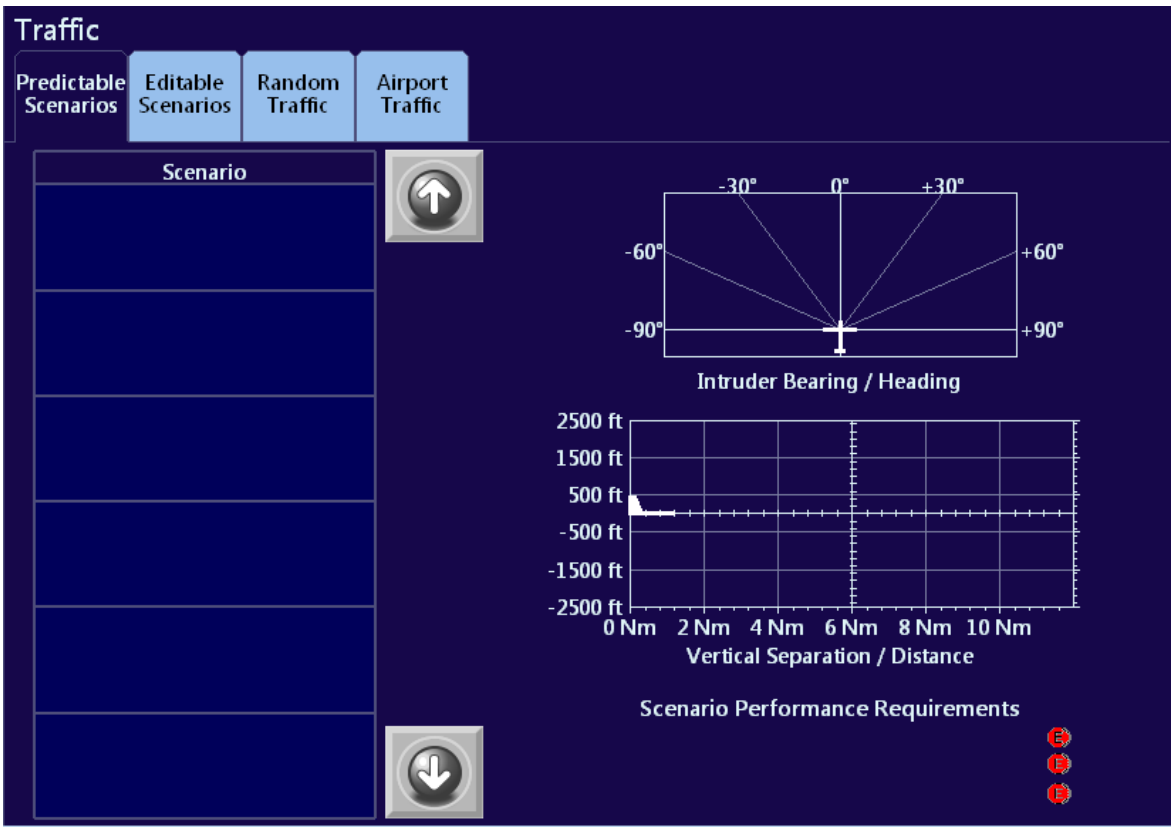
**Smoke**

| | |
|---|---|
| Smoke Request | Arms the smoke generator. |
| Smoke Volume Ctrl | Allows you to select the volume of smoke (25%/50%/75%/100%) |
| Generator Status | Displays the smoke generators status. |

## 5.14.Traffic

Selectable from the Page Navigation Toolbar, the Traffic tab suite comprises 4 tabs providing access to the following pages:

- Predictable Scenarios page which allows you to setup TCAS scenarios.
- Editable Scenarios page which allows you to set the flight plan for each of two intruder aircraft in a new scenario.
- Random Traffic page which allows you to select conflicting traffic which will induce warnings and advisories appropriate to the situation.
- Airport Traffic page.




### 5.14.1.Predictable Scenarios

This page is selectable from the Traffic tab suite and allows you to set up TCAS scenarios. Each scenario can consist of up to two intruder aircraft (aircraft posing a threat to your aircraft) and up to four proximate traffic aircraft (incidental traffic within the environment of your aircraft).

Intruder or proximate traffic aircraft are selected randomly from the following aircraft types: ATR42, B747-400, B737-300, B757-200, B767-300, A320, A340.

**NOTE:** If you select an intruder aircraft with no transponder fitted, the system will display an ATR42 only.

This page allows selection of scenarios that will generate a predictable TCAS voice call-out. The requested voice call-out will be generated as long as the own aircraft's manoeuvres are within the limits specified for the selected scenario.

The Vertical Separation / Distance diagram displays the initial range and vertical separation. It also shows the intruder relative altitude that will be maintained during the progress of the scenario.

The Intruder Bearing / Heading Diagram displays the initial relative bearing/heading of the intruder; range is not representative in this diagram.

| | |
|---|---|
| Scenario | Arms the associated scenario and the diagrams will reflect the initial positions of the own aircraft and intruder. |
| Page up/down | Pages through the list of available scenarios. |
| Scenario Performance Requirements | Lists the altitude, vertical speed and ground speed limits that have to be maintained by the own aircraft in order to obtain the requested voice call-out. This display will display red text and flash to an exceeded limits display. |

In the Toolbar area are buttons for the following functions:

| | |
|---|---|
| Play | Activates the armed scenario if the own aircraft is within the specified limits displayed for the selected scenario. |
| Stop | Stops the active scenario. |

### 5.14.2.Editable Scenarios

This page is selectable from the Traffic tab suite and allows you to set the flight plan for each of two intruder aircraft in a new scenario.

The touchpoints for each of 2 intruders allow you to set the initial and final position of the intruder.

| | |
|---|---|
| Initial Bearing | Initial bearing of intruder from this aircraft ( + or - 180 degree +ve is right) |
| Initial Distance | Initial distance in nautical miles of intruder from this aircraft |
| Initial Relative Altitude | Initial altitude of the intruder, relative to this aircraft (+ve is above) |
| Transponder Type | Intruders fitted TCAS equipment operating mode. Selectable are MODE A, MODE C, MODE S or None |
| Final Bearing | Final bearing of intruder from this aircraft ( + or - 180 degree +ve is right) |
| Final Distance | Final distance in nautical miles of intruder from this aircraft |
| Final Relative Altitude | Final altitude of intruder from this aircraft (+ve is above) |
| Speed | Speed of the intruder in Knots |
| Clear Intruder | Clears all the instructor selections for that intruder. |

In the Toolbar area are buttons for the following functions:

| | |
|---|---|
| Play | Activates the Editable Scenario. |
| Stop | Stops the Editable Scenario. |

**NOTE:**
TCAS advises on traffic which will encroach into this aircrafts safe airspace. It does this by dynamically predicting traffic paths.
Since the predictions are constantly adjusted for this aircrafts circumstances a single description of the effects of these scenarios is not possible
With this aircraft flying straight and level at constant altitude, constant heading and track, constant speed; the scenario "SHOULD" induce the conflict.
TCAS prediction functions adjust for this aircrafts altitude. To consistently demonstrate scenario conflicts this aircraft is best at 15000 feet

### 5.14.3.Random Traffic

This page is selectable from the Traffic tab suite and allows you to select conflicting traffic which will induce warnings and advisories appropriate to the situation.

**Proximate Traffic**

| | |
|---|---|
| Proximate Traffic | Allows proximate aircraft to be selected on or off within the selected scenario. |

**Random Traffic (Point of origin)**

| | |
|---|---|
| Front | Arms a threat with a single aircraft approaching from the selected directions. |
| Behind | |
| Left | |
| Right | |
| Level | |
| Above | |
| Below | |

In the Toolbar area are buttons for the following functions:

| | |
|---|---|
| Play | Activates the selected random traffic. |
| Stop | Deactivates random traffic. |

**NOTE:** TCAS advises on traffic which will encroach into this aircrafts safe airspace. It does this by dynamically predicting traffic paths.
Since the predictions are constantly adjusted for this aircrafts circumstances a single description of the effects of random traffic is not possible
TCAS prediction functions adjust for this aircrafts altitude. To consistently demonstrate conflicts this aircraft is best at 15000 feet.

### 5.14.4Airport Traffic

This page is selectable from the Traffic tab suite and allows you to control the appearance and movement of up to 6 repeating and 2 non-repeating routes. These incidents are normally designed to present the aircrew with a hazard, in the vicinity of the runway, during take-off or landing. They may, additionally, be used to provide traffic scenarios in and around the airport.

**Repeatable Routes**

Repeatable Routes initialise a number of entities using the Separation time specified for the runway the route uses. The separation is constant for any entities using that runway, if the separation time is changed, any new entities created by the system will have the new time. Select a row to load, clear or stop a repeatable route.

**Non-Repeatable Routes**

Non-Repeatable Routes either start when the scenario play button is pressed or when triggered by an ownship event (see Play Trigger Structure). Select a row to load, clear or stop a non-repeatable route.

### Runway Touchdown Intervals

| | |
|---|---|
| Configure Intervals | Displays a popup menu to allow you to set touchdown intervals. Selected intervals times are displayed for each runway. |

### Scenario Options

| | |
|---|---|
| Own ship Priority | Own ship Priority is used when the own ship is taking off and can be set to either Manual or Automatic. If in manual mode then the instructor has to decide if the own ship has enough space to take-off in respect to other landing aircraft. If in Automatic, the system will temporarily suspend the creation of new landing entities to give the own ship space to take-off. Once the own ship has taken off, the normal creation at that separation will be resumed. |
| Runway For Gen Routes | For airports with more than one runway (auto-generics or specifics) the Runway for Gen Routes button allows all generic routes (routes recorded at a generic airport, which can be used anywhere) within a scenario to use an alternative reference runway to the active runway. The button will only be active before the scenario begins, as the routes cannot be altered once a scenario has started. |

| | |
|---|---|
| Route Control | Displays the Airport Traffic - Route Control page which allows you to control the appearance and movement of up to eight incidences of routed traffic. These incidents are normally designed to present the aircrew with a hazard, in the vicinity of the runway, during take-off or landing. They may, additionally, be used to provide traffic scenarios in and around the airport. |

| | |
|---|---|
| Load | Displays the Scenario Select page. |

[ CHAPTER 6 ]

# 6 Malfunction Description Document

The list of malfunctions can be found as a separate document, tailed to match the latest BP load of the A350 simulator.

Therefore the list of malfunctions also known as MDD (Malfunction Description Document) will be separate from this instructor manual.

In general all malfunctions provided by Boeing will be available in this simulator, (approximately 270).