

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Model	Serial Number	Tail Number
ATS-B737NG		

Operator

Setup and instrument description of the Advanced Training System (ATS) B737NG, which includes the following sections, modules and instruments to simulate the B737NG cockpit, on real dimensions, instruments and equipment.

Sections

01.- PLATFORM

02.- CONSOLES

03.- MAIN INSTRUMENT PANEL

04.- EQUIPMENT

05.- OVERHEAD PANEL

06.- MASTER INSTRUCTOR DESK

07.- SHELL (fuselage)

08.- EXTERNAL VISUAL SYSTEM

09.- PC's and SOFTWARE

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Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 01.- PLATFORM

1.- Cockpit Platform PRO (Cockpit and instructor station)

Manufactured with a structure of 2" x 1" tubular metals, supported by 12 detachable legs (real B737NG external dimensions).

Set of hooks and wheels to move easily the structure.

Floor cover on detachable 16 caliber aluminum.

Floor finish in synthetic Pirelli style rubber, black color and aluminum molding.

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Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 02.- CONSOLES

1.- Console for Control Display Units (CDU's), Fire system and Radios

Framework manufactured in an aluminum layer, laser cut and finished on grey electrostatic oven painting and backlight system.

This console is used by:

2.- Control Display Unit (CDU)

CDU 737NG type, synchronized for both CAP and FO, which controls the FMC's

3.- Secondary Engine Indications Screen

The following information is displayed on screen:

- 1- N2 Redline
- 2- N2 RPM Indications
- 3- Cross-Bleed Start Indications
- 4- Fuel Flow Indication
- 5- Oil Pressure Indication
- 6- Oil Temperature Indication
- 7- Oil Quantity Indication
- 8- Vibration Indication
- 9- Trim positions
- 10- Control Axis positions

4.- Throttle Quadrant (motorized)

Motorized version intended for rûde use. Framework built in an inox and aluminum layer, laser cut and finished on grey electrostatic oven painting.

The system includes rivets and screws for fixing and assembly. Throttle levers, flaps, speed break and engine start switches.

Operative on the following functions:

- 1- Speed Brake Lever: DOWN, ARMED, UP and FLIGHT detent
- 2- Parking Brake
- 3- Reverse levers for every engine
- 4- Thrust levers for every engine
- 5- Flaps lever for positions 0° 1° 2° 5° 10° 15° 25° 30° and 40°
- 6- A/T Disengage Buttons (dual)
- 7- Engine Star Levers for every engine
- 8- Gear Horn Cutout Switch
- 9- Stab Trim Cutout Switch
- 10- A/P Stab Trim Cutout Switch
- 11- TO/GA (dual)

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

5. - Fire Control Panel

Module provided with aluminum fasteners, screws and nuts.

Included:

- 1- Warm white backlight
- 2- Handles with locking mechanism
- 3- Automatic handle unlock during fire condition or OVHT/FIRE test
- 4- Buttons to manually override locking
- 5- All switches and pushbuttons are operative
- 6- All annunciators are operative

6.- Module Radio Tuning Panel

Module including:

- 1- Communication radios COM (2)
- 2- Navigation radios NAV (2)
- 3- Transponder XPNDR
- 4- ADF selector
- 5- Audio selector panel (2)
- 6- Trim Rudder control panel
- 7- Fire system Panel
- 8- Cargo/WXR module
- 9- Flood & Cabin Door panel

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 03.- MAIN INSTRUMENT PANEL

1.- Main Instrument Panel Module (Cockpit & Glareshield)

Framework built in aluminum laser cut. Set of lateral supports made of metallic edges. Finished on grey oven electrostatic paint and modules manufactured on "micro surface impact plexiglass" LASERMAX, on grey and black colors and backlight system. It includes the following modules:

2.- Captain Brightness Control

Operative module for bright OUTBD; UPPER and INBD Display Unit (DU)

3.- Captain Light Control

Controls the MIP lights (CAP section)

4.- Ground Proximity Control

Operative module for FLAP INHIBIT; GEAR INHIBIT; TERR INHIBIT; GPWS and SYS TEST

5.- FO Brightness Control

Operative module for bright OUTBD and INBD Display Unit (DU) FO section

6.- Display screens (PFD and ND) for CAP & FO sections

Primary Flight Display (PFD) and the Electronic Attitude Director Indicator (EADI) are displayed, with the following information:

- 1- Airspeed Indications General. - Speed Tape; FMC/MCP Command Speed; Airspeed Trend Arrow; Rolling Speed Display; Max Operating Speed; High Speed Buffet Limit; Minimum Flap Retraction Speed; Flaps UP Maneuver Speed; V Speed; Minimum Maneuver Speed; Stick Shaker Speed; Next Flap Position Speed and Ref Speed
- 2- Flight Mode Annunciator. - Autothrottle modes; Pitch modes; Roll modes and Autopilot Status
- 3- Attitude Indication. - Flight Director Bars; Height Decision and Localizer and Glideslope Display
- 4- Altitude Indication. - Selected Altitude, Radio Altitude Dial; Radio Altitude; Current Altitude; Baro Indication; Baro Minimum Pointer; Landing Altitude Indication and Minimum Referent Altitude
- 5- Vertical Speed Indication. - Vertical Speed Pointer; Selected Vertical Speed Bug and Vertical Speed Indication
- 6- Heading Indication. - Heading Indication; Heading Bug; Heading Mode Indication and Track Pointer

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

With the operation of the Nav Display (ND) and the Electronic Horizontal Situation Indicator (EHSI), the following information is displayed:

- 1- Heading Indication. - Heading Pointer; Heading Bug; Waypoint Information; Heading Indicator and Aircraft Symbol
- 2- Lateral Nav Route. - LVAV Route; Track Line and Trend Indicator
- 3- Vertical Nav Route. - Vertical Deviation Indicator
- 4- Other information. - Weather Radar Information; Weather Radar Annunciator; Map Options; Navaid Information and Map Source Information

7.- Display Select Panel for CAP & FO section

Operative module for MAIN PANEL DU'S LOWER DU

8.- AP/AT Indicators for CAP & FO section

Module with the following functions:

- 1- Autopilot Disengage Light (light and sound)
- 2- Autothrottle Disengage Light (light)
- 3- FMC Alert Light (light)
- 4- Test Switch (light)

9.- Lights Test Switch

Module for lights system testing

10.- Speed Brake Lights

Module Indicator:

- 1- SpeedBrake Armed
- 2- Speedbrake not armed

11.- Stab Out of Trim Light and Below G/S Light

Module Indicator

- 1- Stab Out Trim
- 2- Below G/S

12.- Clock (CAP and FO)

Module with the following functions:

- 1- Chronometer
- 2- Local Date/Time and UTC
- 3- Elapsed time counter

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

13.- Nose Wheel Steering Switch

Module that controls the Steering Nose Wheel ON/OFF (inoperative)

14.- Standby Instruments

Module indicator (analogue)

- 1- Standby Horizon Indicator
- 2- Standby Airspeed/Altimeter Indicator
- 3- Standby RMI

15.- Engine Display Control Panel

Module through which the following information is supervised:

- 1- N1 Set Knob-Outer
- 2- N1 Set Knob-Inner
- 3- Speed referent Knob-Outer
- 4- Speed referent Knob-Inner
- 5- Fuel Flow Switch
- 6- MFD buttons SYS y ENG

16.- Autobrake Control Panel

Module with the following functions:

- 1- Autobrake select Switch
- 2- Autobrake Disarm Light
- 3- Anti-Skid Inop Light
- 4- Flaps Indicator
- 5- Flaps Transit and Extended Light

17.- Screen Display (EICAS) Primary Engine Indications

It displays the Engine Indication and Crew Alerting System (EICAS), which contains the following information:

- 1- Tat Indications
- 2- Thrust Mode Display. - R-TO; R-CLB; TO; CLB; CRZ; GA and CON
- 3- Referent N1 Bug, Redline and Commands Sector
- 4- N1 RPM Readout
- 5- Reverses Indication
- 6- TAI Indication
- 7- EGT Indication
- 8- Maximum EGT Indication and Amber Band
- 9- EGT Start Limit
- 10- Engine Fail Alert
- 11- Crew Alert. - Start Valve Open; Low Oil pressure and Oil Filter Bypass
- 12- Secondary Engine Indications

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

18.- Landing Gear Control Panel

Module with the following functions:

- 1- Landing Gear Level. - UP; OFF and DN
- 2- Landing Gear Light. - Red and Green

19.- Brake Pressure Indicator

Operative module

20.- Speed Brake Extended Light

Module with the following functions:

- 1- Speed Brakes Extended

21.- Air Ventilation for CAP y FO section

Inoperative module

22.- Frame for Display

Set frame for display (6 unit) fiber glass color grey

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Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 03.- MAIN INSTRUMENT PANEL (Glareshield)

23.- EFIS Control Panel (CAP & FO)

Module EFIS737PRO with the following functions:

- 1- FPV Button
- 2- MTRS Button
- 3- Baro Know
- 4- VOR/ADF Switch
- 5- EHSI mode selector
- 6- Range selector
- 7- Map Buttons with functions of WXR, STA, WPT, ARPT, DATA, POS and TERR
- 8- MINS Knobs

24.- Mode Control Panel (MCP)

Module MCP737PRO with the following functions:

- 1- Course Selector Know (CAP and FO)
- 2- Course Selector Display (CAP and FO)
- 3- Flight Director Switch (CAP and FO)
- 4- Electromagnetic Autothrottle Switch A/T
- 5- N1 Button
- 6- Speed Button
- 7- Level Change Button
- 8- Vnav Button
- 9- IAS/MACH selector Know
- 10- Change Over Button
- 11- Hearing Select Button
- 12- Hearing Select Know
- 13- LNAV Button
- 14- VNAV Button
- 15- VOR/LOC Button
- 16- APP Button
- 17- ALT Hold Button
- 18- Vertical Speed Button
- 19- Vertical Speed Wheel
- 20- Autopilot Engage Buttons (CMD A and CMD B)
- 21- A/P disengage Button
- 22- Bank Angle control
- 23- External TO/GA operative
- 24- C/O SPEED&ALT Intervention

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

25.- Master Warning/ Caution Light and System Annunciators (CAP & FO side)

Module containing the following devices:

- 1- Fire Warning Light
- 2- Master Caution Light
- 3- System Annunciator (CAP side)
 - 1) FLT CONT
 - 2) IRS
 - 3) Fuel
 - 4) Elec
 - 5) APU
 - 6) OVHT/DET
- 4- System Annunciator (FO side)
 - 1) Anti-Ice
 - 2) HYD
 - 3) Doors
 - 4) ENG
 - 5) Overhead
 - 6) Air Cond

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Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 04.- EQUIPMENT

1.- CAP & FO Rudder System Pedals (synchronized)

Boeing style adjustable synchronized pedal system, manufactured on metal and aluminum intended for rude use, finished with electrostatic oven paint. Power switches, switches and electronic card for assembly

Operative on:

- 1- Rudder Control (Yaw)
- 2- Nose Wheel Control
- 3- Independent Left and Right Brakes

2.- CAP & FO Column & Yoke (synchronized)

Column and yoke motorized and synchronized system, manufactured on metallic materials intended for rude use, finished with electrostatic oven paint, spring system, potentiometers, Boeing type yokes manufactured on black color fiber glass, electric trim and column manufactured on grey color fiber glass.

Operative on:

- 1- Aileron control (bank)
- 2- Elevators control (pitch)
- 3- Electric trim (dual)
- 4- A/P disengage
- 5- PTT for communications
- 6- Stick Shaker

3.-Cockpit Lighting system

General lighting system composed by:

- 1- Adjustable cockpit lighting (Independent control for CAP&FO area)
- 2- General lighting with roof lamps, two available intensities (controlled from the overhead panel)
- 3- Instructor section lamp
- 4- Lighting for front section (used only for maintenance)

4.- Audio system

Audio system of 5.1 composed by 5 speakers, subwoofer

5.- Crew Communications INTERCOM System

Internal communication system composed by 4 headsets (CAP, FO, OBSERVER and INSTRUCTOR), TELEX models or similar and INTERCOM system

6.- Seat Crew for CAP & FO

Boeing type seats for the resembled aircraft

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

7.- Electrical set, Low voltage supplies & Internet

For electric power management and control, the following power sources are used:

- 1- NO BREAK at 1600W (minimum), which allows the control and protection of the entire system. In case of an electric power shut down, the device grants 15 minutes to close session and turning off the equipment safely (its assembly is solely the responsibility of the operator)
- 2- Power source for low voltage energy (5,6,12 and 28 volts) required for electronic cards, system and watches

8.- Chart Holder Clip for CAP y FO section

Chart Holder Clip to hold charts, manufactured on Lasermax and laser system, with metallic clip on large size

9.- Tiller Nosewheel Steering

System for directional control on land, manufactured on Black solid glass fiber and electrical system controls. Turn on L87° + R87°

10.- Horometer

Suitable for effective control of flight training device hours

11.- Light Map for CAP y FO section

Lighting system for the Chart Board composed by lights, potentiometer and module manufactured on Lasermax

12.- Panel Mount Wet Compass

Module that includes Magnetic Compass, movable support and central post

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 05.- OVERHEAD PANEL

1.- Upper, Lower & EXT Light & Engine Module

Modular system, manufactured on metal, finished on electrostatic oven paint and Allen screws for module fixing. Support system attached to the main structure (front and back support), case made of micro surface impact plexiglass LASERMAX on black and grey colors, aluminum handles finished on electrostatic oven paint, leds and indicators, switches of multiple positions, switch covers on black and red colors, backlight system, electronic cards for assembly and screws for fixing, containing:

UPPER OVERHEAD PANEL

2.- IRS System Display Unit

Module for the control of IRS system, composed by:

- 1- System Display Switch
- 2- System Display selector
- 3- IRS display screen (displays information generated by FMC's)
- 4- Keyboard

3.- Audio Selector Panel

Inoperative module

4.- LE Devices Annunciator Panel

Module of LE Devices Lights and Lights Test Button

5.- IRS mode Selector Panel

Module containing the IRS panel

6.- Service Interphone Switch

Inoperative module

7.- EEC/OXYGEN panel

Module which contains:

- 1- Reverser Lights
- 2- Engine control Lights
- 3- EEC Buttons (inoperative)
- 4- Pass Oxygen Light (inoperative)
- 5- Pass Oxygen Switch (inoperative)
- 6- Crew Oxygen Pressure

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

8.- Flight Recorder Panel

Operative module for Test Switch and Mach Airspeed Warning Test

9.- Stall Warning Test Panel

Operative module

10.- Proximity Switch Electronic Unit Light

Operative module

11.- Dome Light Switch

Module that allows the control of the cockpit general lighting

12.- Landing Gear Lights

Operative module with the "Landing Gear Control Panel" module

13.- Bay cover modules

Set of blind covers (inoperative)

SimFlight Technologies

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

LOWER OVERHEAD PANEL

1.- Flight Control Panel

Module with the following functions:

- 1- Yaw Damper switch
- 2- Yaw Damper Light
- 3- Flight control Switches
- 4- Low pressure Lights
- 5- Standby HYD Quantity Pressure Lights
- 6- Alternate Flap Master Switch
- 7- Alternate Flap Toggle Switch
- 8- Feel Differential pressure Light
- 9- Speed Trim fail Light
- 10- Mach Trim fail Light
- 11- AutoSlat fail Light
- 12- Spoiler Switches

2.- Electrical panel

Module for the control of the electric system, with the following functions:

- 1- DC Meters selector
- 2- Power Indication Display
- 3- AC Meter selector
- 4- Bat Discharge Light
- 5- TR Unit Light
- 6- ELEC Light
- 7- Main Push button
- 8- Battery switch
- 9- Galley Power switch

3.- Windshield and Pitot Head Control Panel

Module with the following functions:

- 1- Windshield Heat switch
- 2- Side Window Heat switch
- 3- Window Heat lights
- 4- Window Heat Test switch
- 5- Pitot static Head switch
- 6- Pitot Static/Probe Heat lights

4.- Anti-Ice Control Panel

Module with the following functions:

- 1- Engine Anti-Ice switch
- 2- Cowl Valve Open light
- 3- Cowl Anti-Ice lights
- 4- Wing Anti-Ice switch
- 5- Wing Anti-Ice Valve open lights

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

5.- Air Cond/Pneumatic Control Panel

Module for the control of the Pneumatic and Air Conditioning systems, with the following functions:

- 1- Dual Bleed light
- 2- Ram Door full open light
- 3- Recirculation Fan switch
- 4- Pneumatic Duct Pressure
- 5- Overhead Test switch (inoperative)
- 6- Pack switch
- 7- Isolation Valve switch
- 8- Engines Bleed switch
- 9- APU switch
- 10- Pack lights
- 11- Trip reset button (inoperative)
- 12- Wing Body Overheat lights
- 13- Bleed Trip off lights

6.- Temperature Control Panel

Module with the following functions:

- 1- Temperature selector (inoperative)
- 2- Zone Temperature lights (inoperative)
- 3- Trim Air switch (inoperative)
- 4- Temperature Source selector (inoperative)
- 5- Gauge Temperature indicator

7.- Transfer Panel

Operative module

8.- Standby Power & CSD panel

Module with the following electric functions:

- 1- Standby Power off Light
- 2- Standby Power switch
- 3- Gen Drive disconnect switches
- 4- Drive lights

9.- Hydraulic Control Panel

Hydraulic system control module, with the following functions:

- 1- Low Pressure lights
- 2- Overheat lights
- 3- Engine Hydraulic switches
- 4- Electric Hydraulic switches

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

10.- Doors Annunciator Panel

Operative module. Considering that the flight training device is fixed, these functions are controlled through switches operated by the instructor

11.- Fuel Control Panel

Fuel System control module with the following functions:

- 1- Eng Valve closed lights
- 2- Spar Valve closed lights
- 3- Fuel Temperature Indicator
- 4- Fuel Temperature Indicator
- 5- Fuel Filter Bypass lights
- 6- Crossfeed Valve lights
- 7- Crossfeed selector
- 8- Center Tank low pressure lights
- 9- Main Tank low pressure lights
- 10- Fuel Pump switches

12.- AC Electrical Power Panel

Electric Power control module with the following functions:

- 1- Ground Power available light
- 2- Ground Power switch
- 3- Bus Transfer switch
- 4- Transfer Bus off lights
- 5- Source off lights
- 6- Gen off lights
- 7- APU Gen off Light
- 8- Engine Generator switches
- 9- APU Generator switches

13.- Cockpit Voice Recorder Panel

Inoperative module

14.- APU Control Panel

APU control system module with the following functions:

- 1- Maintenance Light
- 2- Low Oil Pressure Light
- 3- Fault Light
- 4- Overspeed Light
- 5- APU EGT Indicator
- 6- Windshield Wiper control

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

15.- Pressurization Indicator Panel

Module with the following functions:

- 1- Cabin Altimeter Indicator (simulated)
- 2- Cabin rate of Climb Indicator (simulated)
- 3- Altitude Horn Cutout button

16.- Digital Pressurization Controller Panel

Pressurization control module with the following functions:

- 1- Flight Altitude selector
- 2- Landing Altitude selector
- 3- Remaining module

17.- Circuit Breaker & Panel Light Rheostats

Inoperative module

18.- Equipment Cooling Control Panel

Operative module

19.- Emergency Exit Light Panel

Module with the following functions:

- 1- Emergency lights switch
- 2- Not Armed light

20.- Passenger Signs Panel

Operative module

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

EXT LIGHT & ENGINE MODULE

1.- CAP Exterior Lights Panel

Exterior Lights control module with the following functions:

- 1- Outboard Landing lights
- 2- Inboard Landing lights
- 3- Runway Turnoff lights
- 4- Taxi lights

2.- Engine Start Panel

Ignition control system module with the following functions:

- 1- Ignition selection switch
- 2- Engine Start switches
- 3- APU switch

3.- FO Exterior Light Panel

Exterior Light control module for the following functions:

- 1- Logo lights
- 2- Strobe lights
- 3- Anti-Collision lights
- 4- Wing lights
- 5- Wheel Well lights

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Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 06.- MASTER INSTRUCTOR DESK

1.- Instructor Cabin Section

Area designated for the instructor, composed by:

- 1- Exclusive section at the back of the cabin (interior)
- 2- Working table, superior cabinet and lighting
- 3- PC with minimal specifications established in section 09 SOFTWARE & VARIOUS
- 4- Control and supervision of all simulations and induction operations by software
- 5- 19" LCD monitors for control and information display (2)
- 6- Printer WF for maneuvers graphics and performed procedures

2.- Instructor Station Functions

- 1- Through the "Instructor Station" software, instructor can supervise, control and generate the functions established on the Operation Manual. Through the software, acoustic sounds can be generated in a specific moment
- 2- Using the software, the instructor can supervise and generate flight graphics in LNAV and VNAV
- 3- Using the software, the instructor can access through internet connection to data bases, to obtain meteorological data in real time, using ICAO codes
- 4- Through the software, remote technical assistance is permanently received

3.-Observer Section

Open section at the back of the cockpit for the observer, with a total vision of the Flight Deck and Visual

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 07.- SHELL (fuselage)

1.- Structural steel system (cockpit & instructor station)

Structural system for the cockpit and instructor station, manufactured on a modular basis, metallic 1"x1/2" base, finished on electrostatic oven paint.

Outside shield made of fiber glass finished on smelted paint (diverse colors), folding plastic black sheets, SFT logo, tail number and flight training device model (in both sides of the cockpit) and easy front opening for maintenance (upon real B737NG aircraft dimensions)

2.- Set Windows system & template glass (6 windows)

Set of window frame made of fiber glass and finished on natural grey color, 6mm temperate glass, rubber for adjustment and screws for assembly (upon real B737NG aircraft dimensions)

3.- Interior panel system (complete)

Cockpit interior cover through panels, simulating those of the B737NG aircraft, manufactured on fiber glass on diverse colors, set of plastic sheets and screws for assembly

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Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 08.- EXTERNAL VISUAL SYSTEM

1.- Visual system

Various visual system options, from large format LCD display to curved projection up to 210° x 45° viewable area

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Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

Section 09.- PC's and SOFTWARE

1.- Computer system (4 PC's)

Computer system integrated by 4 PC's with the following functions:

- a) Server PC, controls MCP, flaps indicators gauge, Visual, Networking and the software interface
- b) CAP PC, controls the PFD, ND, EICAS (upper) y CDU from CAP, Networking and Overhead panel
- c) FO PC, controls the PFD, ND, EICAS (lower) and CDU from FO, Networking and throttle console
- d) Instructor PC, controls the "Instructor station" (failure system control, meteorological conditions, position, fuel, flight freeze and control of main system) using, LNAV system profile, access to data bases through internet connection to obtain meteorological data in real time using ICAO codes, Network connection to obtain real time weather conditions to update data bases for the ND, CDU's and instructor station, Sound generator software for acoustic sounds, even on alarms and diverse sound advices and total control of equipment by the instructor
- e) Software for remote technical control

Minimum equipment specification in ATS-B737NG:

1. PC Server:

- Processor INTEL Quad-Core
- RAM Memory of 8 GB
- Video card of 4 Gb
- Hard Drive of 250 Gb Raid 1 (dual),
- Motherboard UltraDurable
- Suitable cabinet and power source

2. PC CAP, FO and Instructor:

- Processor INTEL Quad-Core
- RAM Memory of 4 GB
- Motherboard UltraDurable
- Video Card of 2 Gb
- Hard disk of 250 Gb Raid 1 (dual)
- Suitable cabinet and power source

3. Microsoft Windows 10

Flight Training Device ATS-B737NG

Appendix B) Components Description

Reviewed: 26.02.2018

2.- Systems Software

For the correct operation and management of the system, the following software PRO is used:

- 1- Software emulator, logics and displays information for the PFD, ND and EICAS for CAP and FO (each computer has an independent user license)
- 2- Software emulates and generates functions and capabilities of a CDU Boeing-Smith-Type
- 3- Software emulates and generates functions and capabilities of a Mode Control Panel (MCP) synchronizing with the MCP, EFIS and other aircraft systems
- 4- Software emulates and generates functions and synchronizes FMC of the FO with the CAP
- 5- Software emulates and generates functions of the Overhead Panel
- 6- Software emulates and generates functions if the instructor station
- 7- PREPAR 3D visual generator and system motor integrator
- 8- Flight Simulator Universal Inter-Process Communication, software that allows synchronization between all installed software
- 9- Network Application Interface software, which through Windows networking protocols, allows the interaction between installed applications and the 4 different PC'S
- 10- Software that configures and specifies the functions that should execute every module and component, as well as the interaction between them
- 11- Aerodynamic profile and general specifications for the simulated B737-800 aircraft. This information is related to the Reference Data Report (RDR) of the real aircraft
- 12- Virtual Network Computing (VNC), allows the control of all applications installed on other computers from the instructor station, including the shut off and reset
- 13- Software emulates and generates all acoustic signs for alarms and notices
- 14- Navdata (**Navigraph**) aeronautical navigation data base that is updated every 28 days, and installed in the CDU, Glass Cockpit, Instructor's Station and Quickmap
- 15- Software base on the web that allows technical assistance by remote control on either of the equipment
- 16- Software PRO Instructor Station for fail system control, meteorological conditions, position, fuel, flight freeze and control of main system, LNAV system profile, Network connection to update data bases for the ND, CDU's and instructor station, Sound generator software for acoustic sounds even on alarms and diverse sound advices and total control of the equipment by the instructor