

Flight Training Device ATS-KINGAIR 350

Appendix B) Component Description

Reviewed: 20.02.2018

<i>Model</i>	<i>Serial Number</i>	<i>Tail Number</i>
<i>ATS-KINGAIR350</i>		

<i>Operator</i>

Setup and instrument description of the Advanced Training System (ATS) KINGAIR 350, which includes the following sections, modules and instruments, to simulate the KingAir 350 cockpit, on real dimensions, instruments and equipment.

Sections

- 01.- PLATFORM
- 02.- CONSOLES
- 03.- MAIN INSTRUMENT PANEL
- 04.- EQUIPMENT
- 05.- MASTER INSTRUCTOR DESK
- 06.- SHELL (fuselage)
- 07.- PC's and SOFTWARE
- 08.- VISUAL SYSTEM

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Section 01.- PLATFORM

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

Manufactured with a structure of 2" x 1" tubular metals, supported by 8 detachable legs (real KINGAIR350 external dimensions).

Floor cover on detachable 16 caliber aluminum.

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

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Section 02.- CONSOLES

1.- Central Console

Framework manufactured in aluminum layer, laser cut, and finished on black electrostatic oven painting.

This console is used by:

- 1- Course Cap Knob
- 2- Heading Knob
- 3- Course FO Knob
- 4- Altimeter (Baro) Knob
- 5- Decision Height Knob
- 6- Flight Director Switch
- 7- Heading Lock Switch
- 8- Altitude Lock Switch
- 9- Nav Lock Switch
- 10- Approach Lock Switch
- 11- Back Course Lock Switch
- 12- Yaw Engage Lock Switch
- 13- AutoPilot Master Switch
- 14- Vertical Speed Control

2. - Throttle Quadrant

Framework built in inox steel and aluminum layer, laser cut and finished on black electrostatic oven painting.

The system includes rivets and screws for fixing and assembly.

- 1- Power levers
- 2- Condition levels
- 3- Propellers levels
- 4- Trim Tap control (motorized)
- 5- Flap Control level
- 6- Elevator Trim Wheel
- 7- Rudder Trim Wheel
- 8- Aileron Trim Wheel

Manufactured on stainless steel 304, with a natural finishing. Levers and handles are manufactured in black ACETAL. Plastic covers are built on "micro surface impact plexiglass" LASERMAX type, on black color. Manual trims handles are built on fiberglass with a black mate finish, free of impurities.

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Section 03.- MAIN INSTRUMENT PANEL (Upper)

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

Framework built in aluminum layer, CNC&laser cut. Set of lateral supports made of metallic edges. Finished on oven electrostatic paint and modules manufactured on "micro surface impact plexiglass "LASERMAX" and backlight system.

2.- CAP Flight displayed (digital)

- 1- Electronic Attitude Direction Indicator (EADI)
- 2- Electronic Horizontal Situation Indicator (EHSI)
- 3- IAS Indicator
- 4- Radio Magnetic Indicator
- 5- DME Indicator
- 6- Turn/Bank indicator (analog)
- 7- Altimeter Indicator
- 8- Vertical Speed Indicator

3.- FO Flight Displayed (digital)

- 1- Attitude Indicator
- 2- Electronic Horizontal Situation Indicator (EHSI)
- 3- IAS Indicator
- 4- Radio Magnetic Indicator
- 5- DME Indicator
- 6- Turn/Bank indicator (analog)
- 7- Altimeter Indicator
- 8- Vertical Speed Indicator

4.- Glareshield panel

- 1- Master Caution for CAP&FO
- 2- Warning Annunciator Panel

5.- Engines Instrument Controls (analog instruments)

- 1- ITT gages (2)
- 2- Torque gages (2)
- 3- Propeller RPM gage (2)
- 4- Engine RPM gage (2)
- 5- Fuel Flow gage (2)
- 6- Oil Pressure/Temperature gage (2)

6.- Other Instrument Controls

1. Propeller Synchroscope & Switches,
2. Audio Panel Control,
3. Altitude Preselector,
- 4 Set Radios Collins type (analog instruments)
 - a. COMM Radio Control (2)
 - b. NAV Control (2)
 - c. ADF Control (1)
 - d. TRANSPONDER Control (1)

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Section 03.- MAIN INSTRUMENT PANEL (lower)

- 1- Parking Brake Handle
- 2- Engine Start & Ignition Switches panel
- 3- Landing Gear Control panel
- 4- Exterior Light Control panel
- 5- Autofeather Switches panel
- 6- Ice Protection&Head Control Switches panel
- 7- Caution Advisory Annunciator panel
- 8- Bleed Air Valve Switches
- 9- Cabin Light Control panel
- 10- Flap, Cabin Climb and Pressurization gauges panel
- 11- General Switches Electrical panel

Section 03.- LATERAL INSTRUMENT PANEL

LEFT CAP Panel

- 1- Fuel Control Panel
- 2- Circuit Brakes panel

RGHT FO Panel

- 1- Circuit Brakes panel

Section 03.- OVERHEAD PANEL

- 1- Overhead Light
- 2- Control panel
- 3- Volt-Load meter-Battery Ammeter
- 4- Compass

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Section 04.- EQUIPMENT

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

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

Operative on:

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

2.- CAP & FO Yoke (synchronized)

Yoke synchronized system, manufactured on metallic materials intended for rude use, finished with oven electrostatic paint, spring system, potentiometers, Beechcraft type yokes manufactured on black 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- Digital clock CAP&FO

3.- Cockpit lighting system

General lighting system integrated by:

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

4.- Audio system

Audio system integrated by 5 speakers and subwoofer.

5.- Crew Communications System

Internal communication system integrated by 3 headsets (CAP, FO and INSTRUCTOR), COMM-1 models or similar and INTERCOM system.

6.- Seat Crew for CAP & FO

Seats, Beechcraft type, for the simulated aircraft.

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7.- Electrical set, Low voltage supplies & Internet

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

- 1- *NO BREAK at 1600W (minimum), which allows control and protection of the entire system. In case of an electric power shut down, the device grants the user 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 and 12 volts) required for electronic cards and watches*

8.- Horometer

Suitable for an effective control of flight training device hours

9. - Panel Mount Wet Compass

Module that includes Magnetic Compass, movable support and central post

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Section 05.- 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, cabinet section and lighting
- 3- PC with minimal specifications established in section 09 SOFTWARE & VARIOUS.-
- 4- Control and supervision of all simulation and induction operations, software
- 5- 19" LCD monitors for control and information display
- 6- Printer

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Section 06.- SHELL (fuselage)

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

Outside shield made of fiber glass and structural system, finished on smelted paint (diverse colors), folding plastic black sheets, SFT logo, tail number and FTD model (in both sides of the cockpit) and easy front opening for maintenance (upon real KINGAIR A350 aircraft dimensions)

2.- Set Windows system & plexiglass

Set of window frame made in plexiglass

3.- Interior panel system (complete)

Cockpit interior covered by panels, simulating those of the KINGAIR A350 aircraft, manufactured on fiber glass on diverse colors, set of plastic sheets and screws for assembly

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Section 07.- PC's and SOFTWARE

1.- Computer Rack System

Computer rack system integrated by 3 PC's with the following functions:

1. Server PC: system control, flaps, engine instrument, Visual, throttle console, Networking and other software interface, sound generator software for acoustic sounds, even on alarms and diverse sound advices
2. CAP&FO PC's: controls the Display Screens, Networking and radio panel indicators gauge
3. Instructor PC, controls the "Instructor station" (fail system control, meteorological conditions, position, fuel, flight freeze and control of main system) and software for the total control of the equipment by the instructor.

Minimum equipment specifications in ATS-KA350:

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

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

2. Microsoft Windows 10

2.- Software System

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

1. Professional software PREPAR 3D license for visual generator and system motor integrator.
2. Flight Simulator Universal Inter-Process Communication, which allows synchronization between all installed software
3. Network Application Interface software, which through Windows networking protocols, allows the interaction between installed applications and the 3 different PC'S
4. Software that configures and specifies the functions that shall execute each module and component, as well as the interaction between them
5. Aerodynamic profile and general specifications for the simulated KA350 aircraft. This information is related to the Reference Data Report (RDR) of the real aircraft
6. Virtual Network Computing (VNC), which allows the control of all applications installed on other computers from the instructor station, including the shut off and reset functions
7. Navdata (**Navigraph**) aeronautical navigation data base which is updated every 28 days
8. Software based on the web which allows technical assistance by remote control on the equipment
9. Software PRO Instructor station (fail system control, meteorological conditions, position, fuel, flight freeze and control of main system LNAV system profile, Network connection and Instructor station, and total control of the device by the instructor)

Section 08.- EXTERNAL VISUAL SYSTEM

1.- Visual system

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

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