



**Pilot Training**

# **SA330 – Super Puma (ATP/Initial Type Rating)**

**20 Days**

**Ground School**

**51 Hours (10 Days)**

**Sim**

**20 Hours single pilot, 28 Hours dual pilot**

**AIRBUS**



## **SCOPE:**

This course will provide a pilot Ground School and Simulation Training for the SA330 – Super Puma helicopter. Classroom instruction, combined with flight simulation, will provide information for a thorough review of the aircraft and the knowledge needed to conduct normal flight activities and response to an aircraft emergency or system failure.

## **OBJECTIVE:**

To provide the PT with training and experience in the basic flight characteristics of the SA330 – Super Puma helicopter with emphasis on conducting normal flight activities and responding appropriately during an aircraft emergency or system failure. The PT will obtain the aeronautical skill and experience necessary to meet the requirements for an S-330 Initial Type Rating and optionally an Airline Transport Pilot Certificate with a Rotorcraft category and Helicopter class rating.

## **COURSE PREREQUISITES:**

Acceptance into this course is based upon these requirements:

- A current FAA issued Helicopter Pilot Certificate
- Valid Medical Certificate

In special circumstances any of the above requirements may be waived with the approval of Airbus Helicopters, Inc.'s Chief Flight Instructor.





## **Ground School**

51 hours

### **WELCOME AND IN-PROCESSING**

1.0 hour

SCOPE: This block of instruction will cover registration and orientation to the course, and an explanation of the course outline.

### **AIRCRAFT OVERVIEW**

2.3 hours

SCOPE: The general overview will include the main characteristics, description, main dimensions, airframe reference points, the engine, the main components and systems, the cockpit layout of the helicopter and the helicopter operating publications.

### **FLIGHT MANUAL INTRODUCTION AND LIMITATIONS**

4.7 hours

SCOPE: This block of instruction will cover the flight manual from an overview perspective, with special emphasis on the aircraft limitations identified in FLM section 2 and pertinent supplements.

### **COCKPIT OVERVIEW**

3.4 hours

SCOPE: This block of instruction will cover the indicating system locations and principles including normal and abnormal indications, aural tones, warning lights, and cautions

### **STRUCTURE/FUSELAGE**

4.5 hours

SCOPE: This block of instruction will cover the general design and layout of the fuselage

### **MAIN ROTOR DRIVE SYSTEM**

3.4 hours

SCOPE: This block of instruction will cover the main gearbox design and installation, drive, lubrication, monitoring and emergency procedures associated with the main gearbox.

### **MAIN ROTOR**

2.4 hours

SCOPE: This block of instruction will cover the main rotor system, including the spheriflex design and components, blade design, NR laws and monitoring of the main rotor speed including emergency procedures.

### **TAIL ROTOR**

2.2 hours

SCOPE: This block of instruction will cover the components and operation of the tail rotor including emergency procedures associated with the tail rotor system.

### **ELECTRICAL SYSTEM**

5.2 hours

SCOPE: This block of instruction will cover the basic AS332 L1 electrical system, installation, component location and function. This section will include both AC and DC systems. Additionally, operations of the electrical system from a pilot's perspective will be covered, including normal operations, system redundancy, and emergency procedures in case of malfunctions or failures.



## **HYDRAULIC SYSTEM**

2.8 hours

SCOPE: This block of instruction will cover the hydraulic systems, both main and emergency and the relationship with the servos and landing gear operations. Included will be instruction on normal operations, monitoring of the systems, malfunction recognition, and emergency procedures relating to potential malfunctions or failures of the hydraulic system.

## **LANDING GEAR**

3.5 hours

SCOPE: This block of instruction will cover the AS332 L1 landing gear system, including basic operations, monitoring, potential malfunctions and failures and emergency procedures relating to landing gear malfunctions.

## **FLIGHT CONTROLS**

3.9 hours

SCOPE: This block of instruction will cover the basic flight control installation for the AS332 L1, including the relationship with the hydraulic systems, servos, and emergency procedures related to loss of tail rotor control.

## **AUTOPILOT**

5.0 hours

SCOPE: This block of instruction will cover, from a pilot's perspective, the AS332 L1 autopilot systems. This will include basic installation, location and function of the autopilot, controls and its relation to the hydraulic system. The basic 3-axis flight autopilot will be covered including typical operations of the autopilot where it helps to explain the overall functionality. This module will concentrate on the testing and controls as well as malfunction/failures.

## **FUEL SYSTEM**

3.4 hours

SCOPE: This block of instruction will cover the fuel supply system for the AS332 L1, including basic installation of the fuel cells, basic operations of all components, monitoring of the fuel system, and potential malfunctions within the systems. Emergency procedures relating to fuel system malfunctions will be covered.

## **ENGINE AND COMPONENTS**

6.8 hours

SCOPE: This block of instruction will cover the AS332 L1 power plant including installation, lubrication system, and monitoring of normal parameters, and power check procedures. Starting, shutdown, and normal procedures will cover in addition to emergency procedures relating to engine and system related malfunctions.

## **STANDARD EQUIPMENT (FIRE PROTECTION)**

2.2 hours

SCOPE: This block of instruction will cover installation and monitoring of the engine and airframe fire detection and suppression system for the AS332 L1. This will include component location, monitoring, system malfunction, and emergency procedures pertaining to the engine or airframe fire and/or excessive heating of the cargo area.

## **UTILITY (HEATING AND VENTILLATION)**

0.6 hour

SCOPE: This block of instruction will cover the heating, ventilation, and air-conditioning systems installed on the AS332 L1. Included will be normal operations of these systems, monitoring, and emergency procedures associated with the air-conditioning and heating systems.





**STANDARD EQUIPMENT (PITOT STATIC)**

1.0 hour

SCOPE: This block of instruction covers the air data system, its components, system layout, as well use and interpretation of those systems during normal and emergency situations.

**STANDARD EQUIPMENT (ICE AND RAIN PROTECTION)**

0.8 hour

SCOPE: This block of instruction will cover the ice and rain protection systems installed on the AS332 L1 including ice detection, rotor and engine icing protection as well as windscreen heating. Included will be normal operations, monitoring, and emergency procedures.

**STANDARD EQUIPMENT (LIGHTING)**

1.3 hours

SCOPE: This block of instruction will cover the internal and external lighting systems found on the AS332 L1, including basic and customized lighting. Normal operations, lighting checks and any emergencies related to the lighting systems will be included.

**OPTIONAL EQUIPMENT**

5.2 hours

SCOPE: This block of instruction will cover systems and equipment not previously covered earlier in the presentation. This may include, but is not limited to items such as cold weather, ice detection de-icing, and intake air heating/filtering, pressure refueling, ferry tanks or other equipment installed.

**FLIGHT MANUAL REVIEW**

1.0 hour

SCOPE: This block of instruction will cover the flight manual in depth, with emphasis on normal procedures, performance planning, weight and balance, supplements and servicing.

**PERFORMANCE PLANNING**

1.5 hours

SCOPE: This block of instruction will cover the flight manual in depth, with emphasis performance planning.

**WEIGHT AND BALANCE**

1.3 hours

SCOPE: This block of instruction will cover the flight manual in depth, with emphasis on using the calculating weight and balance using the weight and balance charts provided in section 6 and applicable supplements.

**AIRCRAFT PREFLIGHT**

1.5 hours

SCOPE: This block of instruction will cover the preflight inspection of the AS332 L1. Utilizing the RFM checklist as well as a classroom multimedia, the PT will be led through an entire preflight to include systems review.

**MULTI CREW COORDINATION**

1.0 hour

SCOPE: This block of instruction will cover the Airbus Helicopters Standard Operating Procedures (SOP) for multi-pilot aircraft. The SOP's deals with how crews complete their duties. These SOP's cover aircraft control, crew coordination, communication, briefings, standard phraseology, radio use and dealing with emergencies.

**FINAL EXAM**

2.0 hours

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## Flight Training

**20 hours**

### Flight 1: Basic introduction to the AS332 L1

2.0 hours (FSTD)

**Objective:** The PT will demonstrate knowledge on completing the daily pre-mission planning and aircraft performance charts. The PT will be introduced to the cockpit of the AS332 L1 and familiarized with switches and controls. The PT will demonstrate basic knowledge of starting and shutting down the aircraft utilizing the aircraft. This flight will include a VFR airport-to-airport scenario encompassing the following tasks.

- a) Performance Planning and Limitations
- b) Check of Weight and CG
- c) Cockpit Management
- d) Use of Checklists
- e) Multi-crew Coordination
- f) Normal Start-up Procedures
- g) Engine Power Check
- h) Taxi (limited for first flight)
- i) Before Take-off Checks
- j) Normal take-off and landing procedures
- k) Flight controls and typical helicopter response
- l) Normal Procedures (NTO,NLD, RLND)
- m) Rapid Deceleration
- n) Rejected Landing
- o) OEI Procedures
- p) Gov Failure
- q) Normal Shutdown procedures
- r) Emergency Egress

### Flight 2: Introduction to the Autopilot with Aircraft Emergencies

2.0 hours (FSTD)

**Objective:** The PT will be will continue to work on the specific tasks associated with startup/shutdown procedures using the checklist and basic VFR flight maneuvers with and without the autopilot. A multi-point VFR flight scenario will be completed using the autopilot leveraging the different modes. During this flight the PT will be introduced to limited emergency procedures such as engine failures, hydraulic and landing gear failures. This flight will include the following items:

- a) Performance Planning and Limitations
- b) Check of Weight and CG
- c) Cockpit Management
- d) Use of Checklists
- e) Multi-crew Coordination
- f) Normal Start-up Procedures
- g) Engine Power Check
- h) Normal Taxi (Scope increased from first flight but still limited)
- i) Hover Power Check
- j) VFR Flight Procedures

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- k) Normal Procedures (NTO,NLD, RLND)
- l) Rejected Takeoff
- m) Rejected Landings
- n) OEI Procedures
- o) Autopilot Upper Modes
- p) Effectiveness of the beep-trim (attitude-1°/beep>40kt)
- q) AP's OFF
- r) Tail Rotor Failure
- s) Emergency procedures including hydraulic and landing gear failures
- t) Autorotation with Power Recovery
- u) Normal Shutdown Procedures

### **Flight 3: Normal Procedures, OEI & TR Emergency Procedures**

2.0 hours (FSTD)

**Objective:** This is the final VFR flight scenario. During this flight the PT will be continue to work on engine failures in cruise flight and during approach and departure as well as other emergencies. This flight will include a VFR flight scenario to the multiple destinations including confined areas/helipads. This flight will include the following items:

- a) Performance Planning and Limitations
- b) Check of Weight and CG
- c) Cockpit Management
- d) Use of Checklists
- e) Multi-crew Coordination
- f) Normal Start-up Procedures
- g) Engine Power Check
- h) Normal Taxi (Scope increased from first flight but still limited)
- i) Hover Power Check
- j) VFR Flight Procedures
- k) Normal Procedures (NTO,NLD)
- l) Rejected Takeoff
- m) Rejected Landings
- n) OEI Procedures
- o) Autopilot Upper Modes
- p) Effectiveness of the beep-trim (attitude-1°/beep>40kt)
- q) AP's OFF
- r) Tail Rotor Failure
- s) Emergency procedures including hydraulic and landing gear failures
- t) Settling with Power
- u) Autorotation with Power Recovery
- v) Normal Shutdown Procedures



#### **Flight 4: IFR Flight and Various Engine Failures and Fire**

2.0 hours (FSTD)

**Objective:** This flight will introduce the PT to IFR flight within controlled airspace utilizing the autopilot to two local airports using both precision and non-precision approaches including holding. This flight includes OEI work with an in-flight restart, as well as GOV malfunctions. This flight will also include a rejected landing. During this flight the PT will concentrate on using the AFCS as much as possible to reduce their workload and should start to show mastery of all of the appropriate AFCS upper modes.

- a) Normal Startup Procedures
- b) Taxi Procedures
- c) Normal IFR Flight Procedures
- d) Unusual Attitude Recovery
- e) FADEC Failure
- f) PFDS Failure
- g) ILS (Coupled with Missed, Uncoupled with OEI Landing)
- h) Full VOR & LOC Approach (1 Coupled with PT and 1 Uncoupled)
- i) Holding
- j) Normal Shutdown procedures

#### **Flight 5: IFR Night Flight with Various AP and Display Failures (LOFT)**

2.0 hours (FSTD)

**Objective:** This flight will concern a PT on IFR flight within controlled airspace utilizing the AFCS to two local airports using SID/STAR as well as precision and non-precision approaches with various malfunction on approach as well as after the FAF. The PT will be exposed to various instrument and system failures. The intent of these failures is to prepare the PT to be able to fly a full uncoupled approach by hand if necessary.

- a) Normal Startup Procedures
- b) Taxi Procedures
- c) Normal IFR Flight Procedures
- d) Unusual Attitude Recovery
- e) GOV Failure
- f) Autopilot Failure
- g) ILS (Coupled with Missed, Uncoupled with OEI Landing)
- h) Full VOR & LOC Approach's (1 Coupled with PT and with display failure)
- i) Missed OEI and AEO
- j) Holding
- k) Normal Shutdown procedures





**Flight 6: IFR Flight with Autopilot and Display failures (LOFT)**

2.0 hours (FSTD)

**Objective:** This flight is IFR flight within controlled airspace utilizing the autopilot/coupler to two local airports using both precision and non-precision approaches. Including a missed approach and hold. The PT will be introduced to a static system failure which might facilitate decoupling of the AFCS. This malfunction is an excellent way to introduce the risks of IFR helicopter flight without an AFCS and the potential for unusual attitudes. This flight includes the following items:

- a) Normal Startup Procedures
- b) Taxi Procedures
- c) Normal IFR Flight Procedures
- d) Instrument / display failures
- e) ILS (Coupled with PT & Missed, Uncoupled with OEI Landing)
- f) Full VOR & LOC Approach's (1 Coupled with PT & Display Failure, 1 Uncoupled)
- g) Missed OEI and AEO
- h) Holding
- i) Normal Shutdown procedures

**Flight 7: End-of-Course Evaluation (TCE Administered)**

2.0 hours (FSTD)

**Synopsis:** The Training Center Evaluator will administer an end-of-course evaluation in accordance with PTS FAA-S-8081-20. The evaluation will include an oral exam which will successfully be completed prior to the flight. The flight portion will include VFR and IFR flight operations with emergencies. The evaluation will include all required tasks as identified in ATP helicopter PTS FAA-S-8081-20 Change 2.

1. Evaluation stage I
  - a. Oral Exam (Ground)
    - 1) The oral exam will be based on the knowledge portion of each "Area of Operation" listed in each section of the PTS.
    - 2) The oral portion of the check ride must be successfully completed prior to the flight.
2. Evaluation Stage II (Flight)
  - a. The flight portion will include all of the required tasks in the PTS
  - b. The flight will include but not be limited to the following maneuvers;
    - 1) Normal Startup Procedures
    - 2) Clearance
    - 3) Taxi Procedures
    - 4) Normal IFR Flight Procedures (Including AP Use)
    - 5) Emergency Procedures
    - 6) Partial Panel
    - 7) Full Precision
    - 8) Non-Precision Approach
    - 9) Missed Approach (OEI)
    - 10) Holding
    - 11) Landing from an Approach
    - 12) Normal Shutdown Procedures