



### Flight Inspection Aircraft Deliveries

#### Second Flight Inspection Aircraft for SMATSA

In December 2013 Aerodata has delivered another Super King Air 350 equipped with automatic flight inspection system AeroFIS® to Serbia Montenegro Air Traffic Services Agency (SMATSA) on time. Within this project Aerodata took the responsibility for the purchase of the basic aircraft, the design and production of the Flight Inspection System as well as for the aircraft modification and the certification by EASA STC. Within this project the aircraft has been converted into a multi-role aircraft, capable of performing flight inspection as well as air ambulance flights. Life support equipment and two stretchers for transportation of patients can be installed.



AeroFIS® integrated in KingAir 300

#### 2<sup>nd</sup> Flight Inspection System for Kazakhstan

In 2012, Aerodata AG was awarded a contract by the Kazakh flight inspection organization JSC "Air Control" to deliver a second Beechcraft KingAir350 equipped with a state of the art flight inspection system AeroFIS®.

As the prime contractor Aerodata was responsible for the turn key delivery of the flight inspection aircraft. This project comprised the procurement of the aircraft, development and production of the new flight inspection system AeroFIS® AD-AFIS-112 as well as aircraft modification and certification. Besides the capabilities to flight inspect conventional radio navigation systems, the AD-AFIS-112 provides also the capability for inspection of RNAV/RNP procedures and ADS-B.

The new flight inspection system enables Air Control to achieve the highest possible accuracy and repeatability of flight inspection results by the use of autopilot coupling and hybrid position reference.

After EASA issued the Supplemental Type Certificate (STC) the aircraft was accepted to the customer's full satisfaction by the Kazakh flight inspection organization JSC "Air Control" in April 2014.



JSC "Air Control" President Seifulin Khalil R. and his team during the Final Acceptance

#### Aerodata Helicopter Flight Inspection System delivered

A helicopter flight Inspection system AD-AFIS-220H has been delivered, installed and successfully flight tested by our customer FCS, Flight Calibration Services, Braunschweig, Germany.

The system was built to flight check/validate the Swiss low-level-IFR network to perform helicopter operation also in low visibility. The network is currently set up. Each single published procedure has to be validated in flight.



Helicopter Flight Inspection System

System design focused on using identical software as for the fixed wing version AD-AFIS-220, operated by FCS in KingAir aircraft and certified in Germany, Switzerland and Austria. A subset of identical hardware components was installed, as far as required for the procedure validations.

One special request was the implementation of a function for checking several communication links



in critical environment in mountainous environment in Switzerland.



Helicopter during Ground Test

The helicopters are operated by the major HEMS operator (Helicopter Emergency Medical Services) REGA in Switzerland.

Flight Inspection Aircraft for DGAC Ecuador

On the 8th of December 2014 the new flight inspection aircraft type Beechcraft Super KingAir B300 of the DGAC Ecuador landed safely in Quito, Ecuador.

As a prime contractor Aerodata was responsible for the procurement of one new flight inspection aircraft type Beechcraft Super KingAir B300, development and production of one fully automatic flight inspection system AeroFIS as well as integration of the system into the aircraft, training of pilots and operator, and ferry of the aircraft.



New Flight Inspection Aircraft of DGAC Ecuador

Part of the Supplemental Type Certificate (EASA STC) for the aircraft modification was an interface from the Flight Inspection System to the aircrafts autopilot system. By this the pilot may select the AeroFIS for precise steering of the aircraft along all flight inspection profiles. Pilots are supported by a Cockpit Information Display (CID) which displays the flight inspection profile and the way to intercept this profile.

New Flight Inspection Contracts

New Flight Inspection System for Algerian Air Force

Early 2014, Aerodata AG was contracted by the Algerian Air Force for the delivery of a flight in-

spection system AeroFIS and the modification of two aircraft, type Beechcraft 1900D for its installation. The AeroFIS will be a customized design incorporating special functions to fulfill all requirements of the Algerian Air Force. The contract includes calibration and test systems, a comprehensive spare parts package, an office computer system for archiving and reprocessing of the flight inspection mission data and a geodetic GNSS survey system for airfield surveys.

Besides the capability for inspection of conventional navigation aids and surveillance systems like ILS (incl. CAT III), VOR, DME, NDB, TACAN and SSR the AeroFIS will provide enhanced functionality for validation of RNAV/RNP procedures. In addition, inspection capabilities for GBAS, ADS-B, non-standard short-range navigation systems, and precision approach radars will be included. The EASA certified autopilot coupling of the system will substantially reduce pilot workload during flight inspection.

The delivery of the two modified Beechcraft 1900D flight inspection aircraft is scheduled for late 2015.

Second Flight Inspection System for the Argentinean Aeronautical Administration (AAA)

As a logical consequence of the successful completion of numerous flight calibration tasks, the Argentinean Aeronautical Administration (AAA) together with the International Civil Aviation Organization (ICAO) has recently placed an order for a second flight inspection system AeroFIS at Aerodata AG.

AAA is currently sharing two LearJet35A modified for flight inspection for one AeroFIS. The delivery of the second, identical AeroFIS, will enable AAA to operate two fully equipped aircraft simultaneously.

Flight Inspection for SVEGE Flugdienstleistungen

In January 2015, the Aerodata AG was awarded a contract by SVEGE Flugdienstleistungen GmbH to deliver a new flight inspection system AeroFIS for integration into TP-600 A-Viator. Besides the established radio navigation systems the new AeroFIS provides also the capability to inspect procedures as PBN, RNAV (GNSS), SID, STAR, SIAP. Provisions are provided for the future installation of equipment for the inspection of GBAS procedures.



**New Flight Inspection System for Egypt Air Force**

Early 2015 Aerodata AG was contracted by the Egyptian Air Force for the delivery of a flight inspection system AeroFIS®. The AeroFIS® will be designed to be installed in two Beechcraft 1900C aircraft. The contract also includes a calibration and test system, a comprehensive spare parts package, an office computer system for archiving and reprocessing of flight inspection data, data downlink ground station and a RTK-GNSS survey system for airfield surveys.

The EASA certified autopilot coupling of the system will substantially reduce pilot workload during flight inspection.

**Mission System Deliveries**

**Airbus Defense and Space**

Aerodata's subsidiary OPTIMARE has completed the delivery of 2 pollution monitoring subsystems to Airbus Defense and Space; end customer is the Royal Air Force of Oman. Both systems include sideward looking airborne radar (SLAR), IR/UV scanner as well as processing unit running the oil pollution monitoring software MEDUSA. MEDUSA is integrated fully with the mission system installed on the C-295 aircraft for military tasks. The pollution control subsystem is capable to detect and report oil spills.

The installation of the OPTIMARE equipment has been performed by Airbus Defense and Space at its facility in Seville, Spain. OPTIMARE has supported the installation and performed training for the end customer in Seville as well.



Royal Air Force of Oman C-295 equipped with MEDUSA Pollution Monitoring Subsystem

**New Generation of Oil Spill Sensors**

During the Interspill Conference taking place in Amsterdam in March 2015, OPTIMARE has presented 2 new generation sensors for oil spill detection.

The new revolutionary microwave radiometer (MWR-P) and laser-fluoro sensor (LFS-P) are substantially smaller and more lightweight compared to their predecessors and therefore installable on a large variety of airborne platforms.

**Ultra-compact imaging airborne microwave radiometer MWR-P**

The ultra-compact MWR-P is OPTIMARE's third generation microwave radiometer for day & night airborne analysis of oil spills in terms of thickness distribution and volume. Key characteristics are:

- Day & night airborne detection and mapping of hot spots of oil spills;
- Airborne measurement of oil spill thickness in the range from 0.05 to 3 millimeters;
- Quantification of oil volume;
- Cloud penetrating capability;
- Support of oil spill response actions.



Microwave Radiometer MWR-P

Two decades of experience in microwave radiometry enabled OPTIMARE to develop a microwave radiometer with roughly one-half in volume and weight compared to its predecessor. The MWR-P has a built-in interface to OPTIMARE's airborne maritime surveillance system MEDUSA.

**Ultra-compact airborne laser fluorosensor LFS-P**

The ultra-compact LFS-P is OPTIMARE's fourth generation laser fluorosensor for airborne oil type classification and provides the following capabilities at day and night:

- Detection of laser-induced fluorescence of crude oils, petroleum products and water constituents;
- Classification of crude oils, petroleum products and chemicals spilled at sea;



- Detection of submerged contaminants;
- Measurements of oil film thickness over very thin (optically thin) oil layers;
- Hydrographic measurements (CDOM, turbidity, chlorophyll-a);
- Ultra-compact and ruggedized set-up, no internal cooling water.



Laser Fluorosensor LFS-P

Two decades of expertise as well as progress in optoelectronics and laser technology enabled OPTIMARE to develop a laser fluorosensor with roughly one third in size, weight, and power consumption compared to its predecessor, the LFS Light. The LFS-P has a built-in interface to OPTIMARE's airborne maritime surveillance system MEDUSA.

Various customers presented their specific operational scenarios and provided an excellent overview about the use of the mission equipment in the various applications.

Aerodata and OPTIMARE presented and demonstrated new software capabilities as well as the new light-weight MWR-P and LFS-P sensors.

In-depth technical discussions were held about user-friendliness of software operation, storage and archiving of large data volumes as well as the use of mission data within the legal system, e.g. for court cases.

In order to make mission recordings court-proof, proper performance of the sensors including measurement principles and calibration as well as temper-proof software systems have to be implemented.

Aerodata and OPTIMARE have commenced already to develop a sensor certification method to enable its customers that data can be used in court.

We understand that the handling of large data volumes is an issue which requires a professional solution. Aerodata and OPTIMARE intend to offer an IT solution enabling the permanent access to data recorded during missions.

The next Aerodata – OPTIMARE operator's conference for surveillance and pollution detection systems will be held in Braunschweig in 2017.

**Paris Air Show 2015**

Aerodata and Optimare will exhibit at Paris Air Show, Le Bourget, June 15 - 21, 2015. Please visit us at our stand C354 in hall 2C.

**Offshore Europe 2015**

Optimare will exhibit at Offshore Europe, Aberdeen, UK from September 8 – 12, 2015.

**Operators Conference 2015**

17 – 18 March 2015, OPTIMARE Head Office, Bremerhaven, Germany



In March 2015, Aerodata and OPTIMARE invited mission system customers to the first joint operator conference in Bremerhaven to discuss operational experience with its system users and to present new features of the mission systems. 13 different organizations from 9 countries participated in the 1½ day operator's conference.



**Exhibitions**

Aerodata and OPTIMARE will exhibit at Dubai Air Show, November 8 – 12, 2015.

Aerodata and OPTIMARE will participate in the Coastal Surveillance Conference, Singapore, November 17 – 18, 2015.

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