



U.S. Department
of Transportation
**Federal Aviation
Administration**

Southwest Region
Arkansas, Louisiana,
New Mexico, Oklahoma,
Texas

Fort Worth, TX 76137

June 8, 2009

Mr. Larry Ahlers
CEO
Ahlers Aerospace, Inc.
3621 Raider Drive
Hurst, TX 76053

Dear Mr. Ahlers:

We have completed our evaluation of your Supplemental Type Certificate (STC) project, Federal Aviation Administration (FAA) Project Number ST3031RC-R, and find that you have satisfactorily demonstrated compliance with the applicable certification regulations. Accordingly, we have enclosed STC SR09549RC dated June 8, 2009, which approves the installation of infrared filters to cockpit displays for NVIS/NVG compatibility on Eurocopter Deutschland GMBH BO-105S, Helicopter Variant CBS-5.

This STC represents official FAA approval of an alteration and may be used to authorize identical installations on other aircraft. A copy of this STC should be provided with each installation. Instructions necessary for an installer to complete and inspect this alteration must be provided with parts shipments. Modified aircraft should be returned to service by means of an FAA Form 337, which refers to this STC.

Your responsibility for safety compliance regarding your new STC continues as long as there are any aircraft with valid airworthiness certificates with the STC installed. If you transfer this STC, it can only be done by granting ownership of the STC to a new legal entity, e.g., an individual or a corporation willing and capable of maintaining safety compliance. Such transfer must be initiated by an individual who has authority to act on behalf of the legal entity. In the event the owner is an individual, some form of proof of identity and/or notarization will be required. In the event the owner is a corporation, some proof will be required that the individual transferring the STC on behalf of the corporation has the authority to act on behalf of that corporation. An attestation by the secretary of the corporation with the corporate seal would serve this purpose.

As recipient of this approval, except as provided in 14 CFR §21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in 14 CFR §21.3(c). The report should be communicated initially by telephone to the Manager, Rotorcraft Directorate, (817) 222-5100, within 24 hours after it has been determined that the failure has occurred. In addition, written notification to the Manager, Rotorcraft Directorate, Fort Worth, Texas 76137 is also required. FAA Form 8330-2 (Malfunction or Defect Report) or any other appropriate format is acceptable in transmitting the required details.

If you plan to manufacture replacement or modification parts for sale, you must comply with 14 CFR 21.303 and 45.15. A Parts Manufacturer Approval (PMA) may be issued under the provisions of 14 CFR 21.303(d) when you submit a statement certifying that you have established a fabrication inspection system as required by 14 CFR 21.303(h). Your statement may be in letter form, with a reference to the STC number, and should be mailed to: Manager, Manufacturing Inspection District Office, Department of Transportation, Federal Aviation Administration, Fort Worth, Texas 76137.

If you agree to permit another person to use this STC to alter the product, it is your responsibility to give the other person written evidence of that permission in the form of a "permission statement". This permission statement should contain the agreement specifying the product to be altered, the STC number, and the person who is being given consent to use the STC. In addition, this STC may be transferred or otherwise made available to another party by means of a licensing agreement in accordance with 14 CFR 21.47. You are requested to advise this office within 30 days when you transfer or grant license rights to the STC.

Sincerely,



Charles C. Harrison
Acting Manager, Rotorcraft Certification Office
Rotorcraft Directorate, Aircraft Certification Service

Enclosure

cc: MIDO-42

United States of America
Department of Transportation -- Federal Aviation Administration
Supplemental Type Certificate

Number SR09549RC

This certificate issued to

Ahlers Aerospace, Inc.
3621 Raider Drive
Hurst, TX 76053

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.

Original Product -- Type Certificate Number: H3EU

Make: Eurocopter Deutschland GMBH

Model: BO-105 S

Description of Type Design Change: Installation of Night Vision Goggle Compatible Interior Lighting System in accordance with Ahlers Aerospace, Inc., Master Drawing List MDL 105-01 (E99-199), Revision D, dated June 3, 2009, or later Federal Aviation Administration (FAA) approved revision. Rotorcraft Flight Manual Supplement, RFMS E99-202, Revision IR, dated June 8, 2009, or later FAA approved revision is required. Instructions for Continued
(See continuation sheet 3 of 3)

Limitations and Conditions: This installation is for the Model BO-105S, Helicopter Variant CBS-5. Installation of Infrared Filtered Cockpit Lighting does not include or imply approval for flight operations with Night Vision Goggles (NVG). The operator must receive approval from their Civil Aviation operational authority to operate with NVG.
(See continuation sheet 3 of 3)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: September 30, 2008

Date reissued:

Date of issuance: June 08, 2009

Date amended:



By direction of the Administrator

Charles C. Harrison
(Signature)

Charles C. Harrison, Acting Manager
Rotorcraft Certification Office
Southwest Region

(Title)

United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate
(Continuation Sheet)

Number SR09549RC

Date of Issuance: June 08, 2009

Description of Type Design Change (Continued):

Airworthiness, Ahlers Aerospace, Inc., Document No. E99-201, Revision B, dated May 29, 2009, or later revision is required for this installation.

Limitations and Conditions (Continued):

Any deviation to the cockpit/cabin configuration specified in the type design of this STC may affect the compatibility with NVG and may require a re-evaluation by the FAA Aircraft Certification Office (ACO).

Once the aircraft is modified with this STC, any future modification to the aircraft may also affect the compatibility with NVG and may require re-evaluation by the FAA ACO. The installer must determine whether this design change is compatible with previously approved modifications.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

FAA APPROVED
ROTORCRAFT FLIGHT MANUAL SUPPLEMENT

(Ahlers Aerospace, Inc Doc. E99-202)

FOR

EUROCOPTER DEUTSCHLAND

MODEL: BO-105S, Helicopter Variant CBS-5

WITH

COCKPIT INFRARED FILTER SYSTEM

Aircraft Registration No. _____

Aircraft Serial No. _____

This supplement must be attached to the appropriate FAA Approved Rotorcraft Flight Manual when the Cockpit Infrared Filter System is installed in accordance with **STC No. SR09549RC**

The information contained herein supplements or supersedes the basic manual only in those areas listed. For limitations, procedures, and performance information not contained in this supplement, consult the basic Aircraft Flight Manual and applicable Flight Manual Supplements.

APPROVED:



DATE: June 8, 2009

Charles C. Harrison
Acting Manager, Rotorcraft Certification Office
Federal Aviation Administration
Fort Worth, Texas 76193-0170

LOG OF REVISIONS

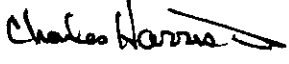
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IR	ALL	Release	06/08/2009	 Charles C. Harrison

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SECTION 1 – GENERAL

The Ahlers Aerospace Cockpit Infrared Filtering System is an adjunct to the standard aircraft lighting system. The system contains custom infrared filters, NVIS compatible postlights and eyebrows installed externally over the cockpit instruments, caution & warning panel, communication & navigation radios, cockpit utility light, magnetic compass and cabin passenger lights. Lighted switches will be modified with IR reducing filters. Cockpit lighting is provided and controlled by the standard aircraft lighting system as installed by the manufacturer.

The standard installation includes:

A. Nav/Comm Display Filters:

Most radio control heads include LED or LCD data displays for frequency, mode or other data and internal lighting for function controls. Data displays are not dimmed with instrument lights and are made NVG compatible by the addition of unique polycarbonate Infrared filters installed externally over the displays. In some cases, filter installation of the data display is internal in accordance with FAA approved Process Specifications, which allow replacement of outer display lens with Infrared filter material.

B. Caution and Warning Panel Annunciators:

The Caution and Warning Panel Annunciators are modified by replacing the standard lamps in each cap with NVIS compatible lamps.

C. Cabin Instrumentation and Lighting Flight Instruments:

The infrared filter assemblies are mounted externally over the face of the altimeter and attitude gyro. Internal modifications to the Course Deviation Indicator (CDI) and the radar altitude are accomplished in accordance with FAA approved process specifications. Existing eyebrow assemblies over the vertical speed, turn & bank, airspeed, oil temp and oil press indicators are modified by replacing the standard lamps with NVIS compatible lamps. The postlight eyebrow assemblies over the mass moment and rotor tach indicators are replaced with NVIS compatible assemblies. The postlight assemblies for the clock and torque meter are replaced with NVIS compatible assemblies.

Flight instrument lighting is provided by internal and external lighting and is dimmed by the standard aircraft dimming system. Application of this STC does not alter the normal lighting operation as described in the approved Rotorcraft Flight Manual.

The existing gooseneck utility light is replaced with a new NVIS 'white' gooseneck light assembly

D. Subsequent Modifications:

Any subsequent modification to the Cockpit or Aircraft lighting, (including role equipment) that involves a light emitting or reflecting device will require reassessment to ensure the aircraft is still NVG compatible.

SECTION 2 – LIMITATIONS

No flight shall be predicated upon the use of the NVGs.

A. *Installation of this NVIS Compatible Filter System does not include or imply approval for flight operations with Night Vision Goggles (NVG). The Operator must receive approval from their FAA Flight Standards District Office to operate with NVGs.*

B. Required Equipment for NVG Operations

1. Helmet with NVG mount for each pilot using NVGs.
2. Night Vision Goggles that meet TSO-C164 or ITT 4949F Goggles for crewmembers using NVG.
3. Operational Radar altimeter.
4. Slip/Skid indicator.
5. Gyroscopic attitude indicator.
6. Gyroscopic direction indicator or equivalent.
7. Vertical speed indicator or equivalent.
8. Communications and navigation equipment necessary for the successful completion of an inadvertent IMC procedure in the intended area of operations.

C. Minimum Crew: Additional crewmember use of NVGs during single-pilot operations into and out of unimproved sites.

1. Landing: An additional crewmember shall be equipped with and use NVGs during landing to assist in obstacle identification and clearing.
2. Takeoff: An additional crewmember shall use NVGs during takeoff from unimproved sites to assist in obstacle identification and clearance if operational conditions permit (i.e., patient status, etc.) allows.

D. The NVG must be maintained in accordance with the manufacturer's recommendation.

E. The NVIS lighting system must be maintained in accordance with the Instructions for Continued Airworthiness.

SECTION 3 – EMERGENCY/MALFUNCTION PROCEDURES

- A. NVG malfunction or failure:
Transition from aided to unaided flight as required.
- B. NVIS lighting malfunction or failure:
Discontinue NVG use if the malfunction or failure degrades NVIS compatibility.
- C. Aircraft Emergencies:
Maintain aircraft control and then initiate RFM procedures. The pilot's decision to continue use of NVGs should be based on the emergency situation.
- D. Inadvertent IMC:
Loss of visual references requires executing established inadvertent IMC procedures.

SECTION 4 – NORMAL PROCEDURES

- A. Preflight Check: When preparing for night operations add the following procedures to the standard preflight checks.
 - 1. Check windshield, windows, and chin bubble windows for suitability (scratches, gazing, cleanliness, etc).
 - 2. NVG adjustment and alignment.
 - 3. Adjust lighting as required.
 - 4. Check NVIS lighting for light leakage and compatibility.
- B. In-flight Operations: Transition to aided operations from unaided operations (and vice versa) as necessary.

NOTE

Use of Operating Lights (i.e. Landing, Loading, Position, Search, Scene, Strobe, and Cabin) may cause reflections for pilots and/or observers. Pilot should determine appropriate lighting for each operation.

SECTION 5 – PERFORMANCE

No change

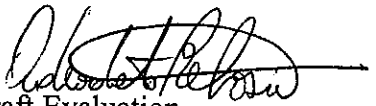
Fort Worth Aircraft Evaluation Group
2601 Meacham Blvd.
Fort Worth, TX 76193-0270
817-222-5270; fax: 817-222-5295



Federal Aviation Administration

Memorandum

Date: June 5, 2009

To: Sarah Thatcher, Rotorcraft Certification Office, ASW-170 

From: Adeo Rebosio, Aviation Safety Inspector, Fort Worth Aircraft Evaluation Group, FTW AEG

Subject: Instructions for Continued Airworthiness (ICA)

The following ICA was accepted:

STC Number	ST3031RC-R
Date Accepted	June 5, 2009
Company/Applicant	Ahlers Aerospace, Inc.
ICA Title	Cockpit Infrared Filter System
Model Number	BO105
Report/Document Number	E99-201
Revision Number	B
Date of ICA	5-29-09

The Airworthiness Limitations Section was not reviewed. Otherwise, the ICA complies with the applicable requirements of Appendix A to Federal Aviation Regulation Part 27.

Request you notify the applicant of this action and provide them with the attached ICA.

Adeo Rebosio,
Aviation Safety Inspector, Fort Worth Aircraft Evaluation Group, FTW AEG

Attachment

Customer Feedback Form

Any comments you may have on services provided are appreciated. Please email feedback to:

http://www.faa.gov/about/office_org/headquarters_offices/avs/customer_feedback/afs/regional/