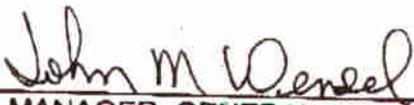


FLIGHT STANDARDIZATION BOARD
BELL HELICOPTER TEXTRON
PILOT NIGHT VISION GOGGLE SPECIAL OPERATIONS COURSE
(STC SR09333RC & SR09363RC)

APPROVED:  08-22-03
EDWARD L. HINCH, CHAIRMAN DATE

CONCUR:  08-22-03
MARK FLETCHER, ACTING MANAGER, FORT WORTH DATE
AIRCRAFT EVALUATION GROUP, FTW AEG

CONCUR:  10/15/03
MANAGER, AIR TRANSPORTATION DIVISION, DATE
AFS-200

CONCUR:  10/24/03
MANAGER, GENERAL AVIATION & COMMERCIAL DATE
DIVISION, AFS-800

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PART I

1. Purpose and applicability:

Aircraft Certification Service (AIR), Rotorcraft Directorate, established certification requirements of Night Vision Goggles by requiring two applications for Supplemental Type Certificate (STC) approvals; one for the suitability of the aircraft lighting system (aircraft modification); and one for the compatibility of the NVED with the modified aircraft. The second STC requires the applicant to submit an NVED special operations training program for the use of NVEDs. The Aircraft evaluation Group (AEG) Flight Standardization Board (FSB) evaluates the training programs for AIR.

The purpose of this report is to insure complete coverage and documentation of Flight Standards responsibility regarding the process required for Federal Aviation Administration approval to conduct training under 14CFR Part 141 utilizing night vision goggles.

These supplemental Type Certificates were evaluated for the compatibility of Aero Dynamix lighting system and filters as installed in accordance with STC SR09350RC, and Texas Aviation Services auxiliary light system and filters as installed in accordance with STC SR09334RC.

Pilot Type Rating Requirements:

The use of aircraft certificated as a Part 27 or Part 29 Transport Category Rotorcraft with gross weight less than 12500 pounds do not require a type rating. This Flight Standardization Board requires ground and flight training to receive a one-time instructor endorsement for a pilot to act as a Pilot-in-Command during night vision goggle operations. Completion of the Night Vision Goggle ground and flight training prescribed in a 14 CFR Part 141 Flight school results in an endorsement for a pilot to act as a PIC in night vision goggle operations.

Master Common Requirements (MCR's):

N/A

Master Differences Requirements (MDR's):

N/A

Acceptable Operator Difference requirements table:

N/A

FSB Specifications for Training:

The Ground school topics and Flight Training tasks and required flight hours are outlined in Annex 1 to this report. These tasks and flight hours represent the minimum required for 14 CFR Part 141.

FSB Specifications for Checking

All checks required by 14 CFR Part 141 must be accomplished in make and model as approved by the supplemental Type Certificate. Flight checks are conducted in accordance with the instruction, guidance, and requirements contained in the appropriate Practical Test Standards and supplemented by guidance in FAA Orders 8700.1, 8400.10 and/or 8710.3.

FSB Specifications for Currency

In order for a pilot to act as a PIC using night vision goggles with passengers on board the pilot must have performed and documented the following tasks in the preceding two months. Pilots must perform and log three night vision goggle operations as the sole manipulator of the controls, utilizing night vision goggles during the time period that begins 1 hour after sunset and ends 1 hour before sunrise. Each night vision goggle operation must as a minimum include the following tasks: Reference Commercial Pilot Practical Test Standards, FAA-S-8081-16, Area of Operation II, III, IV, V and, if appropriate, IX. If a pilot has not performed and documented these tasks, the pilot will be allowed two additional months to perform and document those tasks, but will not be allowed to carry passengers. If the pilot has still not performed and documented these tasks during those additional follow-on 2 calendar months then the pilot will be required to pass an NVG proficiency check in order to act as a PIC using night vision goggles. The proficiency check will consist of all the maneuvers contained in the Rotorcraft Helicopter Practical Test Standards, FAA-S-8081, Area of Operation II, III, IV, V, and IX.

Aircraft regulatory compliance checklist

Current AIR policy requires aircraft to be used in Night Vision Goggle operations to be modified by way of a Supplemental Type Certificate or a Type Design change approved by Engineering and as such, field approvals are not authorized for Night Vision Goggles. The Rotorcraft Directorate considers night vision equipment modifications as significant STCs and includes equipment approvals and a training program approval.

FSB Specifications for Devices and Simulators

Advisory Circular 120-63 outlines specifications for Helicopter simulators. Criteria for flight training devices have not yet been developed.

Application of FSB Report

All operators desiring to use Night Vision Goggles.

Alternate means of compliance

N/A

Miscellaneous

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PART II

Background:

On December 12, 1990, the acting Director of Flight Standards Service, AFS-1, issued a policy by memorandum, stating Night Vision Enhancement Devices (NVED) are considered an appliance for which Minimum Operational Standards (MOPS) are required to be approved by the FAA prior to their use. All approved operational uses of the NVEDs will be conducted under Part 135 of the Federal Aviation Regulations (FAR). Any use of NVED for navigation or operation of civil aircraft not approved by MOPS would be considered a violation of Section 91.13 of the Federal Aviation Regulations, as careless or reckless operation. Aircraft Certification Service (AIR) established certification standards by requiring two applications for Supplemental Type Certificate (STC) approvals; one for the suitability of the aircraft lighting system (aircraft modification); and one for the compatibility of the NVED with the modified aircraft. The second STC requires the applicant to submit an NVED special operations training program for the use of NVEDs. The Aircraft evaluation Group (AEG) Flight Standardization Board (FSB) evaluates the training programs for AIR.

FSB Composition:

Chairman – Edward L. Hinch, Operations Inspector, Fort Worth Aircraft Evaluation Group.

FSB Member –Johnny W. Phillips, Operations Inspector, Fort Worth Alliance Flight Standards district Office.

Bell Helicopter Textron conducted the flight training under their proposed 14 CFR Part 141 Training curriculum, PILOT NVG SPECIAL OPERATIONS COURSE, Special Operations Course, document #001. This training course was approved under 14 CFR Part 141, Appendix K, Special Operations Course. The training syllabus contains a separate ground training course consisting of 8.0 hours of instruction, and a flight training course consisting of a minimum of 7.5 hours of flight training. The training outlined in this course is considered the minimum required for Night Vision Goggle qualification.

Type Ratings and Crew Qualification Tests, and FSB Determinations:

The provisions of 14 CFR Part 61.57 and 61.58 apply to the operation of the aircraft. Completion of the curriculum specified in this 14 CFR 141 training course will result in a one-time endorsement to act as PIC in Night Vision Goggle Operations.

This FSB has determined that after initial qualification in order to maintain currency in Night Vision Goggles, in the preceding two months, pilots must perform and log three night vision goggle operations as the sole manipulator of the controls, utilizing night vision goggles. Each night vision goggle operation must as a minimum include the following tasks: Reference Commercial Pilot Practical Test Standards, FAA-S-8081-16, Area of Operation II, III, IV, V and, if appropriate, IX.

Public Meeting Record and Resolution of Comments: N/A

Summary and Conclusions: Each member of the Flight Standardization Board completed the proposed training program conducted at Bell Helicopter Textron Customer Training Academy in Fort worth, Texas. The maneuvers required by the Practical Test Standards for Commercial Pilot, Rotorcraft-Helicopter were evaluated during flight.

Training was conducted in aircraft modified by Supplemental Type Certificate number SR09350RC, Bell 407, and STC SR09334RC, Bell 206. This proprietary lighting system provides lighting that is not only compatible with Night Vision Goggles but also provides an airworthy cockpit display for daytime and night time flight. Night Vision Imaging System compatible lighting is provided to all electromechanical flight, engine, transmission and performance instruments. Each STC requires a Rotorcraft Flight Manual Supplement detailing the operational characteristics and limitations.

Flight checks are to be conducted in accordance with the instruction, guidance, and requirements contained in the appropriate Practical Test Standards and supplemented by guidance in FAA Orders 8700.1, 8400.10 and/or 8710.3.

The flight checks required for qualification in Night Vision Goggle operation must be accomplished in the specific make and model modified by the Supplemental Type Certificate.

Introduction

1. **General:** This Flight Training Syllabus is to be used only for Personnel Training with the Bell Helicopter Training Academy staff.
 - A. **Purpose:** To Instruct, familiarize, and qualify a pilot in the use of Night Vision Goggles (NVG's).
 - B. **Duration:** 0.5 hr. Blind Cockpit
5 flight periods (Minimum 7.5 hrs. based on proficiency)
2. **Required Tasks and Procedures:** Tasks and procedures required for training are shown in recommended order of accomplishment. A daily schedule of training days is provided as a guide to all personnel involved. Each training day is constructed so as to provide adequate time for review of previous tasks.
3. **General Requirements:**
 - A. The Operators Training Tasks shall address the tasks required to qualify as a NVG pilot.
 - B. The student will be expected to comply with the current Flight Manual and Checklist (CL) for the helicopter to be flown. He will inform the Instructor Pilot of any malfunction or unsafe condition of the helicopter prior, during, or after flight.
 - C. The course is divided into two phases:
 - (1) Phase I - Academic/ground school phase consisting of 8.0 hrs. of classroom instruction.
 - (2) Phase II - Flight Phase consisting of training that covers basic flight maneuvers and emergency procedures. Additionally, 0.5 hr of blind cockpit training.
4. **Description of Instruction:**
 - A. The course consists of 0.5 hrs. Blind Cockpit, and a minimum of 7.5 flight hours.
 - B. The average flight period will be 1.5 hrs. each.
 - C. Each student should participate daily.

5. Student Handout Material:

A. NVG Flight Training Syllabus

B. System Information Handouts

(1) NVG academic/ground school handout.

(2) BHTI NVG Maneuvers Guide.

COURSE PLAN NVG TRAINING

Phase I: Ground school

<u>TOPIC</u>	<u>PLANNED DURATION</u>
1. Enrollment/General Description	0.5
2. Introduction to NVG's/Anvis 6	2.5
3. Limitations/Emergency Procedures	1.0
4. NVG Aeromedical Considerations	2.0
5. Night Terrain Interpretation	1.0
6. Night Mission Planning	1.0
7. Written Exam	1.0
8. Total Planned Hours	9.0

Phase II: Flight Training

<u>TOPIC</u>	<u>PLANNED DURATION</u>
1. Flight Training	7.5
2. Blind Cockpit	0.5
3. Total Target Hours	8.0

Bell Helicopter TEXTRON
NVG MANEUVER GUIDE

TABLE OF CONTENTS

<u>PARAGRAPH</u>	<u>PAGE</u>
1. PRE-FLIGHT INSPECTION.....	1
2. COCKPIT PROCEDURES.....	2
3. TAKEOFF TO HOVER (PTS - <i>Vertical Takeoff</i>).....	3
4. HOVERING TURNS (PTS - <i>Hover Taxi</i>)	5
5. HOVERING FLIGHT (PTS - <i>Hover Taxi</i>).....	6
6. LANDING FROM HOVER (PTS - <i>Vertical Landing</i>)	8
7. AIR TAXI.....	10
8. NORMAL TAKEOFF	12
9. NORMAL APPROACH	15
10. TRAFFIC PATTERNS	17
11. MAXIMUM PERFORMANCE TAKEOFF	19
12. STEEP APPROACH	21
13. QUICK STOP (PTS - <i>Rapid Deceleration</i>).....	24
14. SHALLOW APPROACH AND RUNNING LANDING	26
15. SIMULATED HYDRAULIC SYSTEM FAILURE	28
16. FORCED LANDING (PTS - <i>Power Failure At Altitude</i>).....	31
17. HOVERING AUTOROTATION (PTS - <i>Power Failure At Hover</i>)	33
18. STANDARD AUTOROTATION	35
19. STANDARD AUTOROTATION WITH TURN (PTS - <i>180° Autorotation</i>)	38
20. LOW - LEVEL AUTOROTATION (Special Task).....	41
21. SLOPE OPERATION.....	43
22. CONFINED AREA OPERATION	45

Bell Helicopter TEXTRON
NVG MANEUVER GUIDE

23. PERFORM CREW RESOURCE MANAGEMENT (Cockpit Teamwork).....48
24. IDENTIFY WIRE OBSTACLES49
25. GO AROUND50
26. MALFUNCTION PROCEDURE for ACTUAL or SIMULATED NVG FAIL51
27. EMERGENCY PROCEDURES53
28. INADVERTENT IMC54
29. SIMULATED TAIL ROTOR FAILURE AT HOVER56
30. SIMULATED TAILROTOR MALFUNCTION (Right / Neutral)58
31. SIMULATED TAILROTOR MALFUNCTION (Left).....60
GLOSSARY62