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CNATRA P-486 (NEW 01-23)

FLIGHT TRAINING INSTRUCTION



AEROMEDICAL OFFICER TH-73A

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Subj: FLIGHT TRAINING INSTRUCTION, AEROMEDICAL OFFICER, TH-73A

1. CNATRA P-486 (New 01-23) PAT, "Flight Training Instruction, Aeromedical Officer, TH-73A" is issued for information, standardization of instruction, and guidance to all flight instructors and student military aviators within the Naval Air Training Command.
2. This publication is an explanatory aid to the Helicopter curriculum and shall be the authority for the execution of all flight procedures and maneuvers herein contained.
3. Recommendations for changes shall be submitted via the electronic Training Change Request (TCR) form located on the Chief Naval Air Training (CNATRA) website.

A handwritten signature in black ink, appearing to read "A. P. Rybar", is positioned above the printed name.

A. P. RYBAR
By direction

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FLIGHT TRAINING INSTRUCTION

FOR

AEROMEDICAL OFFICER

TH-73A

P-486



LIST OF EFFECTIVE PAGES

Dates of issue for original and changed pages are:

Original...0...11 Jan 23

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 30 CONSISTING OF THE FOLLOWING:

Page No.	Change No.	Page No.	Change No.
COVER	0		
LETTER	0		
iii – xi	0		
x (blank)	0		
1-1 – 1-8	0		
1-10 (blank)	0		
2-1 – 2-2	0		
3-1 – 3-2	0		
4-1 – 4-2	0		
5-1 –5-2	0		
A-1	0		
A-2 (blank)	0		

CHANGE SUMMARY

The following changes have been previously incorporated into this document.

CHANGE NUMBER	REMARKS/PURPOSE

The following interim changes have been incorporated into this change/revision:

INTERIM CHANGE NUMBER	REMARKS/PURPOSE	ENTERED BY	DATE

SAFETY/HAZARD AWARENESS NOTICE

This course does not require any special safety precautions other than those normally found on the flight lines.

INTRODUCTION

This Flight Instruction provides amplifying information covering flight training stages with a particular emphasis on physiological stressors associated with the helicopter aviation community for Aeromedical Officer (AMO) students. The objective of becoming an AMO is to provide medical care and flight gear support to the Naval Aviation fleet for operational readiness.

SCOPE

This publication contains amplifying information pertinent to AMO students that complements the other AHTS FTIs. The flight environments covered include Day Familiarization, Basic Instruments, Night Familiarization, and Formation.

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CHAPTER ONE

AEROMEDICAL OFFICER HELICOPTER SYLLABUS

100. INTRODUCTION

This chapter provides a general overview of the Aeromedical Officer (AMO) training and purpose. The AMO Flight Training Instruction (FTI) is a starting point for the syllabus, including simulator and flight events. It provides a basic overview of what to expect and how to prepare.

The AMO syllabus is intended to be exposure only to different flight regimes, so students are not expected to memorize maneuver procedures or understand every detail of simulator or flight event grade cards. That being said, it is helpful to review the conversation items and maneuvers listed in the AMO Master Curriculum Guide (MCG) for the event beforehand to get an idea of the event focus. This helps inform the discussion with the simulator or flight Instructor as they demonstrate procedures. The AMO MCG contains syllabus course flow, event requirements, and grading criteria for the AMO syllabus.

Many of the simulator and flight events will have you sit in the cockpit right seat. This means you will have the opportunity to fly the helicopter and experience the viewpoint of a pilot. Think about the challenging task load as aircrew manage flying in busy airspace, juggling basic air work, radio calls, and maneuver parameters. Note how heavy and cumbersome the flight gear can be during long missions. What you get out of these events is determined by your level of engagement. It is the goal of this syllabus to help you, the future AMO, to understand the aircrew workload and identify ways to advocate for the people under your care.

101. AEROMEDICAL OFFICER PURPOSE

The AMO plays a vital role in the care and well-being of aviation personnel. The Advanced Helicopter Training Syllabus (AHTS) is intended to introduce AMO students to Navy and Marine Corps helicopter aviation and its unique mission sets and challenges. This is an opportunity to train and fly in the TH-73A to better understand the people you will help in the fleet, so engage with the Instructors and Student Naval Aviators (SNA), ask questions, and most importantly, have fun!

You may notice as you proceed through flight training that the Instructors and SNAs are not familiar with the various backgrounds of AMO students, so it is also a chance to talk with aviation personnel about your future role in the medical community. For example, they may only think of AMOs as aviation physiologists or flight surgeons but may not know that there are aviation optometrists and Physician's Assistants (PA). Be ready to talk about your education and training to bridge the gap between Naval Aviators and medical personnel. There is often a stigma for Naval Aviators about being too honest about physical and mental ailments for fear of being medically grounded. Try to discuss and understand this aversion to medical care so that you may start to shape your care practices in the future.

As you progress through your AMO helicopter syllabus, keep in mind that this training provides you a unique opportunity to:

- Observe the physiological stresses encountered by aviation personnel.
- Determine the impact of physiological stressors.
- Develop treatment plans for the management of physiological stressors/conditions.
- Identify barriers to patient reporting of medical conditions.
- Determine strategies to mitigate patient resistance to disclosing medical conditions.
- Identify aircrew challenges encountered through the conduct of helicopter missions.
- Explain the requirements of Crew Resource Management (CRM)
- Determine how the proper use of CRM principles impacts helicopter operations.

102. KNOWN PHYSIOLOGICAL ISSUES

As you go through helicopter training, keep in mind that the same physiological issues arise again and again for helicopter pilots and aircrew. The Enabler Naval Aviation Requirements Group (ENARG), which compiles data annually about community-specific issues for allocation of funding, finds that chronic back and neck pain are prevalent across helicopter platforms. Gear issues are also consistent, usually stemming from lack of funding for the right gear or flight gear that is ill-fitting. The gear is also related to some of the back and neck pain issues. The ENARG also finds that helicopter pilots are particularly susceptible to Spatial Disorientation (SD) during both day and night flights based on how and where they operate. These will be the recurring themes during your time in AHTS and will certainly arise if you work with helicopter squadrons.

103. AEROMEDICAL OFFICER STUDENT EXPECTATIONS

The AMO syllabus is designed to highlight aspects of flying helicopters that differ from other airframes and will hopefully give you an understanding of the unique missions and physiological challenges that confront pilots and aircrew. It is a basic overview of helicopter flight school training with several stages, including day and night familiarization, Basic Instruments (BI), and formation.

The Academic Book Issue should provide an iPad with access to all current TH-73A publications and a kneeboard. The publications should also be available on the squadron's university web page for reference (search for "HT-8/HT-18/HT-28 University" as appropriate). If you need access or cannot find what you are looking for, reach out to an Instructor or the squadron's Student Control office for guidance.

104. PREPARING FOR FLIGHT

The squadron check-in brief should provide detailed information to help you understand day-to-day operations, how to read the flight schedule, and which publications are the most applicable to your training. The following items are important to understand.

1. Flight Schedule

The squadron flight schedule is published on the squadron website under “Web Schedule,” an example of which is shown in Figure 1-1. It is usually ready for viewing the afternoon or evening of the day prior. When you open the flight schedule, make sure to read the Front Page for any new notes about operating hours or important changes. Then search for your name on the schedule itself. There is a section for flights, simulator events, and ground events. If you have any questions about the schedule, call the Squadron Duty Officer (SDO). The SDO is an SNA who helps the Flight Duty Officer (FDO) run the flight schedule for the day and is available to answer any questions or deal with flight schedule issues.

Scheduled takeoff time for first event.		Scheduled land time for last event.		Flight (Flight Event) Schedule							
LINE NUM	BRIEF TIME	SCHD T/O	SCHD LAND	LNCH ICAO	LAND ICAO	INSTRUCTOR	STUDENT	TYPE EVENT	SCHD FLT TIME	REMARKS	
T02-1	0600	0815	1145	KNDZ	KNDZ	LT SNOOK E	LTJG DANIELS C LTJG KINGSTON T	DAY4390A DAY4203A	3.5	H/S TO SOLO (DANIELS); DANIELS 1st GO	
T02-3	1000	1215	1145	KNDZ	KNDZ		LTJG DANIELS S LTJG STROTHER M	DAY4401A DAY4401A	2.0	H/S FROM SNOOK; DUAL SOLO TO SPENCER	
T06-1	0600	0815	1145	KNDZ	KNDZ	LCDR MAZEL J	LTJG STROTHER M LTJG MUELLER J	DAY4390A DAY4203A	3.5	H/S TO SANDFORD; STROTHER 1st GO	

Be in the briefing space with name, event number, and conversation items on the white board. Arrive early to help the SNAs with the weight and balance.

These remarks cover important details like who shall fly first or if it is a hotseat (H/S).

Figure 1-1 Example Flight Schedule

2. Snivel

If you have a reason that you cannot be scheduled, make sure you enter a snivel (commonly called a “sniv”) in the Training Sierra Hotel Aviation Readiness Program (T-SHARP) at least 48 hours prior to the day. Do not make it a habit to try and get out of being scheduled, but if you have a medical appointment or something important comes up that the Operations Department needs to know about, put it on your T-SHARP calendar with start and end times.

3. Hotseat

You may get into the helicopter in the Crew Change area or on the flight line while the aircraft is still spinning. This is called a hotseat. The aircraft will have landed inside a designated parking spot, indicated by a large yellow circle painted on the asphalt. You will enter the rotor arc and

switch places with the other student in the right seat while the Instructor holds the flight controls. This provides scheduling efficiency since a shutdown and startup are not required prior to the next flight. You should review flight line procedures during your FAM 0 event, but let the Instructor know if this flight event is your first hotseat so they can review safety procedures with you.

- When entering the rotor arc of a spinning helicopter, stay outside the yellow circle until given a thumbs up by the PAC. At night, you will flash a light to get the PAC's attention. They will flash the searchlight to give permission to enter the rotor arc. This means they are aware that you are entering the rotor arc and will hold the flight controls steady. Enter the rotor arc at the 10 o'clock or 2 o'clock position relative the helicopter's nose. These procedures will be covered in more detail during the Aviation Safety class. The green area in Figure 1-2 shows the safe movement area of a TH-73A with the rotors engaged.

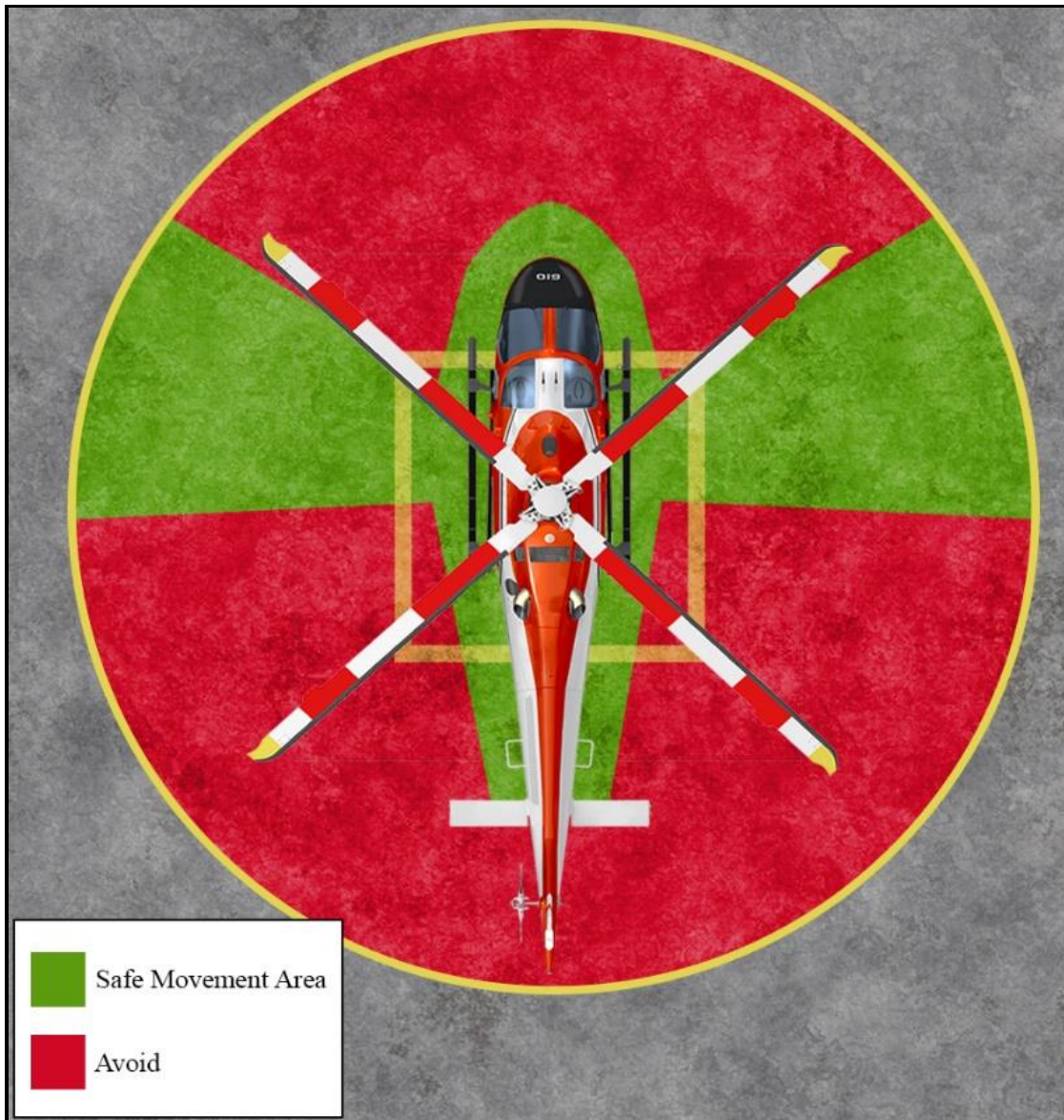


Figure 1-2 Entering and Exiting the Rotor Arc

4. Crew Change Location

If you are meeting the aircraft for a hotseat in the Crew Change, you must walk from the paraloft across the parking lines as shown in Figure 1-3. This should be covered in detail during your FAM 0, but if you are unsure about where to go, tell your Instructor during the flight brief.



Figure 1-3 Walking to the Crew Change from the Hangar/Paraloft

5. Reading the MCG

The MCG is your syllabus reference, so make sure to read through it before your first scheduled event.

- a. The Course Flow Diagram shows all of the syllabus events in order and is a great quick reference when you are wondering what you may be scheduled for next.
- b. The event pages show the details of an event, including media, title, length, conversation items, and graded items. In Figure 1-4 below, some areas are described in further detail.

Blk #	Media	Title	Events	Hrs	H/X
DAY30	FTD-7	Basic Flight/Integrated Scan	1	1.5	1.5

1. Prerequisite. DAY0202M (FAM 0).

2. Events

DAY3001M	FTD-7	Basic Flight/Integrated Scan		1.5	
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3. Syllabus Notes.

a. The AMOs are in an introductory syllabus for exposure only so the Instructor is meant to walk through the event with them. The Instructor will sit in the left seat and demonstrate basic helicopter maneuvers to include hover, normal landings and takeoffs, normal approaches, steep approaches, sliding landings, autorotations, basic helicopter handling in cruise flight, and engine failures in a hover.

b. A Contract Instructor (CI) is required to run this simulator event.

c. During the last 10 minutes of event, the AMO student should reposition to the instructor station to observe the CI flying. The CI should conduct dynamic maneuvering to demonstrate simulator sickness.

4. Special Syllabus Requirement. The CI shall demonstrate a sliding landing and autorotation.

5. Conversation Items.

DAY3001M
Day familiarization maneuvers (hover, vertical takeoff and landing, normal approach, steep approach), basic helicopter handling in cruise flight, simulated emergencies, autorotations, engine failure in a hover.

6. Block MIF

CTS REF	MANEUVER	DAY2101M
1	General Knowledge/Procedures	3+
2	Emergency Procedures	1
3	Headwork/Situational Awareness	2+
4	Basic Air Work	1
5	Crew Resource Management	2+
6	Cockpit Management	1
7	Prestart Checklists	2+

Prerequisites need to be complete before you can do this event. They will match the Course Flow Diagram.

SSRs are required by the end of block.

Conversation items are topics covered in the preflight brief. Review the stage specific FTI for details. The Instructor will lead the discussion.

Media refers to the type of event. In this example, FTD-7 refers to the simulator.

Syllabus notes give you and the Instructor guidance for the event beyond the graded items.

The block MIF table shows all of the graded items. This gives you a guide for looking over maneuvers and concepts. See the Course Training Standards chapter in the MCG for more detail.

Figure 1-4 Example Event Page from MCG

105. OTHER TRAINING RESOURCES

In addition to this FTI, you may consult the following publications to better understand the aircraft, maneuver procedures, and operating rules:

1. **NAVAIR 01-H73A-1 TH-73A NATOPS Flight Manual** – This publication contains information on the aircraft systems, operating limits, Emergency Procedures (EPs), etc.
2. **COMTRAWINGFIVEINST 3710.8 (series) Rotary-Wing Operating Procedures (RWOP) Manual** – This publication contains the operating rules, weather limitations, and procedures for flying at NAS Whiting Field, the outlying fields, and in the local airspace.

3. **Standard Operating Procedures (SOP)** – This publication contains squadron-specific rules set forth in Helicopter Training (HT) by the Commanding Officer (CO).
4. **CNATRA P-477 Day Familiarization FTI** – This publication contains background information on the fundamentals of helicopter flying and the procedures for all Day Familiarization maneuvers.
5. **CNATRA P-478 Night Familiarization FTI** – This publication contains information on night flying and night vision physiology. It also contains the maneuver procedures and EP considerations for night flight.
6. **CNATRA P-480 BI and RI FTI** – This publication contains information for the entire SNA instrument stage of training. You will only need to reference the BI portion for maneuver descriptions and procedures.
7. **CNATRA P-484 Formation FTI** – This publication contains an introduction to helicopter formation flying, including wing positioning, maneuvers, and landing pattern procedures.

For example, when you look at the event information for the DAY4001M flight, the Instructor will demonstrate a vertical takeoff, normal approach, and vertical landing. These procedures are in the CNATRA P-477 Day Familiarization FTI, so you can review the maneuver description and get an idea of the procedures prior to the event.

106. THE FLIGHT INSTRUCTOR

The role of the Advanced Rotary Instructor is to guide AMO student exposure to helicopter missions and aircrew challenges. The Instructor will ensure safe operations at all times, learning objectives are met, and all maneuvers are demonstrated. They will expect the AMO student to arrive at the brief having reviewed the Syllabus Notes and Conversation Items for the event, but they understand that knowledge will be general concepts only, not rote memorization like they expect for the SNAs. Please ask questions! The Instructor should provide clarity on anything that is unclear.

107. CREW RESOURCE MANAGEMENT

The Navy has instituted the CRM program to educate and train aircrew on crew coordination to reduce the likelihood of mishaps caused by human error. The TH-73A, like the majority of fleet helicopters, requires multi-crew CRM. Therefore, the AHTS emphasizes the behavioral skills and techniques that minimize preventable crew errors and expects SNAs to use multi-piloted CRM in every simulator and flight event.

Even though AMO students are not training to be pilots, it is expected that they will be active members of the crew during all events. This means open communication between the Instructor and the AMO student. Ask questions if something is unclear; let the Instructor know if things are going too fast for you to understand, and communicate if something seems unsafe. It is possible that the situation is normal, but at least asking about a situation gives the Instructor the

opportunity to explain what is happening. On the other hand, you may see something that the Instructor missed that could be critical to flight safety such as traffic in the airspace or an abnormal aircraft indication. This is why CRM is one of the few graded items in the AMO syllabus.

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CHAPTER TWO DAY FAMILIARIZATION

200. INTRODUCTION

This chapter provides a general overview of the Day Familiarization stage and AMO student expectations. It is expected that you will reference the CNATRA P-477 Day Familiarization FTI for more detailed information on the fundamentals of helicopter control and maneuver procedures. Reviewing the information will provide a common language as the simulator Instructor and flight Instructor talk about and demonstrate familiarization maneuvers. It is not expected that you will memorize and recite the procedures as the SNAs do, but you will get more out of the events if you understand some of what is going on.

Day Familiarization events are the foundation of being a proficient helicopter pilot. They test a pilot's knowledge of aerodynamics and aircraft systems as well as the practical skills of takeoff, basic air work, and landing. These events also provide repetitive practice of EPs to recite and execute the steps while also building the muscle memory response to aircraft malfunctions. For example, power-off maneuvers test the quick reaction time needed during a simulated engine failure. Unlike fixed-wing aircraft that are able to glide, helicopters require the pilot to react quickly to enter an autorotation. There are no ejection seats to ensure survival, just the pilot's energy management knowledge and skills to safely land with a failed engine.

As you move through ground training and into the simulator and aircraft, notice the rigorous requirements for joining Naval Aviation. Advanced helicopter training is a high-stress environment where SNAs are expected to know, verbalize, and execute tasks in the aircraft, all while being scheduled five to six days a week in hot, humid Northwest Florida and sweating in an aircraft with weak air conditioning. This job is rewarding, but it takes a high-caliber service member who is willing to put their discomfort aside to execute the mission.

As you review this chapter and progress through your daytime familiarization training, consider the following from an AMO perspective:

- The high stress conditions encountered by Naval Aviators.
- Appropriate stress management techniques for Naval Aviators.
- The physiological effects associated with simulator training.
- Strategies to minimize the effects of simulator training.
- Controls necessary to improve the safety of simulator and aircraft training.
- The physiological effects of long duration missions.
- Strategies for mitigating the physiological effects of long duration missions.

201. GROUND TRAINING

There are a series of self-paced Interactive Courseware (ICW) lessons and in-person classes that AMO students will be scheduled for in the Day Familiarization stage. The lessons cover topics such as aviation safety, aerodynamics, aircraft systems, CRM, and basic course rules for operations in the local training area.

A Part-Task Trainer (PTT) event will guide you through aircraft checklists and a NATOPS Open Book exam is required prior to the last flight event DAY4002M.

202. DAY FAMILIARIZATION SIMULATOR EVENTS

There are two simulator events prior to getting in the aircraft. The first focuses on startup and shutdown checklists as well as demonstrating aircraft handling at altitude. The expectation is that the AMO student will review the MCG event page and be familiar with the concepts covered in the conversation items.

The second simulator event focuses on basic helicopter maneuvers to include hover, normal landings, and takeoffs as well as handling EPs. The simulator Instructor will sit in the left seat and demonstrate all maneuvers then let the AMO student fly them. To demonstrate simulator sickness, you will spend the last 10 minutes of the event at the Instructor station while the Instructor flies. The intent is to provide a situation where the AMO student experiences and understands the physiological effects of operating/instructing in the simulator.

203. FAM 0

The FAM 0 is a ground event conducted by an Instructor to cover preflight planning, flight line safety, and flight gear. This also includes a tour of the squadron spaces, hangar, and paraloft. The goal is to prepare the AMO student for their first flight in the aircraft by covering all of the things that occur before strapping into the aircraft. It is a great chance to ask questions prior to your first flight in the TH-73A.

204. DAY FAMILIARIZATION FLIGHTS

The Instructor will lead the Day Familiarization flights and demonstrate all maneuvers. This block should concentrate on basic air work, low work maneuvers, the impact of flight gear on extended flight operations, and ergonomics in the aircraft.

During the DAY4001M event, the AMO student will sit in the cockpit right seat. The DAY4002M event will be an observation flight in the cabin. Ideally, both flights are scheduled the same day and may be flown in any order. The reason to schedule both events in the same day is to emphasize the effects of mission length and flight gear on aircrew fatigue.

CHAPTER THREE BASIC INSTRUMENTS

300. INTRODUCTION

This chapter provides a general overview of the BI stage and AMO student expectations. The BI stage is one of the most important for helicopter aviators. It is not glamorous or tactical, but the skills learned here are lifesaving. BI training simulates instrument conditions and emphasizes how critical an instrument scan can be for Situational Awareness (SA) and basic air work.

Instrument conditions occur when there is no visible horizon. These conditions may arise while intentionally flying in the clouds under Instrument Flight Rules (IFR), happen with a hazy layer that obscures the horizon during visual flight, or on a low-light night on Night Vision Goggles (NVG). Pilots are taught that when the environment is changing or visibility is degraded, to use the instruments for SA because they will provide accurate information about the helicopter's position in space that is more reliable than the visual, vestibular, or proprioceptive system in some situations. Degrading weather and lack of instrument proficiency are often cited in mishap investigations and Hazard Reports (HAZREP) related to SD. This is an opportunity to get familiar with the flight regimes and terminology that are common in Mishap Boards.

In this block, you will get the opportunity to improve basic air work skills and your instrument scan prior to flying events in the NVG stage. In addition, keep the following in mind as you progress through this portion of your training:

- The physiological effects associated with BI simulator training.
- Strategies for managing the physiological effects experienced in the simulator.
- The physiological effects of conducting multiple missions.
- Strategies for managing the physiological effects of conducting multiple missions.
- The physiological effects of instrument flight in helicopters.
- The physiological effects of spatial disorientation associated with helicopter operations.

301. GROUND TRAINING

Before the BI simulator event, you need to complete the BI Maneuvers and Instrument Approach Procedures ICWs. These self-paced courseware lessons will introduce the maneuver descriptions, which are also found in the CNATRA P-480 BI and RI FTI.

It is suggested that you review Chapters 1 and 2 from the CNATRA P-480 BI and RI FTI as well.

302. BI SIMULATOR EVENT

The simulator Instructor will sit in the left seat, and you will strap into the right seat. The Instructor will demonstrate all flight procedures and maneuvers, including a BI departure and a VOR or TACAN instrument approach. After each maneuver demonstration flying at altitude, they will let you try the maneuver. Each maneuver is meant to practice the coordination of cyclic, collective, and pedal inputs while maintaining an instrument scan.

Consider setting the weather in the simulator with clouds obscuring the outside view to ensure you and the Instructor focus only on the instruments. Blocking out the view requires the flying pilot to use the instruments to maintain air work parameters such as altitude, airspeed, and heading. The brief will cover the importance of an instrument scan, aircraft trim, and the challenges of operating in the instrument environment, but it may not be until you try it in the simulator that it really makes sense.

303. BI FLIGHTS

The BI flights are for AMO student exposure to the instrument environment. The Instructor will plan the flight and file the flight plan with Base Operations. While in flight, the Instructor shall demonstrate all maneuvers first then let the AMO student attempt them to improve basic air work.

Most of the maneuvers in the flight block are graded as demonstration items only. General knowledge and CRM are the only graded items. The intent is to make sure the AMO student has reviewed relevant material before the flight brief and engages during the flight as a crew member.

The AMO student will sit in the front seat for BI4001M and observe from the cabin on BI4002M. The intent is for both flight events to be scheduled the same day and they may occur in any order. The reason for scheduling the flights on the same day is to emphasize the fatigue of flying multiple events in one day with the issued flight gear. Also, seeing BI events from the cockpit and the cabin allow the AMO student to learn by watching the pilots interact as well as experience the task saturation of trying to be a competent copilot while flying maneuvers.

CHAPTER FOUR NIGHT FAMILIARIZATION

400. INTRODUCTION

This chapter provides a general overview of the Night Familiarization stage and AMO student expectations. The night portion of the AHTS is an integral part of helicopter aviation because many operational missions are conducted after sunset. All fleet helicopter pilots rely on NVG for night flying so maintaining proficiency is critical to safety in such a particularly demanding environment. It is also important to know when it makes more sense to fly with an unaided scan (i.e., looking above or below the NVG tubes instead of through them). The night training focuses on Night Familiarization maneuvers, operating procedures, NVG benefits and limitations, and how flight considerations, such as weather, CRM, EPs, aircraft lighting, and personal lighting, can change.

For AMO students, the goal is to experience and appreciate how wearing NVGs in the aircraft for extended periods of time increases aircrew fatigue. Night flying already interrupts the normal circadian rhythm, but the extra weight of NVGs on the head and neck may aggravate existing back and neck issues.

It may seem obvious, but even though the maneuver and procedures stay the same at night, operating is more difficult. If a pilot's scan slows down, they may miss an obstacle or traffic due to the limited Field of View (FOV) when on NVGs. Inadvertently selecting the wrong switch or circuit breaker is a lot easier during night flights. That is why it is so important to be slow and methodical at night and utilize CRM.

The BI stage was intentionally built into the syllabus first to improve the instrument scan and basic air work skills before the increased workload of night flying. Night flying may be a visual flight regime, but it relies on a heavy instrument scan to verify safe operations and maintain SA.

Consider the following as you progress through your nighttime familiarization portion of training:

- The physiological impacts of flying at night.
- The physiological effects of NVG use.
- Optical illusions that occur with the use of NVGs.

401. GROUND TRAINING

The Night Imaging Threat Evaluation (NITE) Lab is a prerequisite to the simulator and flight events. To provide the squadron Operations Department some scheduling flexibility, it may be scheduled at any point after initial check-in but shall be done before the Night Familiarization simulator event. This is a full day of instruction on NVG preflight, operation, capabilities, and limitations.

402. NIGHT FAMILIARIZATION SIMULATOR EVENT

For the Night Familiarization simulator event, make sure to have your helmet and a set of focused NVGs prior to the brief. The Instructor will demonstrate maneuvers then let the AMO student try flying them.

The brief discussion will center around environmental conditions, including the effects of aircraft and ambient lighting, high-light versus low-light conditions, and Inadvertent Instrument Meteorological Conditions (IIMC). The instructor will also demonstrate the effects of weather, terrain, and lunar illumination conditions on NVG performance.

This event is a chance to ensure your helmet and NVG settings are comfortable before the flights. If after the event, your eyes are strained, you experience a headache, or you had to readjust the helmet over and over again, verify the NVG focusing procedures and helmet fit.

403. NIGHT FAMILIARIZATION FLIGHTS

There are two Night Familiarization events. The NGT4001M is to be flown from the cockpit right seat. The NGT4002M is an observation flight from the cabin. The intent is to be scheduled for both flights in the same day to emphasize the physical strain of NVG use and the fatigue of the night flight schedule. The events may be flown in any order to facilitate scheduling.

The NGT4001M flight will demonstrate 30 minutes of unaided night flying first. The remainder of the flight requires the use of NVGs so the AMO student may see the benefits and limitations firsthand.

CHAPTER FIVE FORMATION

500. INTRODUCTION

This chapter provides a general overview of the formation stage and AMO student expectation. Once the SNAs pass their instrument check flight and solo, they start training in the Basic Warfighter portion of the syllabus, which introduces several foundational helicopter pilot skills that are necessary across all platforms and services. To get a sense of the challenge, you will fly as an observer during an SNA's formation flight event. The Navy and Marine Corps helicopters will often fly missions in formation, so it is useful for medical professionals to have a cursory understanding of the mental and physical task loading.

The SNAs are required to take what they have learned about operating a single aircraft and combine it with flying in two-ship formation. As a single aircraft, the primary reference is the horizon, and the instruments are secondary. Formation flight introduces new spatial strategies, where the Lead aircraft becomes the primary reference for Wing (instead of the horizon). Throughout these flights, SNAs must remember and implement the responsibilities of the Lead position versus Wing. Lead must always consider where Wing will operate, managing the airspace and navigating the section safely. Wing needs to stay in position relative to Lead for vertical and horizontal separation. They have to trust Lead to navigate and run the mission.

As an AMO student, the intent is to be present for the flight brief, event, and debrief to observe the entire flight evolution from start to finish. This means meeting up with the SNA an hour prior to the brief as they get everything set up, including weight and balance and the briefing space. These are long workdays for the Instructors and students. Keep the following in mind as part of your observations:

- The physiological effects of conducting multiple aircraft formations.
- The physiological impact of dynamic maneuvering on aviators.

501. GROUND TRAINING

The prerequisites for observing the formation flight are completion of the Formation Flight Overview and Formation Maneuvers ICWs. They should provide exposure to formation flight considerations and the maneuvers you will see.

The CNATRA P-484 Formation FTI has more detail on formation flight procedures that you can reference if anything is still unclear after you complete the ICWs. The formation flight is an exposure event only so there is no expectation that the AMO student will have anything memorized.

502. FORMATION FLIGHT

The FRM4001M flight event is an observation flight from the cabin only. The AMO is expected to observe the entire flight evolution on the day of the scheduled event. The conversation items

listed in the MCG are a guide for the Instructor only because many of the concepts will be covered by the SNAs during the course of their brief. If time allows, the Instructor may choose to provide more details to the AMO student about things such as relative motion and radius of turn relationships, but the priority is to stay on timeline for the SNA events.

As you observe the flight event, note the amount of physical effort it takes to maintain SA while flying in formation. The pilots are constantly moving their heads and bodies to keep the other aircraft in view. They are constantly communicating within the cockpit and with the other aircraft. Unlike single aircraft flight events, formation flying is constantly dynamic and keeps the crew engaged the entire flight. This means that fatigue will set in faster, especially for the Instructors who are keeping the section safe and defensively posturing the entire time.

Some formation events conduct maneuvers at altitude then practice formation pattern work at an airport or Navy Outlying Field (NOLF). Other events fly a low-level navigation route with landing practice. It will become clear during the flight brief which type of event you will be observing.

**APPENDIX A
GLOSSARY**

*** Refer to the glossaries within the MCG and FTIs as needed. ***

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