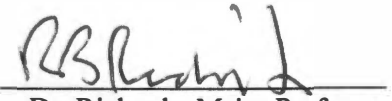
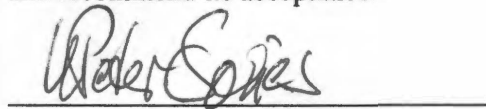


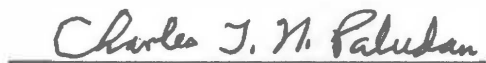
To the Graduate Council:

I am submitting herewith a thesis written by Kristin Olson Swift entitled "The Origin and Evolution of the Naval Air Training and Operating Procedures Standardization Program." I have examined the final paper copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Aviation Systems.

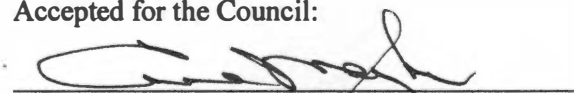

Dr. Richards, Major Professor

We have read this thesis
and recommend its acceptance:





Accepted for the Council:


Vice Chancellor and Dean of Graduate Studies

**THE ORIGIN AND EVOLUTION OF THE
NAVAL AIR TRAINING AND OPERATING
PROCEDURES STANDARDIZATION PROGRAM**

**A Thesis Presented for the
Master of Science Degree
The University of Tennessee, Knoxville**

**Kristin Olson Swift
May 2004**

Thesis
2004
.S99

A Thesis Presented for the
Master of Science Degree
The University of Tennessee, Knoxville

Kenneth O. Jones
July 2004

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DEDICATION

This thesis is dedicated to my wonderful husband, Jim, and our families, whose love and support are the mainstay of my life. Also, to the Girls, my best friends and confidants. I'm so blessed to have family and friends like you.

ACKNOWLEDGMENTS

I wish to thank all those who helped me complete my Master of Science degree in Aviation Sciences. I would specifically like to thank Mr. Bob Hanley for his encouragement, support, and friendship; Mr. Tom Lawrence, who continues to teach countless engineers about the wonders of Naval Aviation; Mr. Craig Bretz, who has been an integral part of the NATOPS Program since 1982, and whose insights into the history of the program had proven invaluable; and the rest of the NATOPS Team, who daily contribute to the success of the NATOPS Program.

ABSTRACT

The purpose of this study was to examine the origin and evolution of the Naval Air Training and Operating Procedures Standardization (NATOPS) Program and to address challenges facing the present day NATOPS Program. The NATOPS Program, developed in the 1960s as an effort to improve the safety and readiness of Naval Aviation, has evolved into an effective safety program that provides operating procedures and technical data all Navy and Marine Corps aircraft.

Much of the data used in this study were found in the paper and digital records transferred to the Naval Air Systems Command NATOPS Office from the former Chief of Naval Operations NATOPS office in Crystal City, VA.

This study investigates solutions to issues that have affected the NATOPS program since its inception and that are still relevant today. These issues include obtaining adequate funding to maintain an effective NATOPS program, maintaining effective communication amongst NATOPS program participants, achieving successful NATOPS product distribution, conducting timely changes to NATOPS products, maintaining NATOPS program effectiveness during times of increased operational tempo, development of useable NATOPS specifications, increasing NATOPS Model Manager effectiveness, and engaging engineering organizations to ensure technically accurate data in the NATOPS products.

A healthy NATOPS Program is vital to the continued success of Naval Aviation. Significant improvements have been made and continue to be made to the NATOPS Program processes and support structure that improve the program's ability to support the Naval Warfighter. With sufficient support, the NATOPS Program will continue to maintain its commitment to the fleet as well as fulfill the mission established by its founders, of improving the safety and effectiveness of Naval Aviation.

PREFACE

This thesis discusses the views and recommendations that are solely the opinion of the author and are not official government views or policies.

A significant amount of NATOPS-related historical material has been appended to this thesis. Upon review of this data and discussions with persons knowledgeable about the NATOPS program and historians in the Naval archives, it was determined that the majority of the early history of the NATOPS program is not documented in an official capacity and that these historical documents are not accessible from other sources. Therefore, to preserve the important history present in these documents and to make them available to a wider audience, the decision was made to include them here.

Since its inception, the NATOPS Program has encompassed both the promulgation of technical data and operating and emergency procedures for an aircraft or aviation system as well as the evaluation of the users of that aircraft or aviation system. This document focuses primarily on the history and processes of the NATOPS program as it relates to the former.

TABLE OF CONTENTS

Introduction.....	1
Chapter 1. Origin of the NATOPS Program	3
1960	3
1961	6
1962	7
1963	11
1964-1965	16
1966-1968	19
1969	25
Chapter 2. Evolution of the NATOPS Program	29
1970-1974	29
1975-1979	33
1980-1984	35
1985-1989	39
Chapter 3. Recent NATOPS History.....	41
1990-1994	41
1995-2001	43
2001	50
Chapter 4. NATOPS Transition	51
2002-Present	51
Chapter 5. NATOPS Issues – Past to Present	55
<i>Issue 1. Obtaining Adequate Funding for NATOPS Flight Manual Updates.</i>	55
<i>Issue 2. Establishing Effective Communication Throughout the NATOPS Program.</i>	56
<i>Issue 3. Developing and Maintaining Effective Methods of NATOPS Distribution.</i> ...	57
<i>Issue 4. Executing Timely Revisions to NATOPS Products.</i>	58
<i>Issue 5. Maintaining NATOPS Program Priority and Effectiveness.</i>	61
<i>Issue 6. Development and Maintenance of Useable NATOPS Specifications.</i>	61
<i>Issue 7. Increasing NATOPS Program Manager Effectiveness.</i>	62
<i>Issue 8. Revitalizing Engineering Engagement in the NATOPS Processes.</i>	62
Conclusions	65
List of References	67
Appendices	73
Vita	75

LIST OF TABLES

Table 1. Format for NATOPS Manuals circa 1960.....	5
Table 2. 1963 Combined NATOPS Flight Manual Format.....	13
Table 3. OPNAV Instructions Superceded by OPNAVINST 3710.7B.....	15

LIST OF FIGURES

Figure 1. Naval Safety Center Aviation Mishap Statistics.....	2
Figure 2. First NATOPS Flight Manual Letter of Promulgation	12
Figure 3. NATOPS Letter of Promulgation circa 1966.....	22
Figure 4. NATOPS Letter of Promulgation circa 1968.....	26
Figure 5. Naval Safety Center Memorandum on NATOPS Monthly Status Report	30
Figure 6. March 1973 NATOPS Status Report	31
Figure 7. NTSA NATOPS Letter from June 1983.....	37
Figure 8. NATOPS Letter of Promulgation circa 1985.....	40
Figure 9. Current NATOPS LOP	53

LIST OF PLATES

Plate 1. Appendices.....	In Pocket
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ABBREVIATIONS / ACRONYMS

ADRL	Automatic Distribution Requirements List
BRAC	Base Realignment and Closure
BUWEPS	Bureau of Naval Weapons
CAD	Collective Address Designators
CINCLANTFLT	Commander in Chief, United States Atlantic Fleet
CINCPACFLT	Commander in Chief, United States Pacific Fleet
CNAF	Commander, Naval Air Forces
CNATRA	Chief of Naval Air Training
CNO	Chief of Naval Operations
COG Command	Cognizant Command
COMNAVAIRLANT	Commander, Atlantic Fleet
COMNAVAIRSYSCOM	Commander, Naval Air Systems Command
ECP	Engineering Change Proposal
FY	Fiscal Year
LOP	Letter of Promulgation
NAS	Naval Air Station
NASCHQ	Naval Air Systems Command, Headquarters
NATEC	Naval Air Technical Data and Engineering Service Command
NATIP	Naval Aviation Technical Information Product
NATOPS	Naval Air Training and Operating Procedures Standardization
NATSF	Naval Air Technical Services Facility
NAVAIR or	Naval Air Systems Command
NAVAIRSYSCOM	
NAVSAFCECEN	Naval Safety Center
NFM	NATOPS Flight Manual
NPRO	Navy Plant Representatives Office
NTDA	Navy Tactical Doctrine Activity
NTDDPA	Navy Tactical Doctrine Development and Production Activity
NTIC	Navy Tactical Information Compendium
NTSA	Navy Tactical Support Activity
NWC	Naval War College
NWDC	Naval Warfare Development Command
NWP	Naval Warfare Publications
OPNAV	Chief of Naval Operations Staff
QA	Quality Assurance
SECNAV	Secretary of the Navy
SOP	Standing Operating Procedures or Standard Operating Procedures
TACMAN	Tactical Manual
UAV	Unmanned Aerial Vehicle
UCR	Urgent Change Recommendation
WNY	Washington Navy Yard
XML	Extensible Markup Language

Introduction

Prior to the origin of the Naval Air Training and Operating Procedures Standardization (NATOPS) program in the 1960s, United States Naval aircrew learned about their airplanes from their flight instructors and by using aircraft flight manuals developed by the aircraft manufacturers. There was no standardization from Naval flight instructor to flight instructor much less squadron to squadron, or airplane type to airplane type. "Chick" Eldridge, a former Naval Aviator stated:

*"To my recollection, there was little emphasis on aviation safety. What safety information was imparted to the fledgling aviator came from the primary instructors. Lessons learned usually came in the form of "gems of instructor wisdom." You were simply told to fly certain maneuvers in a specific way or wind up as a statistic. In those days, there was no such thing as NATOPS. What pleased your own instructor might not please a check pilot, who had his own idea how a "slip to a circle" or a "slip to a small field" landing should be flown. We were all aware, however, that a stupid mistake, or a forgotten procedural step, could cause one to suddenly quit eating potatoes and occasionally it happened."*¹

The NATOPS program originated in the 1960s as an effort to improve the safety and readiness of the inherently dangerous profession of Naval Aviation. Since its inception, the NATOPS program has evolved into an effective safety program that encompasses over 280 NATOPS Flight Manuals (NFM)s and the associated checklists for over 106 different Navy and Marine Corps aircraft platforms and aviation-related subjects. The NATOPS Program effectively promulgates normal and emergency operating procedures and technical data to the Naval Aviation fleet via both the routine (conference) and urgent (interim changes) NATOPS change processes. Yearly NATOPS activities now encompass on average over 25 NATOPS conferences and subsequent editorial revisions and over 65 NATOPS Interim Changes per year.

Current and accurate NATOPS products have proven critical to the safe and effective operation of Naval Aviation; *"It has been truthfully said that every line in the NATOPS manual has been*

¹ Eldridge, Richard A. "Chick". "A Look Back: Forty Years of Reminiscing" Naval Safety Center Website 22 Jan 2004. < <http://safetycenter.navy.mil/media/approach/theydidwhat/eldridge.htm>>

written in blood²". The mishap rate of Naval Aviation has steadily decreased from over 776 aircraft lost in 1954 prior to the inception of the NATOPS Program to 15 aircraft destroyed in 2001³. Figure 1 shows the Naval Aviation mishap rate trend from the 1950s to 2002. Some of the steep decline in aviation mishaps can be attributed to the introduction of the angled aircraft carrier deck. However, statistics show that the NATOPS Program has contributed greatly to continued reductions in the aviation mishap rate leading to the NATOPS Program being described as "the most successful program ever undertaken by the Navy"⁴.

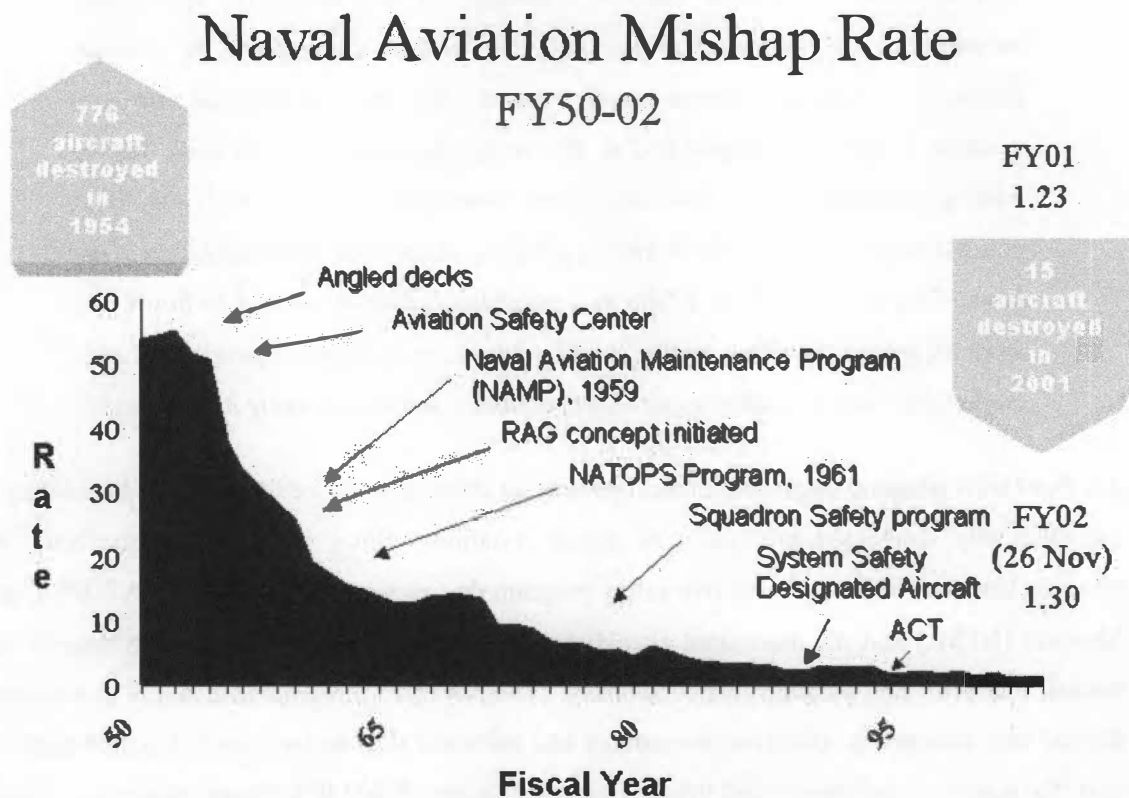


Figure 1. Naval Safety Center Aviation Mishap Statistics

Source: RDML David Architzel, USN, Commander Naval Safety Center "SECNAV Safety Brief". 28 November 2001.

² Crowell, Jeff. Naval Terminology, Jargon and Slang FAQ Part 2 - N through Z. 31 Oct 2003. <<http://www.hazegray.org/faq/slang2.htm>>

³ Architzel, RDML David, USN. Commander Naval Safety Center. "SECNAV Safety Brief". 28 Nov 2001.

⁴ CNO NATOPS Coordinators. NATOPS Program Managers Handbook. Chief of Naval Operation (CNO N889J) 12 Oct 1999.

Chapter 1. Origin of the NATOPS Program

1960

In July 1960, a Naval Safety Center brief to the major Naval commands led the Department of the Navy leadership to recognize that something substantial needed to be done to further reduce the high loss rate of Naval aircraft and aircrew. The brief emphasized that about 15% of all Navy aircraft accidents involved either a lack of standing operating procedures (SOP) or a direct violation of existing SOP⁵. A memorandum from the Department of the Navy, Office of the Chief of Naval Operations, dated 5 October 1960 stated that the “*Naval Aviation accident rate*”, which had steadily dropped during the previous few years, had “*apparently leveled off at about 1.9 accidents per 10,000 flight hours*”⁶. This is a staggering accident rate, considering the accidents occurred in a peacetime environment and that today’s Naval accident rate has been on average over the past ten years, approximately 2 major accidents per 100,000 flight hours⁷. In FY 1960 alone, Naval Aviation lost 270 aircrewmen, including 180 pilots, and the equivalent of twenty squadrons of combat aircraft with a value of over \$200 million in 1960 dollars⁸. Additionally, aircraft systems were performing poorly due to inadequate aircrew training and non-standard operating procedures. Aircraft carrier decks each had different operating procedures, and paint and lighting schemes. Pilots from different squadrons could not fly formation with each other or land on a carrier other than their own without departing from their standard operating procedures⁹.

In light of the dramatic losses and standardization issues, the Chief of Naval Operations (CNO) developed a plan for a standardization program dubbed the Naval Air Operations Standardization Program. The program was designed to contribute to an increase in combat readiness by reducing the rate of accidents attributable to failure to adhere to standard operating procedures. The initial plan was presented via memorandum to the Naval Aviation community for comment in October 1960¹⁰. The plan called for the development of an OPNAV instruction defining the Naval Air Operations Standardization Program, established billets within the CNO and Fleet Replacement

⁵ Pirie, R. B. Memorandum. Chief of Naval Operations. Op-561E/ags. Ser 164P56. 21 Feb 1962.

⁶ Brandley, F. A. Memorandum. Chief of Naval Operations. Op-561/se. Ser 1647P56. 5 Oct 1960

⁷ Naval Safety Center Statistics, 13 June 2002.

⁸ Brandley, F. A. 5 Oct 1960.

⁹ CNO NATOPS Coordinators. NATOPS Program Managers Handbook. Chief of Naval Operation (CNO N889J) 12 Oct 1999

¹⁰ Brandley, F. A. 5 Oct 1960.

Training Squadrons to execute the program, tasked the aircraft type commanders with designating Standardization Advisory Board members to oversee the program, and tasked cognizant commands (to be defined by the Standardization Advisory Board) with developing standard operating procedures for each type aircraft. The October 1960 memorandum containing the proposed Standardization Program outline is attached as appendix 1.

There was initial concern that the Naval Air Operations Standardization Program would be viewed as an intrusion on an aircrew's authority, however upon review of the proposed program, senior officers in Naval Aviation were unanimous in their support. A Naval Air Operations Standardization Conference was convened in the offices of the Chief of Naval Operations on 17 November 1960 with representatives from all the Naval Aviation communities, to finalize the details for the implementation of the program renamed the Naval Air Training and Operating Procedures Standardization (NATOPS) program¹¹. The meeting resulted in consensus on what types of information would be incorporated into the manuals as well as an accepted format for the manuals. The NATOPS manuals were designed to supplement rather than replace or duplicate information provided in the aircraft flight manuals or the Navy Warfare Publications (NWP). The NATOPS manuals were to contain information such as ground and flight procedures for all-weather and night operations, instrument procedures, and emergency procedures. The format was established as depicted in Table 1. NATOPS manual approval chains and change processes were discussed. Once a draft NATOPS manual was complete, a conference would be convened to review the manual. After the conference review, the manual would be submitted to CNO for approval and promulgation. Any necessary urgent changes would be forwarded for approval to the Advisory Board via letter or message. The organizational construct for the NATOPS program was discussed. The aircraft models were divided amongst the three cognizant (COG) commands: Commander in Chief, U.S. Atlantic Fleet (CINCLANTFLT); Commander in Chief, U.S. Pacific Fleet (CINCPACFLT); and the Chief of Naval Air Training (CNATRA). Each cognizant command was responsible for the development of the NATOPS Manuals for the aircraft they were assigned. The minutes from the November 1960 conference are attached as appendix 2.

¹¹ Pirie, R. B.. Memorandum. Chief of Naval Operations Op-561E/ags. Ser 2040P56. 10 Dec 1960

Table 1. Format for NATOPS Manuals circa 1960

NATOPS Manuals Divisions	Topic
Chapter I	Indoctrination
Section 100	Introduction
Section 101	Ground Training Syllabus
Section 102	Flight Training Syllabus
Section 103	Flight Crew Requirements
Section 104	Personal Flying Equipment Requirements
Chapter II	Shore-Based Procedures
Section 201	Scheduling
Section 202	Briefing
Section 203	Line Operations
Section 204	Taxi-Takeoff – Landing
Section 205	Field Arrestments
Section 206	De-Briefing
Chapter III	Carrier-Based Procedures
Section 300	General (Command Responsibility)
Section 301	Scheduling
Section 302	Briefing
Section 303	Flight and hangar Deck Operations
Section 304	Launch and Arrestment Operations
Section 305	De-Brief
Chapter IV	Flight Procedures
Section 400	General
Section 401	Transition or Familiarization
Section 402	Instruments
Section 403	Night Flying
Section 404	Formation and Tactics
Section 405	Weapons (Gunnery, Missiles, Bombing and Rockets)
Section 406	Mission Planning (Navigation, Cruise Control, and Ordnance Systems Operations)
Section 407	MLP and CQ
Section 408	Flight Test Procedures
Section 409	In-Flight Refueling
Chapter V	Emergency Procedures
Section 500	General
Section 501	Ground Emergencies
Section 502	In-Flight Emergencies
Section 503	Take-Off and Landing Emergencies
Section 504	Downed Aircraft

Table 1. Continued

NATOPS Manuals Divisions	Topic
Chapter VI	Communications
Section 600	General
Section 601	Radio Communications
Section 602	Visual Communications
Chapter VII	Specials Mission (Photo, etc.)
Section 700	General
Section 701	Special, etc
Chapter VIII	Miscellaneous

Source: R. B. Pirie.. Memorandum. Chief of Naval Operations Op-561E/ags. Ser 2040P56. 10 Dec 1960

1961

In May 1961, the CNO released an instruction detailing the NATOPS Program, OPNAVINST 3510.9¹². The instruction formally established the NATOPS Program and the plan for its implementation. The NATOPS Program was described as

“A positive approach toward achieving a substantial further reduction in the aircraft accident rate. Standardization, based on professional knowledge and experience, provides the basis for development and use of sound navy-wide operational procedures. It provides flexibility in the exchange of combat pilots/crews between fleets as well as ensuring rapid dissemination of improved procedures and techniques.”¹³

The instruction defined a NATOPS manual as a

“manual promulgated by CNO containing standard flight doctrine and the optimum operating procedures for the aircraft model concerned”¹⁴.

The OPNAV 3510.9 instruction also defined the positions and responsibilities of participants in the NATOPS program. The instruction emphasized the aviation community’s ownership of the NATOPS manuals, prepared by the aircraft users for the aircraft users, and that the success of the NATOPS program depended on those users forwarding recommendations for changes as appropriate. A three-step implementation program was established. Step one included

¹² OPNAV Instruction 3510.9. Office of the Chief of Naval Operations. OPNAV 3510.9. Op-561. Ser 509P56. 8 May 1961.

¹³ OPNAV Instruction 3510.9. Office of the Chief of Naval Operations. OPNAV 3510.9. Op-561. Ser 509P56. 8 May 1961.

¹⁴ OPNAV Instruction 3510.9. 8 May 1961.

assignment of NATOPS coordinators, as well as evaluator and instructor personnel in the combatant aircraft squadrons, promulgation of prioritized NATOPS manuals, and the initiation of standardization checks following the receipt of NATOPS manuals. Step two included promulgation of the non-priority NATOPS manuals and assignment of evaluator and instructor personnel in the non-combatant aircraft squadrons. Step three expanded the scope of the NATOPS evaluators and instructors to include shore activities and overseas bases. Changes to NATOPS manuals were classified as routine or urgent. No guidance for determination of whether a change should be classified as routine or urgent was given in this initial instruction. Routine changes were submitted to the cognizant command for the applicable aircraft to be addressed at the next meeting of the CNO Advisory Board. Urgent changes were proposed via message or letter and forwarded to the cognizant command with copies to the Advisory Board. Comments and concurrences were submitted within five days at which time a recommendation was made to CNO for promulgation. The instruction is attached as appendix 3.

On 10 July 1961, the first NATOPS Manual, the HSS-1 NATOPS Manual, was promulgated¹⁵. As designed, the NATOPS Manual supplemented the existing aircraft flight manual and contained specific operating procedures and flight instructions.

1962

The first NATOPS Conference convened on 22 January 1962 at NAS New Orleans to review the progress of the program and provide guidance to increase the effectiveness of the program. The minutes of the conference are attached as appendix 4. RADM F. A. Brandley delivered the keynote address in which he emphasized the need for a standardization program and his opinion that the program was *"thirty years too late!"* He went on to emphasize the invaluable contribution that the NATOPS program could make to Naval Aviation, saying:

"If in the end we can point to only one life or one aircraft saved, it will have been worth many times over the tireless effort each of you have made towards a better NATOPS program."¹⁶

Progress reports given by the major commands indicated that the NATOPS program was well underway. The Naval Aviation Safety Center briefed the conference on suggestions for continued improvement of the NATOPS program¹⁷. The suggestions highlighted the need for

¹⁵ Naval Historical Society. United States Naval Aviation 1910-1995. Government Printing Office.

¹⁶ Pirie, R. B. Memorandum. Chief of Naval Operations. Op-561E/ags. Ser 164P56. 21 Feb 1962

¹⁷ Pirie, R. B. 21 Feb 1962

inclusion of techniques and specific technical data including critical altitude and airspeed information to facilitate safe ejection, engine relight, maximum crosswind components for takeoff and landing, and hot weather / high altitude operating techniques. The recommendation was also made to expand the NATOPS program as soon as possible to include the standardization of carrier procedures and other non-aircraft specific, but Naval Aviation-related topics.

At the January 1962 conference, it was decided that OPNAV Instruction 3510.9 would be modified to further refine the relationship between the NATOPS manual, the aircraft flight manual, and the NWP. The conference attendees reviewed the requirement for inclusion of normal and emergency procedures in NATOPS manuals and decided that, to avoid confusion, the normal and emergency procedures should be retained only in the flight manuals and NWP checklists. CNO took an action to modify the 3510.9 to remove the requirement to include normal and emergency system operations from the NATOPS manuals. Additionally, technical data normally provided within the aircraft flight manual was not contained in the NATOPS manuals. However, the attendees recognized that a long-range NATOPS program requirement existed to integrate all of an aircraft's publications into one document.

In March 1962, OPNAVINST 3510.9, the NATOPS program instruction, was superseded by OPNAVINST 3510.9A¹⁸. The revised instruction is attached as appendix 5. The revision further defined the NATOPS program responsibilities under the CNO, the Air Type Commanders, and the Air Station/Unit Commanders. The CNO exercised administrative responsibility via the Standardization Advisory Group which met at least twice a year to review the program and submit comments for changes to the overall NATOPS processes. Additionally, the Navy Tactical Doctrine Development and Production Activity (NTDDPA), under the management of CNO, was given the responsibility for the edit, print, and distribution of the NATOPS Manuals. The Air Type Commanders held the responsibility for implementing the standardization and evaluation procedures. The evaluators were assigned responsibility for continually reviewing the NATOPS publications as well as Flight Handbooks and NWPs to resolve conflicting information. The evaluators also provided guidance to the unit instructors. The Air Station/Unit Commanders held the responsibility to monitor the unit level NATOPS program and for appointing standardization instructors. The 3510.9A revision further refined the NATOPS preparation process and delineated which major commands could grant waivers to NATOPS as well as to whom the

¹⁸ OPNAV Instruction 3510.9A. Office of the Chief of Naval Operations. OPNAV 3510.9A. Op-561. Ser 303P56. 26 Mar 1962.

waivers could be granted. The NATOPS change processes were further refined. Urgent NATOPS changes were submitted to the Advisory Group member in the originator's chain of command for validation. Once validated, the change was forwarded to the cognizant command and to all other Advisory Group members for review and comment within three days. The cognizant command compiled the comments and forwarded the final recommendation to the CNO. Routine changes were forwarded to the Advisory Group member in the originator's chain of command, who then forwarded the recommendation to the cognizant command and the other Advisory Group members. Comments were submitted to the cognizant command within thirty days when the cognizant command would forward the final recommendation to the CNO.

The second NATOPS Conference was held at NAS Minneapolis on 6-8 August 1962 to review NATOPS program issues and to formulate recommendations for the improvement of those concerns. The recommendations were included in the conference report¹⁹, attached as appendix 6. The second conference focused on developing standards by which pilots were evaluated in their NATOPS checks. The recommendation was made to develop and promulgate an Aerial Refueling Manual. A recommendation made at the first NATOPS conference the year prior was addressed, resulting in the development of minimum bail-out and ejection altitudes for all model aircraft. The effectiveness of the NATOPS manual change processes and delays in change coordination, review, and printing were discussed. The conference members decided to maintain the urgent change process as it existed. A semi-annual review conference for each NATOPS manual was established to review all proposed routine NATOPS changes and to update the flight manual. The conference highlighted the inadequacy of NATOPS manuals for out-of-production aircraft, in that, once out-of-production, procurement dollars were no longer available to purchase and update NATOPS manuals. The conference members recommended that adequate funding be allocated for continued support of out-of-production aircraft NATOPS manuals, and assigned the action to the Bureau of Naval Weapons (BUWEPS), the predecessor of the Naval Air Systems Command (NAVAIRSYSCOM).

In October 1962, the BUWEPS Instruction 3510.1 was modified to delineate BUWEPS responsibilities in support of the NATOPS program²⁰. This instruction stated that BUWEPS was responsible for the review of NATOPS manuals and any recommended changes to ensure their

¹⁹ OPNAV Notice 3510. Office of the Chief of Naval Operations. OPNAV 3510. Op-561. Ser 1461P56. 10 Sep 1962.

²⁰ BUWEPS Instruction 3510.1A. Bureau of Naval Weapons. BUWEPS 3510.1A. F-12. 22 Oct 1962.

technical accuracy and consistency with flight manuals and other applicable publications. The instruction designated a BUWEPS NATOPS Coordinator to serve as a member of the Advisory Group and to coordinate NATOPS support within BUWEPS. The instruction also designated an alternate Advisory Group member to coordinate NATOPS support within the Research, Development, Test and Evaluation community and to assist the BUWEPS NATOPS Coordinator. The BUWEPS technical position on any recommended urgent or routine change was prepared for release by the BUWEPS NATOPS Coordinator and forwarded to the cognizant command within the appropriate time period. The OPNAV 3510.1A instruction is attached as appendix 7.

In October 1962, the NATOPS Section of the NTDDPA published the first NATOPS newsletter²¹. The newsletter was designed as an informal method of communicating with NATOPS users. In the October 1962 newsletter, the NTDDPA NATOPS section requested to be informed of the schedule of the individual aircraft semi-annual review conferences as early as possible so a representative could be sent to each conference. Any changes agreed upon at the conference could be carried back by the representative to CNO for approval and to NTDDPA for printing and distribution. The NTDDPA NATOPS section also requested they be "info" copied on all change recommendation messages and letters so as to stay apprised of other changes occurring to the manuals. The newsletter discussed the priorities that were established for the manual and change approval and printing processes. The priorities were: fleet operational (combat) types, training, and then utility aircraft; new aircraft models received precedence over older models. The newsletter is attached as appendix 8.

In late November 1962, the CNO released a memorandum based on a recommendation made at the August 1962 NATOPS Conference²². At the conference, the Advisory Group approved a study to evaluate combining the flight manual and NATOPS manual for each aircraft into one consolidated document. The S-2D and the F-4B were selected as the prototype manuals. Each prototype was developed using a different method and strategy. The S-2D developed a single manual with a classified supplement. The F-4B instead developed a three-volume set with Volume I as Aircraft Systems, Volume II as Training and Operating Procedures (NATOPS) and Volume III as the Classified Supplement. The memorandum is attached as appendix 9. The

²¹ Empey, R. E. Head, NATOPS Section U. S. Navy Tactical Doctrine Development and Production Activity. 26 Oct 1962.

²² Dose, R. G. Memorandum. Office of the Chief of Naval Operations. Op-561/ags. Ser 1626P56. 30 Nov 1962.

manuals were distributed in December 1962 for fleet evaluation. The Letter of Promulgation (LOP) for these two trial manuals is provided as Figure 2. Analyses of the two different approaches were presented at the third NATOPS conference in April 1963.

1963

The second NTDDPA NATOPS Newsletter was published in February 1963²³. It announced the third semi-annual NATOPS conference, scheduled for April of that year, and requested submittal of agenda items for the conference. The February newsletter is attached as appendix 10. The newsletter provided status updates of manuals in the edit and production stages and highlighted the continued difficulty with distribution of the NATOPS manuals. Manuals were not consistently arriving at the intended locations in a timely manner. Processes for the development of complete and accurate distribution lists were in development.

The April 1963 NATOPS Conference reviewed fleet comments of the prototype S-2D and F-4B combined NATOPS Flight Manuals. According to CNO memorandum dated 18 April 1963 and attached as appendix 11, fleet reaction was universally favorable²⁴. The conference attendees recognized that manual specifications were required in order to adequately control the contractor development of the new combined manuals. Preliminary specifications were developed by combining the best features of the S-2D and the F-4B manual formats. The preliminary format for the combined NATOPS Flight Manuals is summarized in Table 2. The basic format developed in April 1963 is the basis for the format used for present day NATOPS manuals.

In June 1963, the NTDDPA released an NTDDPA notice 3510 concerning developments in the NATOPS program²⁵. The notice is attached as appendix 12. The notice replaced the NATOPS newsletter format initially used to distribute information to interested fleet personnel, including NATOPS coordinators, instructors, and evaluators. The notice cited development of combined NATOPS Flight Manuals as a top-priority project, but highlighted the difficulty in obtaining funding for the out-of-production aircraft NATOPS Flight Manual development. The notice also addressed the finalization of a universal format for combined NATOPS Flight Manuals, effective

²³ Empey, R. E. Head, NATOPS Section U. S. Navy Tactical Doctrine Development and Production Activity. 5 Feb 1963.

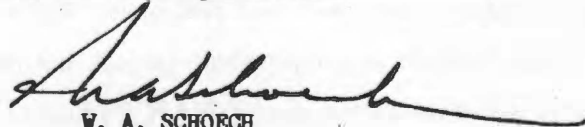
²⁴ Charles, N. R. Memorandum. Office of the Chief of Naval Operations. Op-561/bws. Ser 819P56. 18 Apr 1963.

²⁵ Empey, R. E. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPA NOT 3510. RHB:ls. 11 Jun 1963.

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D. C.

LETTER OF PROMULGATION

1. The Naval Air Training and Operating Procedures Standardization Program (NATOPS) was developed to provide a source of efficient and sound operating procedures for each aircraft in the Navy's inventory. Compliance with stipulated NATOPS manual procedure, being mandatory, ensures standardization of operating procedures for each model aircraft throughout the Naval Aeronautical Establishment.
2. The operational information contained in NATOPS Manuals is generated by the users and is based on professional knowledge and experience with the aircraft concerned. NATOPS Manuals contain operational information that does not appear in aircraft Flight Manuals. At the semi-annual NATOPS conference held in Minneapolis, in August 1962, it was recommended that the feasibility of combining NATOPS and Flight Manual information be investigated. This would provide a single source of all information necessary to operate any given aircraft efficiently. To this end the S2D (S2F-3) and the F-4B (F4H) were chosen as pilot models and a combined book called the NATOPS Flight Manual has been written for each. These combined manuals are for evaluation only and have been given wide distribution so that a large cross section of users can contribute to an analysis of their relative merits and to the merit contained in the original recommendation to combine the information in one publication. All recipients are enjoined to make a thorough and objective evaluation of the combined manual concept and forward comments to the applicable NATOPS Coordinator prior to April 1963. Recipients are hereby granted authority to use the combined manual concerned in lieu of the applicable NATOPS and Flight Manuals for the duration of the trial period. The termination date of the trial period is 1 December 1963.
3. Check lists and other pertinent extracts from this publication necessary to operations and training should be made and may be carried in Naval aircraft for use therein. It is forbidden to make copies of this entire publication or major portions thereof without specific authority of the Chief of Naval Operations.



W. A. SCHOECH
Vice Admiral, USN
Deputy Chief of Naval Operations (AIR)

Figure 2. First NATOPS Flight Manual Letter of Promulgation
Source: NATOPS Office Files.

Table 2. 1963 Combined NATOPS Flight Manual Format

NATOPS Manual Divisions	Topic
Section I	Aircraft
Part I	General Description
Part II	Systems
Part III	Aircraft Servicing
Part IV	Aircraft Operating Limitations
Section II	Indoctrination
Section III	Normal Procedures
Part I	Briefing / Debriefing
Part II	Mission Planning
Part III	Shore-Based Procedures
Part IV	Carrier-Based Procedures
Section IV	Flight Procedures
Section V	Emergency Procedures
Section VI	All Weather Operation
Section VII	Communications Procedures
Section VIII	Weapons Systems
Section IX	Flight Crew Coordination
Section X	Standardization Evaluation
Section XI	Performance Data

Source: N. R. Charles. Memorandum. Office of the Chief of Naval Operations. Op-561/bws. Ser 819P56. 18 Apr 1963.

methods for preparing for NATOPS Review Conferences, the status of each platform NATOPS program, and printing and distribution issues, including information on the development and maintenance of distribution lists for NATOPS publications.

In July 1963, CNO circulated a proposed OPNAV Instruction for General Flight and Operating Instructions, OPNAVINST 3710.7B²⁶. The draft proposed to cover in a single instruction those aviation-related topics that lent themselves to standardization and had potential to improve combat readiness or lead to a reduction in the aircraft accident rate. The OPNAVINST 3710.7B was seen at the time as an extension of the NATOPS program and was designed to facilitate the consolidation of existing instructions and the promulgation of procedures common across aviation communities. To that end, the proposed instruction superseded numerous OPNAV instructions. These instructions are itemized in Table 3. The OPNAVINST 3710.7 series instruction has evolved over the last 40 years to become the governing instruction for the entire NATOPS program.

At the September 1963 NATOPS conference, the NATOPS Advisory Group formulated a strategy for developing combined NATOPS Flight Manuals for out-of-production aircraft that no longer had continuing aircraft publication support funding. The recommendation, approved by the NATOPS Advisory Group, assigned BUWEPS the responsibility for the revision and update of technical manuals for out-of-production aircraft. BUWEPS was also given action to separate future airframe and publication contracts so publications support could be maintained once an aircraft acquisition contract ended. CNO, BUWEPS, and the Navy contracting organization, the Naval Air Technical Service Facility (NATSF), coordinated to obtain funding for contracts to develop the out-of-production combined NATOPS Flight Manuals. A standard technical manual contract requirement was developed so all aircraft would be addressed as funding became available²⁷.

²⁶ Ellis, W. E. Naval Air Station NATOPS Manuals and Proposed OPNAVINST P3710.7B (NATOPS Manual – General Flight and Operating Instructions). Office of the Chief of Naval Operations. Op-561/bws. Ser 1304P56. 19 Jul 1963.

²⁷ Mulligan, LCDR James A. Jr., Naval Aviation News. NATOPS Program Constantly Expands, 1963.

Table 3. OPNAV Instructions Superseded by OPNAVINST 3710.7B

Instruction	Subject
OPNAVINST 3710.7A	General Flight and Operating Instructions for Naval Aircraft
OPNAVINST 3710.15	Manual of Aviation Instructions
OPNAVINST 3710.17A	Flight Demonstrations
OPNAVINST 3710.21	Air Operations Manuals of Naval Air Stations and Facilities
OPNAVINST 3710.22	Transients at Naval Air Stations; Treatment of
OPNAVINST 3710.24	Responsibility for Maintaining Adequate Cockpit Visual Lookout
OPNAVINST 3720.2B	Instrument Flight Requirements, Qualifications and Procedures
OPNAVINST 3750.15	Policy on Use of “Follow Me” Vehicles at Naval Aviation Facilities; Establishment of
OPNAVINST 3750.17	Captive Sidewinder Missile; Procedures for
OPNAVINST 4630.1	Use of Naval Aircraft; Policy Concerning

Source: W. E. Ellis. Naval Air Station NATOPS Manuals and Proposed OPNAVINST P3710.7B (NATOPS Manual – General Flight and Operating Instructions). Office of the Chief of Naval Operations. Op-561/bws. Ser 1304P56. 19 Jul 1963.

The December 1963 NTDDPA notice contained a status update on each NATOPS Flight Manual²⁸. The notice is attached as appendix 13. At that time, three combined NATOPS Flight Manuals had been distributed and fourteen additional were in work. Forty-three NATOPS Manuals were not yet converted from the old format with separate NATOPS and Flight Manuals. Thirty-six aircraft NATOPS conferences were scheduled for 1964. The final approved combined NATOPS Flight Manual format was promulgated in the notice. The summary level format description given in Table 2 did not change with the final format. The notice highlighted the importance of the individual aircraft NATOPS model manager establishing an ongoing liaison with the Aviation Safety Center analyst for that specific aircraft in order to discuss recommended changes to the NATOPS Flight Manual as well as any implications on the flight manuals due to aircraft incidents and accidents. The notice also provided NATOPS Advisory Group point of contact information to the NATOPS community.

²⁸ Empey, R. E. NAVTACDOCDEVPRODUCT NOTICE 3510. NTDDPA NOTE 3510. RHB:ls. 23 Dec 1963.

1964-1965

In January 1964, the CNO released a revision to the OPNAV instruction governing the NATOPS program, OPNAVINST 3510.9B. The revision refined the discussion of the NATOPS program and clarified definitions provided in the previous instruction. OPNAVINST 3510.9B is attached as appendix 14. The revision provided definitions for the NATOPS Model Manager and the NATOPS Flight Manual. The NATOPS Model Manager was defined as the

“command designated by a Cognizant Command to prepare and update a specific NATOPS Manual or NATOPS Flight Manual.”²⁹

The NATOPS Flight Manual was defined as

“a manual for a specific aircraft promulgated by CNO which combines standardized ground and flight procedures, not including combat tactics, with Flight Manual technical information. It is planned that all NATOPS Manuals and Flight Manuals will ultimately be combined”³⁰.

The revision provided that the NATOPS Advisory Group, previously chartered to meet semi-annually, would instead meet annually or as required to effectively implement and coordinate the NATOPS program. The support role of the NTDDPA was further defined to better account for their responsibility in the edit, print and distribution processes as well as their role as liaisons between the Model Managers and BUWEPS in the NATOPS update process. The officers assigned to the NTDDPA were designated as CNO Standardization Coordinators. The Aircraft Type Commanders responsibilities remained the same, but were redesignated as the Cognizant Command. The administrative procedures section was expanded to account for preparation of NATOPS Flight Manuals in addition to the NATOPS manuals. The revised instruction highlighted the need for coordination between the NTDDPA CNO Standardization Coordinators, BUWEPS, the Model Manager, the Naval Air Test Center, and the aircraft contractor to prepare successful NATOPS Flight Manuals. The initial inputs for a new aircraft's NATOPS Flight Manual were the responsibility of the aircraft contractor and the Naval Air Test Center. Routine updates to the NATOPS Flight Manuals were achieved via the review conference process. An OPNAV Form, 3500-22 was attached to facilitate the correct submittal of routine changes to the appropriate Model Manager. The urgent change process remained basically the same with the 3510.9B revision, with clarification that the urgent changes were approved by CNO but

²⁹ OPNAV Instruction 3510.9B. Office of the Chief of Naval Operations. OPNAV 3510.9B. Op-561. Ser 1657P56. 1 Jan 1964.

³⁰ OPNAV Instruction 3510.9B. 1 Jan 1964.

promulgated by BUWEPS. All of these process changes provided more effective means for the development and update of effective NATOPS Flight Manuals.

The NTDDPA 3510 notices from 1964 and 1965 continued the shift in content that was initially seen in the December 1963 notice. The notices shifted from including information concerning NATOPS program policy modifications and defining manual format to status reports on the individual NATOPS and NATOPS Flight Manuals. The June 1964 notice announced the cancellation of the annual NATOPS program review scheduled for September 1964, as the number and priority of the submitted change recommendations did not justify convening a conference at that time.

*"The fact that no general review is deemed necessary at this time is a tribute to the energy and dedication that the Coordinators and Model Managers have displayed in the implementation of present program policies."*³¹

The continuing transition of the NATOPS manuals to the combined NATOPS Flight Manuals was evident in the 1964 and 1965 notices. By June 1964, 10 combined NATOPS Flight Manuals had been developed and distributed to the fleet, 21 additional were in planning stages, and 42 aircraft NATOPS manuals were still being used³². By January 1965, 25 combined NATOPS Flight Manuals had been distributed, 6 were in planning stages, and 34 aircraft NATOPS manuals were in use³³. The 1964 and 1965 NTDDPA 3510 notices are attached as appendices 15 and 16, respectively.

The fourth NATOPS Program Review conference was held in June 1965 to address issues and recommendations for improvement to the NATOPS program³⁴. The conference report is attached as appendix 17. Forty-four agenda items were addressed. Funding of the development and update of out-of-production aircraft NATOPS Flight Manuals was highlighted as a continuing problem. BUWEPS was given the action to provide funds for all out-of-production aircraft with priority given to the following ten aircraft; E-1B, T-2A, KC/C-130F/G, C-118, T-28B/C, EA/A-1E/F, T-1A, C-45, T-34, and P-5. A recommendation was approved that the NATOPS philosophy be re-emphasized so as to not be disregarded during times of increased operational

³¹ Empey, R. E. NAVTACDOCDEVPRODUCT NOTICE 3510. NTDDPA NOTE 3510. DDB:1s. 1 Jun 1964.

³² Empey. 1964

³³ Empey, R. E. NAVTACDOCDEVPRODUCT NOTICE 3510. NTDDPA NOTE 3510. RHB:1s. 1 Jan 1965.

³⁴ Martin, W. I. OPNAV NOTICE 3510. OPNAV 3510. Op-561. Ser 658P56. 12 Jul 1965.

tempo. Specifications for both NATOPS Flight Manuals and Flight Crew Pocket Checklists were discussed and the recommendation was made to review the specifications for standardization and usability. The effectiveness and timeliness of the distribution of revisions to the manuals after conferences was discussed and the approved recommendation highlighted the need for continued close liaison between the interested NATOPS program participants, including the fleet, the contractors, and the Naval agencies responsible for the NATOPS program. A recommendation was approved to develop and promulgate a Guide to aid the NATOPS Model Manager with the execution of their duties. In an effort to improve the NATOPS program in general, it was recommended that BUWEPS Project Officers attend NATOPS Flight Manual review conferences. A recommendation was approved to have the NATOPS Model Managers formulate a schedule for all the FY 1966 NATOPS conferences to facilitate BUWEPS and NTDDPA conference participation and coordination of editorial and printing efforts. The need for further standardization in non-platform specific aviation-related topics was further addressed with the recommendation for updates to the manuals governing in-flight refueling, section instrument approaches, chase aircraft procedures during simulated instrument flight, and aircraft carrier operations.

In September 1965, the OPNAVINST 3510.9C revision was released by the CNO³⁵. The revised instruction is attached as appendix 18. The revision emphasized the responsibility of every user within Naval Aviation to propose updates to NATOPS manuals as dictated by changes in operational requirements, technical data, or procedures. Various types of NATOPS changes, including revisions, changes, and interim changes, were defined. The administrative details of change identification, i.e. how all three types of changes were numbered throughout the life of the manual, were defined. Additional guidance was provided regarding the difference between urgent and routine changes. The revision and interim change processes and the associated timelines were further clarified and the distribution and incorporation methods for interim changes were specified. A Naval message format for urgent change recommendations was included for reference. For the first time, the involvement of BUWEPS with technical changes was explicitly stated:

"the Chief, Bureau of Naval Weapons, has cognizance over all aircraft and equipment limitations and technical data, and may promulgate related changes

³⁵ OPNAV Instruction 3510.9C. Office of the Chief of Naval Operations. OPNAV 3510.9C. Op-561. Ser 767P56. 21 Sep 1964.

*without further approval, providing no change in operating procedures is involved.*³⁶

The October 1965 NTDDPA 3510 notice focused primarily on aviation policy changes to the OPNAV Instruction 3710.7B that resulted from the June 1965 NATOPS program review conference, including definitions of local flying area, NATOPS evaluation procedures, and aircrew signals to aid communication during events such as air refueling and section instrument approaches³⁷. The NATOPS manual distribution procedures changed such that manuals could be ordered directly from the Naval Supply Depot. The prototype military specifications governing flight manual preparation were announced completed. The specifications were based on a review of instructions and flight manuals as well as recommendations from aircraft manufacturers and opinions from the Naval Aviation community. Finally, the revision announced that the All Weather Flight Manual would be revised and brought under the NATOPS umbrella and that the long-discussed Aircraft Carrier NATOPS Manual was in draft at NTDDPA and would be conferenced in early 1966. The notice is attached as appendix 19.

1966-1968

BUWEPS originated in August of 1959, with the merger of the Bureau of Aeronautics and the Bureau of Ordnance³⁸. As stated before, BUWEPS had cognizance over all aircraft and equipment limitations and technical data as well as responsibility for funding out-of-production aircraft NATOPS Flight Manuals. In May 1966, BUWEPS was reorganized into three new commands; the Naval Ordnance Systems Command, the Naval Electronic Systems Command, and the Naval Air Systems Command. The Naval Air Systems Command inherited the NATOPS responsibilities previously held by BUWEPS.

Military Specification MIL-C-81222A (AS) governing the preparation of flight crew checklists was published 1 August 1966³⁹. The specification provided specific guidance concerning the format and content of various types of checklists such as the pocket checklist, card checklist, and scroll checklist.

³⁶ OPNAV Instruction 3510.9C. Office of the Chief of Naval Operations. OPNAV 3510.9C. Op-561. Ser 767P56. 21 Sep 1964.

³⁷ Swank, J. A. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPA 3510. JRC:jm. 10 Oct 1965.

³⁸ Naval Historical Society. United States Naval Aviation 1910-1995. Government Printing Office.

³⁹ Military Specification, Preparation of Flight Crew Checklists. MIL-C-81222A(AS). 1 Aug 1966.

Also in August 1966, a new Chief of Naval Operations Instruction, OPNAVINST 3510.11, was released to supplement OPNAVINST 3510.9 by clarifying the NATOPS review conference process⁴⁰. The 3510.11, attached as appendix 20, provided specific details to the cognizant command and NATOPS model manager concerning when, where, and how a NATOPS conference should be scheduled, how to release a convening announcement, the development of the conference agenda, when and if a preliminary conference would be beneficial, how to conduct NATOPS conferences, and the requirements for conference records and reports. NATOPS conferences were scheduled by the cognizant command upon recommendations from NTDDPA and the appropriate NATOPS Model Manager. Various situations were called out as indicators of the imminent need for a conference: the importance and number of routine changes submitted to the Model Manager; the number of interim changes issued since the last conference; an increase in the accident rate of an aircraft; major airframe or systems modifications; or a change to the aircraft mission. Prior to releasing a convening announcement, the cognizant command contacted NTDDPA to request funding and contractual support for the update of the NATOPS Flight Manual and to establish a suitable date and location for the conference. The convening announcement was released by the cognizant command no later than 45 days prior to the conference to all activities associated with the aircraft. The announcement requested users submit recommended agenda items by a specified date. The conference agenda was distributed as soon as possible after the deadline for agenda item submission. In cases when significant changes are recommended, a preliminary conference was recommended in preparation for the NATOPS conference. The model manager or their representative chaired the NATOPS conference, established the voting rules and the conference schedule. They were also responsible for the conference record itemizing each agenda item and how it was resolved. The conference record was forwarded to the contractor and NTDDPA as appropriate to facilitate incorporation of the changes into the NATOPS Flight Manuals and became part of the conference record forwarded to CNO. The information provided in the 3510.11 was intended to facilitate the successful conduct NATOPS conferences.

As of the 1 September 1966 NTDDPA 3510 notice, the NATOPS Program encompassed 50 NATOPS Flight Manuals and 27 NATOPS Manuals. This rate of growth required changes in the

⁴⁰ OPNAV Instruction 3510.11. Office of the Chief of Naval Operations. OPNAVINST 3510.11. Op-561. Ser 827P56. 17 Aug 1966.

production, print, and distribution methods previously used for both types of manuals. The notice stated that

“Considerable effort has been expended by various activities of the Chief of Naval Operations, Naval Air Systems Command, and Naval Supply Systems Command to reduce the time required for production, printing, and distribution of revisions and changes to the NATOPS publications⁴¹”

Distribution of NATOPS publications continued to be a problem due, in part, to inaccurate addresses and quantities listed on automatic distribution lists. The notice also highlighted the Naval Air Systems Command’s cognizance over all technical data contained in the NATOPS Flight Manuals. Changes to such data *“shall not be made ...without the approval of the Naval Air Systems Command⁴²”*. The notice announced a scheduled review of the OPNAV 3710.7C for fall 1966 and called for all agenda items to be submitted to CNO. The notice stated that the new specifications for NATOPS Flight Manual preparation included a reduction in the number of sections from eleven to six and a subsequent reorganization of the information in the manual. Both the NATOPS Flight Manual and Flight Crew Checklist specifications were in review with the users. The NATOPS Instrument Flight Manual had undergone two review conferences and was in preparation for printing. The Aircraft Carrier NATOPS Manual had been distributed to the fleet for use. The September notice is attached as appendix 21.

By 1966, the LOP inserted into each approved NATOPS Flight Manual had been modified to reflect the changes in the NATOPS Program. The LOP is shown in Figure 3.

In September 1967, CNO released revision D to OPNAV Instruction 3510.9⁴³. The revised instruction emphasized the role of the CNO NATOPS Coordinators as liaison between all critical players in the NATOPS program. Additional changes in the D revision focused on accounting for organizational changes within the Naval Aviation that affected the NATOPS program, specifically the redesignation of BUWEPS as the Naval Air Systems Command (NASCHQ) and the NTDDPA as the Navy Tactical Doctrine Activity (NTDA). No changes in NATOPS policy were made within the 3510.9D, so the revision has not been attached as an appendix.

⁴¹ Swank, J. A. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPANOTE 3510. JRC:dz. 1 Sep 1966.

⁴² Swank, J. A. 1 Sep 1966.

⁴³ OPNAV Instruction 3510.9D. Office of the Chief of Naval Operations. OPNAV 3510.9D. Op-561. Ser 1021P56. 1 Sep 1967.



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D. C. -20350

LETTER OF PROMULGATION

1. The Naval Air Training and Operating Procedures Standardization Program (NATOPS) is a positive approach towards improving combat readiness and achieving a substantial reduction in the aircraft accident rate. Standardization, based on professional knowledge and experience, provides the basis for development of an efficient and sound operational procedure. The standardization program is not planned to stifle individual initiative but rather, to aid the Commanding Officer in increasing his unit's combat potential without reducing his command prestige or responsibility.
2. This manual standardizes ground and flight procedures but does not include tactical doctrine. Compliance with the stipulated manual procedure is mandatory except as authorized herein. In order to remain effective, NATOPS must be dynamic and stimulate rather than suppress individual thinking. Since aviation is a continuing progressive profession, it is both desirable and necessary that new ideas and new techniques be expeditiously evaluated and incorporated if proven to be sound. To this end Type/Fleet/Air Group/Air Wing/Squadron Commanders and subordinates are obligated, authorized and directed to modify procedures contained herein, in accordance with OPNAV Instruction 3510.9 series and applicable directives, for the purpose of assessing new ideas, in a practical way, prior to initiating recommendations for permanent changes. This manual is prepared and kept current by the users in order to achieve maximum readiness and safety in the most efficient and economical manner. Should conflict exist between the training and operating procedures found in this manual and those found in other publications, this manual will govern.
3. Checklists and other pertinent extracts from this publication necessary to normal operations and training should be made and may be carried in Naval Aircraft for use therein. It is forbidden to make copies of this entire publication or major portions thereof without specific authority of the Chief of Naval Operations.


PAUL H. RAMSEY
Vice Admiral, USN
Deputy Chief of Naval Operations (Air)

Figure 3. NATOPS Letter of Promulgation circa 1966

Source: NATOPS Office Files.

In October 1967, the NTDA released an instruction, NAVTACTDOCACT Instruction 5450.2A, defining the responsibilities and authority of the personnel assigned to the NTDA NATOPS section⁴⁴. The instruction is attached as appendix 22. The NTDA CNO NATOPS Coordinators' responsibilities were as follows: represent CNO and ensure the proper execution of CNO policy at NATOPS review conferences; conduct the central coordination of all aspects of the NATOPS program; liaison with other organizations in the NATOPS program, including the fleet Model Managers, NASCHQ, the Advisory Group members, aircraft contractors, NATSF, and other organizations as necessary; establish and submit to NASCHQ estimates for the budget required to update in-service out-of-production aircraft NATOPS publications; coordinate with NATSF on required procurement actions to support NATOPS conferences; monitor all aspects of the NATOPS program including procurement, production, print, and distribution to facilitate the timely completion of accurate NATOPS publication development and updates; assist the cognizant commands with their NATOPS program duties; monitor the aviation community for ideas for improvements to the NATOPS program; maintain a report on the status of all NATOPS publications; and coordinate NATOPS distribution lists with NATSF. The instruction highlighted the considerable amount of authority held by the CNO NATOPS Coordinators and their heavy impact on the stability of the NATOPS program. The CNO NATOPS Coordinators authority extended to approval of recommended changes to NATOPS publications, with the exception of technical data, which required approval by the appropriate parties within NASCHQ, approval of NATOPS Conference Records of Changes, approval of changes to content and format of the NATOPS publications, and final approval of deviations to the checklists. Enclosure 1 to the instruction further clarified the administrative and funding processes of the NATOPS program. NASCHQ was responsible for a wide variety of processes within the NATOPS program. They had cognizance over the approval of procurement contracts for NATOPS Flight Manuals, the preparation, printing, distribution and funding of the NATOPS Flight Manuals, and the technical data contained in the manuals. NATSF, under the cognizance of NASCHQ, administered the NATOPS funding, prepared NATOPS contracts, and maintained the NATOPS distribution lists. Another agency of NASCHQ, the Navy Plant Representatives Office (NPRO) worked with the contractors at the contractor facility to coordinate efforts and deliveries between the contractors and NASCHQ.

⁴⁴ NAVTACTDOCACT INSTRUCTION 5450.2A. Naval Tactical Doctrine Activity. NTDAISNT 5450.2A. TSB:11t. 31 Oct 1967.

NATOPS Flight Manuals were divided into two categories for funding purposes: out-of-production and in-production. Maintenance of out-of-production manuals (for aircraft still in Naval service, but no longer in production) came from an annual budget provided by NASCHQ. Development and maintenance of in-production aircraft manuals were typically covered by the aircraft acquisition contract so did not require additional funding from the NATOPS program. Manuals still in the old NATOPS Manual format (not combined NATOPS Flight Manual) were funded by CNO. In the fourth quarter of each fiscal year, the NTDA submitted a proposed out-of-production NATOPS Flight Manual five-year update schedule to NASCHQ. NASCHQ allocated funds for the procurement of the scheduled NATOPS Flight Manual updates and coordinated with NATSF to obtain estimates from contractors for conference and editorial support. The amount of funds obligated for each NATOPS Flight Manual update was determined by the contractor's cost estimate provided by to NATSF. Once these steps were accomplished, the review conference could be held. Based on the amount of changes recommended at the conference, a contractor could renegotiate the original estimate of the update. Some NATOPS Flight Manuals were updated within the NTDA. NASCHQ funding was not required for those updates.

In March 1968, the NTDA issued guidelines for the front matter contained in NATOPS Flight Manuals to the contractors drafting and updating the publications⁴⁵. The memorandum, attached as appendix 23, contained a sample Letter of Promulgation, sample change and interim changes issued pages, and sample foreword materials. Guidelines for manual issue, revision, and change effective dates were included. The effective date for changes resulting from a NATOPS conference were required to be the first or fifteenth day of the month following the conclusion of that conference. Effective dates for changes stemming from airframe change bulletins were required to be the first or fifteenth day of the month of the issue date of the change. Additional LOP guidelines stated that LOPs were issued only in the basic NATOPS Flight Manual and reissued only for revisions to the manual. The LOP date coincided with the effective date of the manual. Sample foreword materials addressed scope and distribution issues as well as user responsibilities, how to initiate changes to the manuals, and the meaning of standardized NATOPS words such as warning, caution, note, shall, should, may, will.

⁴⁵ Shute, J. W. NTDA Memorandum. NTDA:HBB:br. 5601. Ser: 64. 5 Mar 1968.

In June 1968, the NTDA issued a NATOPS Model Managers, Evaluators and Instructors Guide to aid the fleet with the execution of their NATOPS duties⁴⁶. The guide, attached as appendix 24, supplemented the OPNAVINST 3510.9 and 3510.11 instructions and provided insights to NATOPS Model Managers into planning a successful NATOPS conference. The guide suggested that, in order to conserve funds, in-production aircraft conferences be held at the aircraft contractor facilities and that conferences for out-of-production aircraft be held at a Navy facility. The guide expanded on issues such as the importance of establishing a thorough agenda released sufficiently prior to the conference to allow the attendees to review the recommendations and the need for accurate conference minutes. The guide summarized the NATOPS Flight Manual procurement, production, printing, and distribution processes for the Model Manager, who was not typically closely involved in those aspects of the NATOPS program.

In 1968, the LOP inserted into each approved NATOPS Flight Manual was reworded to reflect policy clarifications with respect to users modifying procedures contained within NATOPS Flight Manuals. This LOP is shown in Figure 4.

1969

In May 1969, OPNAVINST 3510.11A was released. The revision clarified the original instruction, and contained no major changes in NATOPS policy. NTDA responsibilities in the conference planning process were expanded to include assisting the NATOPS Model Manager with drafting a convening announcement for release by the cognizant command. The timeframe for development and release of the conference agenda was clarified and made a requirement with the statement:

"Agenda items shall be forwarded so as to be received by the Model Manager no later than 30 days prior to the convening date. The Model Manager shall compile and distribute the conference agenda not later than 20 days prior to the convening date"⁴⁷.

The voting membership at a conference had previously been at the conference chairman's discretion, but the revised instruction limited the voting membership to direct representatives of the Advisory Group members, the Model Manager, and NATOPS evaluators and instructors, with each represented command receiving only one vote. OPNAVINST 3510.11A is attached as appendix 25.

⁴⁶ Shute, J. W. NTDA Memorandum. NTDA:HHB:ls. 5601. Ser: 138. 19 Jun 1968.

⁴⁷ OPNAV Instruction 3510.11A. Office of the Chief of Naval Operations. OPNAVINST 3510.11A. Op-561. Ser 324P56. 23 May 1969.



DEPARTMENT OF THE NAVY
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WASHINGTON, D. C. -20350

*Revised
Feb 68*

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3. Checklists and other pertinent extracts from this publication necessary to normal operations and training should be made and may be carried in Naval Aircraft for use therein. It is forbidden to make copies of this entire publication or major portions thereof without specific authority of the Chief of Naval Operations.

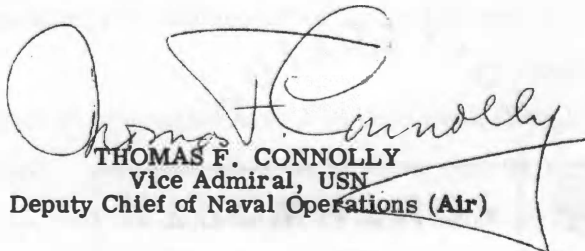

THOMAS F. CONNOLLY
Vice Admiral, USN
Deputy Chief of Naval Operations (Air)

Figure 4. NATOPS Letter of Promulgation circa 1968

Source: NATOPS Office Files.

In June 1969, OPNAVINST 3510.9E was released⁴⁸. The main body of the revised instruction is attached as appendix 26. OPNAVINST 3510.9E clarified roles and responsibilities, emphasizing the NTDA-resident CNO NATOPS Coordinator's role as coordinator for the overall NATOPS program. The most marked change was the shift in the definition of NATOPS manuals and the removal of references to aircraft flight manuals. Previous instructions had defined all three types of manuals: original NATOPS manuals containing only standardized operating and emergency procedures; aircraft flight manuals developed by the aircraft manufacturer containing technical limitations; and NATOPS Flight Manuals combining both technical data and standardized procedures. By 1969, NATOPS manuals for aircraft and aircraft flight manuals had been phased out in favor of NATOPS Flight Manuals. Reflecting this progress, OPNAVINST 3510.9E redefined the NATOPS manual as a one issued for operations such as Air Refueling, that lend themselves to standardization. These NATOPS manuals are also referred to as NATOPS general series manuals. The definition of a flight manual and methods for identifying changes to flight manuals were removed from the revised instruction.

⁴⁸ OPNAV Instruction 3510.9E. Office of the Chief of Naval Operations. OPNAVINST 3510.9E. Op-561. Ser 352P56. 23 Jun 1969.

Chapter 2. Evolution of the NATOPS Program

1970-1974

In September 1972, a CNO message directed that each NATOPS flight manual be changed to include a reference pointing to the Naval Safety Center's Cockpit CROSSFEED magazine for current NATOPS publication status. However, that same week, the Naval Safety Center weekly summary reported that the Cockpit CROSSFEED magazine would no longer be produced. The Naval Safety Center recommended the NATOPS Coordinators at NTDA develop and disseminate a monthly status report for the NATOPS program. The Naval Safety Center memorandum is included as Figure 5.

NTDA released their first NATOPS Monthly Status Report in November 1972. The report summarized ongoing NATOPS production activities including the status of revisions and changes to all NATOPS flight and general series manuals. Additionally, the cover letter to the status report highlighted any changes in the NATOPS program execution or administration. For example, the December 1972 status report informed the Naval Aviation community that the Test Flight Checklist formerly maintained by the Naval Aviation Integrated Logistic Support Center had been transferred to the NATOPS program under each appropriate NATOPS Model Manager and renamed the NATOPS Functional Checkflight Checklist. A copy of the December status report is included as Appendix 27.

In March 1973, the NATOPS Monthly Status Report expanded to include the status of all urgent change recommendations in work. The CNO NATOPS coordinators thought the inclusion of this information in the status report would assist NATOPS Model Managers and COG Commands with the tracking of ongoing NATOPS actions requiring their input. Figure 6 contains the cover letter and NATOPS urgent change recommendation pages of the March 1973 Status Report.

The NATOPS Monthly Status Report, in the same somewhat informal manner as the NATOPS newsletters discussed previously, provided valuable NATOPS-related status, administrative, and policy information to the Naval Aviation community. The July 1973 status report discussed how each squadron must update NATOPS distribution data for use in the NATSF computer system. The August 1974 report announced the installation of a telephone answering machine at the CNO NATOPS Coordinator's office to facilitate after hours communication with the fleet.

NAVAL SAFETY CENTER
NAVAL AIR STATION
NORFOLK, VIRGINIA 23511

111B2/mk1

3510

Ser 3704

19 OCT 1972

From: Commander, Naval Safety Center
To: Officer in Charge, Navy Tactical Doctrine Activity

Subj: NATOPS Monthly Status Report

Ref: (a) CNO msg 131540Z Sep 1972
(b) WEEKLY SUMMARY (10-16 September 1972)

1. Reference (a) directed the incorporation of a proposed change to all NATOPS Manuals to include a comment in the foreword to "check the latest issue of Cockpit CROSSFEED for current NATOPS change/revision status."
2. Reference (b) announced the demise of Cockpit CROSSFEED in the monthly magazine format. Due to fiscal constraints and the elimination of this convenient avenue, the NATOPS Monthly Status Report will no longer be reproduced and disseminated by the Naval Safety Center.
3. In view of the foregoing, the following is recommended:
 - a. Cancel change directed by reference (a).
 - b. NAVTACDOCACT disseminate NATOPS Monthly Status Report to all concerned.
4. If desired, COMNAVSAFECEN will provide address groups as necessary.



L. A. HOKE
Chief of Staff

Figure 5. Naval Safety Center Memorandum on NATOPS Monthly Status Report
Source: NATOPS Office Files.

NAVY TACTICAL DOCTRINE ACTIVITY
Washington Navy Yard
Washington, D.C. 20374

NTDA:RGS:rb
5600
Ser: 45
8 March 1973

From: Officer in Charge, Navy Tactical Doctrine Activity
To: Distribution List

Subj: NATOPS Monthly Status Report

Ref: (a) OPNAVINST 3510.9E

Encl: (1) Status Report - 1 March 1973
(2) Status Report Key

1. Enclosures (1) and (2) are forwarded for information and dissemination as appropriate.

2. A new page in the status report this month.....NATOPS Urgent Change Recommendation Status! This is the formalization of a plexi-glass/grease pencil board previously used in NTDA to keep track of the progress of urgent change recommendations to final disposition (interim change, downgraded to routine or disapproved). By making it a part of the monthly NATOPS report we hope it will help you keep track of items of interest and perhaps serve as a tickler when a change has been on the board overlong. The abbreviations are about the same as those used on the other part of the report. We'll try to use common sense abbreviations where space is limited in the SUBJECT and REMARKS columns. As the cognizant commands address a particular urgent change, their code letter will appear in their column. If their reply is more than a concur, the REMARKS column will reflect this following the command's code to identify it. When an interim change number is assigned it will appear in the IC column. Where an Interim Change applies to a whole family of aircraft with several manuals and too many numbers to fit the column, a "yes" will appear there. Conversely a "no" will appear if a change is downgraded or disapproved. When CNO signs out the change the DTG of the message will show in the REMARKS column. A change will stay on the board until the report shows completed action.

3. If you have any questions or suggestions don't hesitate to phone.....our number is on the report.


J. W. O'DONNELL

Figure 6. March 1973 NATOPS Status Report

Source: NATOPS Office Files.

NATOPS URGENT CHANGE RECOMMENDATION STATUS																
REF NO	ACFT	SUBJECT	ORIGINATOR	C	L	P	E	W	T	R	M	A	S	X	IC	REMARKS
1	TA 4 FJ	THROTTLE	VT 23 012158Z JUN 71	P	L	P							A	S		NATC INVESTIGATING
2	T38	LOW FUEL	VA125 180203Z DEC 72	T	L	P							A	X		X NAR/PMS INC IN CHS DTD 1 DEC 72 AT PRINTER
3	ALL AC	EMER FLAP SWITCH	VA 48 181807Z FEB 73	L	P								A	B		W RECON ADD EABA P RECON ADD EAB8 A REG NAVPRO COMMENT
4	SH 8D	PCL PRINT ERROR	HSL30 080106Z FEB 73	L	L	P										L CNO PROMULGATE
5																
6	ASAC/E	DROGUE FAIL PROC	VA 48 311618Z JAN 73	L												
7	A4M	EXTERNAL START	YMA 384 241405Z JUL 72	E											10	CNO 012057Z FEB 73
8																
9	CVA/CVS	DROGUE FAIL PROC	CNAL 107947Z FEB 73	L	P									B		
10																
11	ALL A4	ELEV DISCONNECT NBP	VA 127 061830Z APR 72	P	L	P							S	X		P NMAIR FROM L MOD PENDING AFC SIS
12	CVA/CVS	STANDARD DELTA	VS 30 091803Z JAN 73	L	P	E									NO	P DOWNGRADED BY L
13																
14	TA 4 FJ	FACE CURTAIN	CNTRA 152038Z SEP 72	P	P	E								B		P NMAIR PROMULGATE
15	UH 1H	CHECKLISTS	NAS B 091503Z JAN 73	E	L	P								S	NO	BERMUDA DOWNGRADED BY E
16	A4EF-TA	EMER FUEL TANKS CK	VA 127 171605 MAY 72	P	L	P							A	S	YES	CNO 052218Z FEB 73
17																
18	CHESAD	APCS AMPL	CNAP 161518Z DEC 72	W	L	P								B	28	S MODIFY CNO 212104Z FEB 73
19																
20																
21	RA 5C	PITCH AUG DISENGAGE	CONST 030853Z FEB 73	L									A	S	NO	A MOD S D/S DOWNGRADED BY L
22	AH1J	ENG CHIP LT	NATC PMX 250809Z AUG 72	E	L	P							A	S	YES	APPLIED UH1H ALSO CNO 141516Z FEB 73
23																
24																
25																
26																
27	UH2C	AUTOS	CNAL 081853Z NOV 72	P									A		17	CNO 212116Z FEB 73
28	ALL F4	HARD OVER RUDDER	NAVAFPCEN 171830Z DEC 71	P	L									B	NO	F4BNJ DONE AT DEC CONF - RF 4B REF TO APR CONF
29	CHESAD	TAIL SKID	NMR 361 032336Z JAN 73	W	L	P							A	S	NO/5	A E E MOD
30	ALL F4	EMER REL HANDLE	CNAP 300186Z AUG 72	P	L	P								S	NO	F4BNJ DONE AT DEC CONF - RF 4B REF TO APR CONF
31	CHESAD	FUEL CONTROL	HMNT 301 042121Z JUN 72	W									A	S	NO	DOWNGRADED TO ROUTINE
32	A 4EF	X WIND TAKE OFF	YMA 214 251733Z SEP 72	P	P								S	X	NO	DOWNGRADED TO ROUTINE CNO 168109Z JAN 73
33																
34	H53	NCM SUPPLYMT	NM 12 100650Z JAN 73	W	L	P								A	S	W MOD E ROUTINE
35	HJ ELK	FUEL BOOST	NASC 102342Z JAN 73	W	L											M MOD
36	RF 4B	T D TECHNIQUE	VNCJ3 091813Z JUN 72	W	L	P								X	80	APR CONF AGENDA ITEM
37	EA/T38	EMER PWR SWITCH	VO 2 161256Z JAN 73	P	L	P							A	S	NO/6	L MOD P MOD CNO 012105Z FEB 73
38	BUKMA3	RUNAWAY TRIM	VAG190 082813Z JAN 73	P	L	P							A	S	NO/6	CNO 012115Z FEB 73
39	ALL H2	SHUTDOWN	CNAL 312055Z JAN 73	L	L								A	S	X	A MOD X HSL 31
COGNIZANT COMMAND CODES																
CNAL CNAP FMFL FMFP CNATRA NARF MARTC NASC SAFCEM OTHER																
L P E W T R M A S X																
1 MAR 73 4 ENCLOSURE 1																

Figure 6. Continued

Source: NATOPS Office Files.

In November 1974, the OPNAVINST 3510.9F was released. The revision accounted for the NATOPS Monthly Status Report developed and maintained by the CNO NATOPS Coordinators at NTDA and discussed above. The revision also included verbiage emphasizing that NATOPS manuals and NATOPS Flight Manuals covered piloted aircraft. The purpose of the instruction was modified to read:

*"Purpose. To provide for the implementation of subject program in order to increase combat readiness and improve flight safety in piloted aircraft."*⁴⁹

Additionally, NATOPS manual and NATOPS Flight Manual definitions were modified to specifically state their relevance to manned or piloted aircraft. The revision is attached in part as appendix 28. Enclosure 3 is not included as it did not change with the F revision.

1975-1979

In April 1975, change 2 was issued to the OPNAVINST 3510.9F⁵⁰. This change incorporated the 3510.11A instruction defining the NATOPS Conference process into the 3510.9 instruction as an additional enclosure to the instruction. No modifications to the policy outlined in OPNAVINST 3510.11A were made with its incorporation into the 3510.9F.

In September 1976, change 5 was issued to the OPNAVINST 3510.9F⁵¹. This change included a reprint of the first two pages of the instruction, accounting for the changes issued in change 2 above. However, the primary modification made by this change concerned the urgent change recommendation process. Guidance was issued for situations in which the fundamental airworthiness of an aircraft is concerned or critical operating procedures are affected. In these cases, the words "*Safety of Flight*" were added to the subject line of the message, and COMNAVAIRSYSCOM became a required action addressee. This change gave critical emphasis to COMNAVAIRSYSCOM's cognizance over the technical limitations of an aircraft or aviation system. The importance of a short turnaround time for the processing of a UCR for release as an interim change was emphasized as "*inflexible*". Change 5 is attached as appendix 29.

⁴⁹ OPNAV Instruction 3510.9F. Office of the Chief of Naval Operations. OPNAVINST 3510.9F. Op-591. 25 Nov 1974.

⁵⁰ OPNAV Instruction 3510.9F Change Transmittal 2. Office of the Chief of Naval Operations. OPNAVINST 3510.9F CH-2. Op-591. 15 Apr 1975.

⁵¹ OPNAV Instruction 3510.9F Change Transmittal 5. Office of the Chief of Naval Operations. OPNAVINST 3510.9F CH-5. Op-591. 7 Sep 1976.

The NATOPS Status Report for July 1977 provided additional guidance concerning the addition of the "safety of flight" category of UCRs to the OPNAVINST 3510.9F, emphasizing the term "Safety of Flight,"

"must be restricted to situations involving the fundamental airworthiness of the aircraft or operating procedures likely to place personnel in immediate danger⁵²."

The October 1977 NATOPS Status Report further highlighted the use of the "safety of flight" category for NATOPS Urgent Change Recommendations. The following is an excerpt from the October report, quoting a message originally released by the Commander, Atlantic Fleet (COMNAVAIRLANT):

"NATOPS changes requiring immediate promulgation were defined as "URGENT" changes until 30 July 1976 when CNO saw fit to create the new category "SAFETY OF FLIGHT." This was originated because the urgent category has been misused and over used to the extent that the specified time allotted to process a change, LAW OPNAVINST 3510.9F, was consistently exceeded. Only one year has passed since the inception of "SAFETY OF FLIGHT" and already the rapid approach of this category to a misused / over used situation is evident.

COMNAVAIRLANT strongly urges a careful review of the definitions of "URGENT" and "SAFETY OF FLIGHT" category NATOPS changes as defined by OPNAVINST 3510.9F. When contemplating the submission of a NATOPS change ensure the problem and the appropriate category match. This is particularly true when the "SAFETY OF FLIGHT" category is being considered. An additional criteria that can be applied to ensure "SAFETY OF FLIGHT" is appropriate follows; It is being seriously considered that all aircraft will be put in a down status until the problem has been resolved.⁵³"

The NTDA NATOPS Status Report continued to provide the NATOPS status and administrative information to the Naval Aviation community. The June 1978 report re-emphasized the costs related to the print and distribution of NATOPS manuals and requested squadrons review their requirements and stockpiling habits to allow the NATOPS system the opportunity to better serve

⁵² Clark, S. D. NTDA Memorandum. NTDA/SDC/dd. 5600. Ser313-77. 1 Jul 1977.

⁵³ Roberts, W. J. NTDA Memorandum. NTDA/WMF/rr. 5600. Ser PR-157-77. 1 Oct 1977.

all Naval Aviation communities⁵⁴. Again, in the August 1979 report, NATOPS ordering and distribution information was highlighted⁵⁵.

1980-1984

In May 1980, the OPNAVINST 3510.9G revision was released⁵⁶. The revision included new verbiage assigning the responsibility for initial inputs to a new aircraft's NATOPS manual to the Naval Air Test Center. A paragraph was inserted concerning preliminary NATOPS manuals. Procedural changes to preliminary NATOPS could be made by the respective NATOPS Model Manager without using the formal NATOPS change processes, provided complete records of the changes were maintained and all users were informed of the changes. This applied only to NATOPS publications that did not yet include a NATOPS LOP. The revision also included, for the first time, a reference to the General Flight and Operating Instructions, OPNAVINST 3710.7, which provided overall CNO policy and procedural guidance for NATOPS users. The specific OPNAV areas of responsibility for sections of the 3710.7 instruction were included as enclosure 5 to the revision. A new NATOPS organizational chart and NATOPS Urgent Change Process flow diagram were included in the revision. OPNAVINST 3510.9G is attached as appendix 30.

In August 1980, the NTDA was renamed the Navy Tactical Support Activity (NTSA) and relocated from the Washington Navy Yard to Silver Spring, MD. The mission of the NTSA was stated as follows:

*"To establish and maintain capability to support the Fleet Tactical Development and Evaluation (TAC D&E) program in analysis of the status of current Navy tactics, definition of TAC D&E requirements and projects, project progress monitoring; exercise planning, data collection, reconstruction, preparation of approved tactics for incorporation into Naval Warfare Publications and similar functions; and to develop, produce and maintain Naval Warfare Publications and Naval Air Training and Operating Procedures Standardization (NATOPS) publications; and to execute such other duties as the Chief of Naval Operations may direct."*⁵⁷

The September 1980 NATOPS Monthly Status Report reflected the move from the NTDA to the NTSA, but the content and goals of the report remained unchanged.

⁵⁴ Roberts, W. J. NTDA Memorandum. NTDA/RGS/kmp. 5600. Ser PR-97-78. 1 Jun 1978.

⁵⁵ Roberts, W. J. NTDA Memorandum. NTDA/RHLert. 5600. Ser PR-136-77. 31 Aug 1979.

⁵⁶ OPNAV Instruction 3510.9G. Office of the Chief of Naval Operations. OPNAVINST 3510.9G. Op-591. 14 May 1980.

⁵⁷ Lockeman, G. F. Jr. OPNAV Notice 5450. OPNAVNOTE 5450. Ser 09B26/549929. Aug 11 1980.

In June 1983, NTSA released a NATOPS letter attached as a supplement to the NATOPS Monthly Status Report. The letters were released approximately quarterly through the end of 1984 and then sporadically through 1986. The NATOPS letters covered issues of interest as they arose including how to contact NATOPS personnel at NTSA; changes in NATOPS personnel and the location of the NATOPS office (the office moved back to the Washington Navy Yard in 1984 and then back to the Naval Surface Weapons Center, White Oak in 1985), in-depth explanations of the NATOPS distribution system, for both automatic distribution and one-time orders; announcement of newly development aircraft and general series NATOPS publications; discussion of technical change suggestions common to multiple platforms; information to assist NATOPS Model Managers with execution of their duties; and changes to policy within the OPNAVINST 3710.7. An example of the NATOPS letter is shown in Figure 7.

During this era, NTSA, the editorial arm of the NATOPS program, encompassed approximately 90 personnel billets, of which over 51 billets were funded specifically for publication production. Of these production billets, approximately 30-35 billets were dedicated to editorial production of NATOPS publications. During extremely high workload phases, non-NATOPS specific production personnel were available to support excess workload, if necessary. The production staff was typically made up of word processors, editors, graphical artists, and layout specialists. NATOPS publications were broken up into pieces. Word processors worked on text, while graphics artists updated figures. Editors collated all the pieces, communicated with the NATOPS Model Managers in the fleet when questions arose, and conducted quality assurance (QA) activities. Once the publication was updated and verified correct by the editor, it was sent to the layout group for formatting. After formatting, the publications were sent back to the editor for additional QA. The appropriate NATOPS Model Managers were then contacted to review the updated publication. After Model Manager review was completed, the editors finalized the publication and developed the table of contents. Finally, a camera-ready copy of the updated publication was prepared and sent out to the printing organizations. NATOPS manual updates took from 5 months to as long as 2 years to complete and distribute to the fleet.

NTSA also had approximately 10 military officer billets working on day-to-day program activities; 3 billets specifically for the NATOPS Program, 2 for the Tactical Manual (TACMAN) Program, and the remainder focused on overall management and administration activities. The military billets functioned as the NATOPS Coordinators, traveling to the NATOPS

NTSA NATOPS LETTER 83-1

1. This is the inaugural NAVTACSUPPACT NATOPS letter; its purpose is to provide information of specific interest to NATOPS Monthly Status Report readers. Subject matter may vary widely in order to meet the needs of NTSA NATOPS coordinators, model managers, and the fleet. The first subject is, "How to reach your NTSA contacts."
2. The Navy Tactical Support Activity occupies two geographic locations. The NATOPS/Air TACMAN office is located on the grounds of the Naval Surface Weapons Center, White Oak in Silver Spring, MD, a suburb of Washington, DC. Also located at NAVTACSUPPACT NSWC-WO is the Fleet Tactical Library, which acts as a repository and distribution point for all tactical documents published by the Navy. Editors and production facilities are located at the Washington Navy Yard (WNY) in the Southeast section of downtown WASH DC.
3. Anyone attempting to contact NAVTACSUPPACT may find the following information useful:

Offices	Working hrs	Primary Ph No
NATOPS & NWP offices (NSWC/WO)	0745-1630 (EDT)	AV290-1623/ COMM (202)394-1623
Editors and production (WNY)	0700-1530 (EDT)	AV288-4365/ COMM (202)433-4365

Telephone numbers above are 3-line rotaries, but tend to load up during the mid-morning and mid-afternoon hours since they are also used for outgoing autovon calls. Additional non-rotary incoming numbers through which the NATOPS office may be reached are as follows:

(202)394-1620*/2454*/3034*/3313/3514	*preferred
(202)394-1620*/2454*/3034*/3313/3514	*preferred
AV: 290	

A telephone answering device is placed in service on AV290-1623 after working hours (1630 Eastern Time). Often someone will still be at the NSWC/WO offices until 1800 during weekdays, but unfortunately, once the answering machine has been activated, there is no way to pick up on your call. Therefore, if you desire to speak to someone after 1630, call first on one of the other numbers.

4. On 1 July, CDR Don Schmidt retired from the Navy, leaving LCDR Craig Bretz as NTSA POC for all NATOPS and Air TACMANS. A relieving CDR has been indentified, but may not arrive on board until 1 October. During the interim period LCDR Dick Bergren, from the NTSA Tactical Publications Department, will attend selected NATOPS conferences and 'cover' the NATOPS office when LCDR Bretz is on away.

Figure 7. NTSA NATOPS Letter from June 1983

Source: NATOPS Office Files.

conferences and developing NATOPS interim changes. Several civilian management billets were also filled at NTSA. The total number of NTSA personnel dedicated to supporting the NATOPS program during this timeframe was over 50 people⁵⁸.

In August 1983, a change was released to the OPNAVINST 3510.9G⁵⁹. The change, announced the validation and approval of an extended reporting requirement for the NATOPS Program. The change reflected highly on the success of the NATOPS Program in achieving the goals set forth by the Program's founders, stating "*The NATOPS program has increased combat readiness and improved flight safety.*"⁶⁰

In 1984, the OPNAVINST 3510.9G was incorporated into the OPNAVINST 3710.7L as appendix A⁶¹. The combination of these two instructions resulted in one governing resource for the fleet covering the NATOPS General Flight and Operating Instructions. In the L revision, the word "piloted" was removed from the purpose of the NATOPS program and from the definitions of NATOPS Manual and NATOPS Flight Manual. This change seems to foreshadow the future role of the NATOPS program in Unmanned Aerial Vehicle (UAV) systems, as NATOPS were later developed for UAVs. The definition of a Preliminary NATOPS Flight Manual was added. Preliminary manuals are used primarily during initial production and fleet introduction of an aircraft and are therefore continually evolving. They are not subject to the normal NATOPS Interim Change review process and do not contain Letters of Promulgation. The responsibility to oversee the entire NATOPS Program was specifically given to the CNO NATOPS coordinators; including the promulgation of NATOPS policy on behalf of the CNO and acting as model manager for the 3710.7 instruction. The requirement that NATOPS style and technical content adhere to the NTSA Style Guide was highlighted. The importance of designating advance change items in a conference report was emphasized and a section detailing final prepublication review responsibilities was included.

⁵⁸ Bretz, Craig. NATOPS Specialist, 4.0P NATOPS Office. Personal Interview. 8 Jan 2004.

⁵⁹ OPNAV INSTRUCTION 3510.9G Change Transmittal 2. Office of the Chief of Naval Operations. OPNAVINST 3510.9G CH-2. OP-591D. 10 Aug 1983.

⁶⁰ OPNAVINST 3510.9

⁶¹ OPNAVINST 3710.7L. Office of the Chief of Naval Operations. OPNAVINST 3710.7L. OP-591. 24 Sep 1984.

1985-1989

By 1985, the LOP inserted into each approved NATOPS Flight Manual was modified to reflect the incorporation of the OPNAVINST 3510.9 into the OPNAVINST 3710.7 instruction. This LOP is shown in Figure 8.

The OPNAVINST 3710.7M revision, dated 31 July 1987 and released in March 1988 moved the discussion of the NATOPS program from appendix A to Chapter 2 of the document⁶². Few additional changes were made to the policy and processes of the NATOPS program with this revision. The position of the NATOPS Program Manager was created and defined as the officer within the NATOPS Model Manager unit assigned the responsibility for day-to-day maintenance and execution of that particular aircraft or aviation-related activity's NATOPS program. However, the "*Assignment of Responsibility*" section was not updated at the time to specifically define the role and responsibilities of the NATOPS Program Manager. Additionally, the NATOPS Monthly Status Report was highlighted by its inclusion in the "*Definitions*" section of the M revision along with the other NATOPS Products. The role of the Deputy CNO (Air Warfare) as the NATOPS Program Administrator with overall cognizance for the administration and management of the NATOPS Program was highlighted by adding a separate definition with the M revision.

By the late 1980s, NTSA experienced a reduction of production staff while the NATOPS production workload remained constant. Contractors were brought on board to alleviate some of the production workload. However, the backlog of NATOPS publications awaiting editorial production reached approximately 25 manuals. In conjunction with the backlog, the turnaround time for NATOPS updates continued to increase. Funding was not available to supplement the production staff to effectively accommodate the NATOPS publication workload.

⁶² OPNAVINST 3710.7M. Office of the Chief of Naval Operations. OPNAVINST 3710.7M. OP-591. 31 Jul 1987.



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C. 20350

LETTER OF PROMULGATION

1. The Naval Air Training and Operating Procedures Standardization Program (NATOPS) is a positive approach toward improving combat readiness and achieving a substantial reduction in the aircraft accident rate. Standardization, based on professional knowledge and experience, provides the basis for development of an efficient and sound operational procedure. The standardization program is not planned to stifle individual initiative, but rather to aid the commanding officer in increasing the unit's combat potential without reducing command prestige or responsibility.

2. This manual standardizes ground and flight procedures but does not include tactical doctrine. Compliance with the stipulated manual procedure is mandatory except as authorized herein. In order to remain effective, NATOPS must be dynamic and stimulate rather than suppress individual thinking. Since aviation is a continuing, progressive profession, it is both desirable and necessary that new ideas and new techniques be expeditiously evaluated and incorporated if proven to be sound. To this end, commanding officers of aviation units are authorized to modify procedures contained herein, in accordance with the waiver provisions established by OPNAVINST 3710.7L, for the purpose of assessing new ideas prior to initiating recommendations for permanent changes. This manual is prepared and kept current by the users in order to achieve maximum readiness and safety in the most efficient and economical manner. Should conflict exist between the training and operating procedures found in this manual and those found in other publications, this manual will govern.

3. Checklists and other pertinent extracts from this publication necessary to normal operations and training should be made and may be carried in naval aircraft for use therein. It is forbidden to make copies of this entire publication or major portions thereof without specific authority of the Chief of Naval Operations.

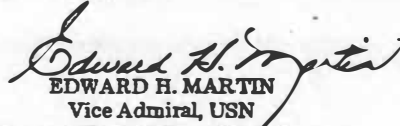

EDWARD H. MARTIN
Vice Admiral, USN
Deputy Chief of Naval Operations
(Air Warfare)

Figure 8. NATOPS Letter of Promulgation circa 1985

Source: NATOPS Office Files.

Chapter 3. Recent NATOPS History

1990-1994

OPNAVINST 3710.7N, dated 10 April 1990 and released in December 1990, contained modifications to the NATOPS program policy defined in Chapter 2 of the instruction⁶³. For the first time, the Naval Safety Center (NAVSAFECEN) was required to formally designate a NATOPS Coordinator. Additionally, the responsibilities of the NATOPS Program Manager were specifically defined. The responsibilities previously held by the NATOPS Evaluator were split such that the NATOPS Program Manager focused on the development and maintenance of accurate and up-to-date NATOPS Flight Manual publications for their specific aircraft platform. The NATOPS Evaluator focused on the evaluation portion of the NATOPS program; conducting annual NATOPS evaluations of the NATOPS instructors and squadrons within their Command. The NATOPS Program Manager worked closely with the NATOPS Evaluators to uncover any weaknesses within their NATOPS publications that should be discussed and corrected via one of the two NATOPS change processes, as appropriate. Advance change items identified at conferences were formally defined as a type of NATOPS change within the N revision. Advance change items were items approved at a conference that required immediate promulgation via interim change message. Change release authority for promulgation NATOPS publications was clarified in this revision, which stated *"only CNO and COMNAVAIRSYSCOM shall promulgate interim changes."* For unknown reasons, this statement was removed in subsequent revisions, although release authority did not change. Interim changes frequently used the NAVSAFECEN collective address designator (CAD) message addresses to effectively promulgate NATOPS changes to the fleet. This practice was questioned at times since NAVSAFECEN owned the CADs. To alleviate any questions, the use of CADs for interim change promulgation was authorized in the N revision. An indication of the funding difficulties facing the NATOPS program was alluded to with the addition of the need to identify funding for a NATOPS revision prior to release of a conference convening announcement. Voting procedures were clarified including rules for absentia voting. Finally, a section was added concerning the implementation of approved NATOPS conference agenda items; any item approved at the conference was approved for fleet use upon receipt of the conference record, at the discretion of the appropriate commanding officer, but was not mandatory until receipt of the printed revision or change.

⁶³ OPNAV Instruction 3710.7N. Office of the Chief of Naval Operations. OPNAVINST 3710.7N. OP-591H. 10 Apr 1990.

In 1991, the automatic distribution list process was automated to reduce support costs. From October 1991 onward, activities requesting NATOPS products were required to submit the Automatic Distribution Requirements List (ADRL) via floppy disk using an automated NATSF Technical Publication Library program. Any activity not updating their ADRL once a year was automatically removed from the distribution list. The automation of this process was designed to reduce time and workload required for ordering NATOPS products for all parties involved in the process as well as generate cost savings by avoiding shipment of manuals to activities no longer requiring those manuals⁶⁴.

In 1992, the CNO NATOPS Coordinators released a computer program designed to aid the NATOPS Program Manager during preparation for and at NATOPS conferences and to reduce the cost and time required for production of the revised publication after a conference⁶⁵. The program, titled "Changes" assisted the NATOPS Program Manager with the collection of change inputs, development of the conference agenda, recordation of the consensus decision for each agenda item from the conference, and development of the conference report. The original intent was to require all NATOPS review conferences to use the "Changes" program by 1993, however, the requirement was not inserted into the OPNAVINST 3710.7 until 1995.

In July 1992, the NATOPS Status Report, which had been published monthly since 1972, changed to a quarterly report. The first quarterly NATOPS Status Report was released in October 1992. In January 1993, the TACMAN Quarterly Status Report was attached with the NATOPS Quarterly Status Report in an effort to reduce distribution costs. In July 1993, in further efforts to reduce distribution costs, the status reports shifted from paper copy to electronic format distributed via the NTSA's Navy Tactical Information Compendium (NTIC) CD-ROMs. The original equipment manufacturers previously included on distribution continued to receive paper copies of the status report through July 1995 when distribution moved solely to CD-ROM. By 1999, the status report became a web-based product, hosted on the CNO NATOPS website. The urgent change recommendation status was dropped from the status report format during that period.

⁶⁴ Holmes, T. R. NTSA NATOPS Monthly Status Report. 3711. Ser 60 / 1U0515. 01 Oct 1991.

⁶⁵ Holmes, T. R. NTSA NATOPS Monthly Status Report. 3711. Ser 60 / 2U274. 02 Mar 1992.

An OPNAVISNT 3710.7 O revision was not released. The 3710.7P, dated 1 Dec 1992, was released in April 1993. Chapter 2 of the P revision restructured the discussion of the NATOPS Program to clarify program responsibilities and processes for the Naval Aviation community. The responsibilities section was streamlined, such that only broad program responsibilities and relationships were covered in this section with specific functions imbedded in later sections that defined the NATOPS processes. The NATOPS Evaluation section was moved to the end of the chapter and the sections covering NATOPS change processes, urgent (interim change) and routine (conference), were collocated. With the P revision, the stated purpose of the Chapter 2 was revised from

"Provide for the implementation of the subject program to increase combat readiness and improve flight safety⁶⁶", to,

"Issue NATOPS program organization, procedures, and responsibilities⁶⁷."

The cover letter in the front of the OPNAVINST 3710.7 instruction continued to state the original goal of the NATOPS Program as an

"approach toward improving combat readiness and achieving a substantial reduction in the aircraft mishap rate⁶⁸".

The overall NATOPS Program Administrator function remained the responsibility of the Air Warfare Division, redesignated N88. Program administration was delegated to N889, Aviation Manpower and Training. The CNO NATOPS Coordinators were designated N889J but were still assigned to NTSA at the Washington Navy Yard. The NATOPS Status report requirement was changed, as discussed above, to a quarterly report. The definitions of NATOPS Flight Manual and NATOPS Manual were consolidated with this revision so both types of manuals were covered under the NATOPS Manual definition.

1995-2001

The 3710.7Q revision was dated 1 May 1995⁶⁹. No major shifts in policy were contained in this revision, but there were several changes and clarifications in the discussions of NATOPS program processes. In the discussion of the urgent change recommendation (UCRs)/interim

⁶⁶ OPNAV Instruction 3710.7N. Office of the Chief of Naval Operations. OPNAVINST 3710.7N. OP-591H. 10 Apr 1990.

⁶⁷ OPNAV Instruction 3710.7P. Office of the Chief of Naval Operations. OPNAVINST 3710.7P. N889J3. 1 Dec 1992.

⁶⁸ OPNAV Instruction 3710.7P. 1 Dec 1992.

⁶⁹ OPNAV Instruction 3710.7Q. Office of the Chief of Naval Operations. OPNAVINST 3710.7Q. N889J3. 1 May 1995.

change process, allowances were made for review and approval of UCRs containing illustrations or information that was incompatible with the normal message system by recommending the use of faxed copies in such cases. The requirement for including COMNAVAIRSYSCOM and COMNAVSAFECEN as information addressees on safety of flight related UCRs was seemingly inadvertently lost with this revision, as their roles and responsibilities in the processes did not change. The sample UCR message format included in the revision listed both commands as required addressees for safety of flight related recommendations. Additional clarification was added to the role of the advisory group member receiving the UCR; they could cancel, downgrade to routine, forward to the advisory group for review, or return the UCR to the originator for additional information. For changes that COMNAVAIRSYSCOM could release, i.e. technical containing no procedures, the requirement was added that COMNAVAIRSYSCOM consult the COG Command in addition to the Model Manager and the CNO NATOPS Coordinator prior to release. COMNAVAIRSYSCOM's responsibility to provide technical limitations and recommended operating procedures for preliminary NATOPS publications was also clarified. An additional paragraph was added defining the processing of UCRs into interim change packages at NTSA in preparation for CNO (N889J) approval and release. Direction was added to allow the incorporation of pen and ink changes to NATOPS manuals. This clarification was helpful, as such changes are not allowed for certain Naval Aviation-related manuals including maintenance manuals. Information for use of the Changes computer program released by the CNO NATOPS Coordinators in 1992 was included in this revision. Use of the program was recommended for compilation of agenda items, but required for compilation of the conference report unless waived by NTSA. Finally, additional information on when preliminary conferences are valuable, i.e. when debating new or controversial policy or rewriting sections of the manual, was included.

In the 3710.7R revision, dated 1 May 1995, the Naval Air Training and Operating Procedures Standardization Program chapter, Chapter 2, was again reorganized to improve clarity. The responsibilities of the CNO NATOPS Coordinators were separated from those of NTSA. The CNO NATOPS coordinators acted as CNO's representatives at conferences and were overall managers of all aspects of NATOPS development, including interim change preparation, and coordination of the advisory group. NTSA was responsible for the editorial aspects of the NATOPS Program as well as for the specifications governing the format of the publications. Continuing funding issues were highlighted by an addition to the COG Commands responsibilities to coordinate with COMNAVAIRSYSCOM to ensure funding for NATOPS

updates. COMNAVAIRSYSCOM's responsibility as part of the advisory group was clearly stated for the first time:

"Because of their systems test and evaluation mission, COMNAVAIRSYSCOM has cognizance over all aircraft equipment limitations and technical data in NATOPS publications and is responsible for ensuring the airworthiness of all naval aircraft configurations⁷⁰."

This role was further highlighted elsewhere in the 3710.7R with the addition of a statement in Chapter 7 under General Precautions:

"Naval aircraft shall not be operated in a nonstandard configuration or outside the limits of NATOPS without airworthiness approval in the form of a flight clearance document (per NAVAIRINST 13034.1) from NAVAIRSYSCOM."⁷¹

The definition of a flight clearance was also inserted into the Glossary of the 3710.7R:

"A flight clearance provides temporary flight operating limits for an aviation system operating in a nonstandard configuration or to a nonstandard envelope, pending issuance of the technical directive or change to the NATOPS or tactical manuals. A flight clearance is a temporary airworthiness approval from COMNAVAIRSYSCOM."⁷²

COMNAVSAFECEN's responsibility to inform the advisory group of the effectiveness of the NATOPS Program as it pertains to aviation safety was highlighted. The Naval Operational Medicine Institute was given cognizance over emergency egress issues. The -R revision accounted for the NATOPS Status Report moving to a digital format with CD-ROM distribution as discussed previously. NATOPS manuals for aircraft were defined as NATOPS Flight Manuals in this revision, where general series manuals covering aviation-related topics were defined as NATOPS Miscellaneous Manuals. Definitions were also added for partial NATOPS Manuals, NATOPS Checklists, the NATOPS Program Managers Handbook, and the NTSA Changes Program. The definition section formerly included in the NATOPS Change Procedures section was combined with the Change Identification section to form a more cohesive discussion of types of changes to NATOPS publications. A new section was inserted that consolidated sections on the revision of NATOPS manuals with new information discussing the development of new NATOPS publications. This section emphasized the processes for development and revision of

⁷⁰ OPNAV Instruction 3710.7R. Office of the Chief of Naval Operations. OPNAVINST 3710.7R. N889J3. 15 Jan 1997.

⁷¹ OPNAV Instruction 3710.7R. 15 Jan 1997.

⁷² OPNAV Instruction 3710.7R. 15 Jan 1997.

preliminary NATOPS, expanded on the criteria used to determine if a change is urgent or routine, and detailed the UCR / IC change process. The conference process section also included several changes and clarifications. Additional guidance was given for finalizing a conference convening decision; stating that conferences should be held every two years but under some circumstances delays could be warranted, while not to exceed five years between conferences under any circumstances. The CNO NATOPS Coordinators were given the responsibility of maintaining the master schedule for all NATOPS conferences. Previous revisions had stated that representatives from each applicable advisory group command were expected to attend each NATOPS conference. However, this instruction changed the expectation to a requirement stating explicitly that a CNO NATOPS Coordinator must attend.

The mid 1990s were a difficult time for the NATOPS Program. The Base Realignment and Closure (BRAC) process resulted in the disestablishment of NTSA in 1998. NTSA became part of the Naval Warfare Development Command (NWDC), Detachment Washington Navy Yard (Det WNY), which reported to the Naval War College (NWC) in Newport, Rhode Island. Throughout 1998 – 1999, the editorial support for the NATOPS program physically moved to Rhode Island, but the vast majority of the former NTSA editors chose not to move and found other employment⁷³. The CNO NATOPS Coordinators functions were briefly realigned as part of NWDC, Det WNY, but were transferred to the OPNAV staff under N88 by 1999. Due to continued cuts in manpower and funding, the NWC was unable to provide timely NATOPS editorial support and the revision turnaround time increased. The NWC continued to update NATOPS manuals through January 2000 but were unable to continue beyond that time due to other priorities and a lack of funding and manpower⁷⁴. By Spring 2000, 33 NATOPS manual revisions from fiscal year 1999 and 2000 NATOPS review conferences had not been completed due to lack of manpower and funding⁷⁵.

As stated previously, for funding purposes, NATOPS products were divided into two categories: out-of-production and in-production. Maintenance of manuals for aircraft still in Naval service, but no longer in production (out-of-production manuals) came from an annual budget developed by COMNAVAIRSYSCOM. Development and maintenance of in-production aircraft NATOPS

⁷³ Bretz, Craig. NATOPS Specialist, 4.0P NATOPS Office. Personal Interview. 8 Jan 2004.

⁷⁴ Leingang, CDR D. R. Memorandum. "NATOPS and TACMAN Programs." 11 May 2000.

⁷⁵ Harris, CDR W. F. Memorandum for Director, Dept of Navy Safety and Survivability Program. "CNO NATOPS Program Support Funding Issue." May 2000.

manuals was funded by the aircraft acquisition contract managed by the respective aircraft program office. Funding for out-of-production aircraft NATOPS manuals as well as most general series NATOPS manuals was all but unavailable after the realignment of NTSA to the NWC. Therefore, the out-of-production NATOPS manuals conferenced during this timeframe could not be revised, printed or distributed, stagnating the publication and technical data portions of those NATOPS programs. Information to account for new and modified aircraft systems as well as potentially safety of flight-related changes in operating procedures and limitations were very difficult to develop and promulgate during this time period. The evaluation portion of the NATOPS program continued to function through the perseverance of the fleet. The UCR process survived through the efforts of the fleet and personnel assigned to the CNO NATOPS Coordinators office, but due to manpower limitations, the turnaround time for UCRs was quite lengthy. In March 2000, a senior Naval aviator voiced his disappointment with the state the NATOPS program due to the lack of funding, saying,

"This [the NATOPS program] is seriously broken and I would hope every aviator in the Navy whether they fly an in or out of production aircraft would scream bloody murder about this issue. ...This one issue I consider a true indicator of the health of Naval aviation and breaks faith with all of us aviators. There is no doubt we are now cutting serious flesh from the bone. I think you and I both can be justifiably emotional about this issue. There is no excuse for this issue even being an issue."⁷⁶

In March 2000, the H-46D Helicopter community released a naval message citing delays in the production and delivery of their revised NATOPS Manuals. The message stated,

"The most recent H-46D NATOPS conference was held in January 1998. Blue line review was held in August 1998. To date, HC-3 has not received sufficient publications for distribution to squadron staff and replacement pilots. Printing and distribution of [the manuals], already long overdue, is now impacting squadron and community operations."⁷⁷

By Summer 2000, the dire status of the NATOPS program was gaining recognition. NATOPS program editorial responsibility was transferred back from the NWC to OPNAV along with a minimal level of funding. Efforts were begun to edit, print and distribute the "backlog" of

⁷⁶ CNO NATOPS Office Records. March 2000.

⁷⁷ HELSUPPRON THREE. Naval Message 082200Z MAR 2000.

NATOPS manuals that had been conferenced over the previous few years. However, only \$207K was available from the NWC and the program funding requirement was over \$3M⁷⁸. The state of the NATOPS Program during this timeframe was perhaps best summarized by a naval message drafted in June 2000 and recently discovered in OPNAV NATOPS office files transferred to NAVAIRSYSCOM. The message, which was revised prior to release, temporarily suspended the NATOPS Program due to a lack of funding. The message stated:

"This message temporarily suspends the NATOPS Program...Due to insufficient funding for this year (FY-00) and projected for FY-01, updating NATOPS manuals through the NATOPS conference process will be suspended for the next 15 months for out-of-production aircraft and miscellaneous manuals. Limited funding identified by Naval War College and OPNAV N88 will be applied immediately to begin the process of erasing the FY98-00 backlog of 33 manuals... N88 is acutely aware of the fleet's pressing need to see these critical safety of flight issues resolved as soon as possible; however we are facing significant funding challenges which necessitate these reductions in NATOPS Program support"⁷⁹.

Prior to the release of this message however, additional funding was made available for the NATOPS program via a last minute plus-up to the NATOPS budget. Instead of suspending the NATOPS program, the revised message, released on 27 June 2000, instead restated Naval Aviation leadership's determination to ensure the NATOPS Program received support. The revised message stated:

"Air Warfare Division (OPNAV N88) and NAVAIR have committed funds for the printing and distribution of NATOPS ...The plan ensures these critical pieces of Naval Aviation receive the necessary personal attention they deserve."⁸⁰

Conferences were scheduled for manuals that had not been conferenced and /or revised during the OPNAVINST 3710.7 suggested time window of 2-5 years. Recovering from the backlog took through the end of fiscal year 2003. The editorial functions for NATOPS revisions were contracted out following the transfer of the NATOPS program responsibility back to OPNAV because no government editorial organization was available or funded.

⁷⁸ Leingang, CDR D. R. Memorandum. "NATOPS and TACMAN Programs." 11 May 2000.

⁷⁹ OPNAV CNO NATOPS Office, N889J3. Washington DC. Draft Naval Message. June 2000.

⁸⁰ OPNAV CNO NATOPS Office, N889J. Washington DC. Naval Message. 271259Z JUN 2000.

The CNO NATOPS Coordinators office on the OPNAV staff in Crystal City, VA was staffed by two officers and a contractor. One officer focused primarily on NATOPS policy while the other focused on managing the NATOPS publications themselves. The contractor NATOPS specialist focused on the NATOPS interim change process. This level of staffing and funding was insufficient to adequately support the workload of the entire NATOPS program. Manual revisions still took as much as a year to complete, with delays primarily the result of delays in obtaining funding. Interim changes often took months from initial fleet urgent change recommendation to final interim change release because of the high workload and staffing constraints. Additionally, the CNO NATOPS coordinators did not have resources to attend NATOPS conferences, as required by the OPNAVINST 3710.7.

During this same timeframe, due to fiscal constraints and shifts in personnel funding strategies within NAVAIRSYSCOM, the engineering support required to maintain up-to-date and accurate technical data within out-of-production aircraft NATOPS manuals diminished. Many engineering competencies endeavored to uphold the OPNAVINST 3710.7 charter assigning COMNAVAIRSYSCOM the "*cognizance over all aircraft equipment limitations and technical data in NATOPS publications*"⁸¹ despite inadequate or nonexistent funding to do so. Continued inadequate funding led to inaccurate and out-of-date technical data in the NATOPS manuals ultimately resulting in increased risk of loss of aircraft and /or aircrew as well as decreased operational flight safety.

The gradual decay of the NATOPS program from the mid-1980's to late 1990's and the subsequent reduced program oversight resulted in discrepancies between NATOPS products. Changes were made to aircraft NATOPS that were not reflected in the associated general series NATOPS and vice versa. For instance, helicopter wind envelopes updated in the LHA/LHD NATOPS were not updated in the appropriate helicopter NATOPS Flight Manuals. This resulted in technical discrepancies for critical safety-of-flight data between the two NATOPS products. Finding and resolving the numerous technical discrepancies will require significant time and engineering support that is not available in the current NATOPS budget.

⁸¹ OPNAV Instruction 3710.7R. 15 Jan 1997.

2001

The 3710.7S revision was dated 15 November 2001⁸². The revision accounted for a reorganization in OPNAV where the NATOPS program administration responsibility was assigned to N78 with the responsibility for NATOPS program execution delegated to N789J. Additional details on CNO NATOPS Coordinators responsibilities were included in the revision. Specific responsibilities included: oversight of all aspects of NATOPS publication production, including development, review, editorial production, printing and distribution; represent CNO at all NATOPS conferences; train NATOPS Program Managers in preparing for and conducting NATOPS conferences; monitor the progress of urgent change recommendations and prepare interim change messages for release; manage the funding for out-of-production NATOPS publications; compile and distribute the NATOPS status report; coordinate the activities of the NATOPS advisory group members, Model Managers, technical support personnel, and aircraft contractors; and maintain the NATOPS Military Standards. NAVAIRSYSCOM's responsibility was clarified to include pre-accepted and public use aircraft owned or operated by the Navy. The revision included information on the creation of the CNO NATOPS website which hosted information including the NATOPS Status Report, the Changes program, the Program Managers Handbook, and the NATOPS conference schedule. A new section was included in this revision, Categories of NATOPS Publications. This section discussed the differences between draft, preliminary, and promulgated NATOPS publications and briefly defined the processes for developing and revising each type. An additional new section was included that described in detail how to create a new publication including determining the need, designation of the COG Command and Model Manager Unit, development of the technical content, development of the automatic distribution list, and assignment of a NAVAIR number. Sections were also added detailing when a Letter of Promulgation can be inserted into a publication and how to cancel a NATOPS publication. The urgent change recommendation review process paragraphs were updated to allow the use of email during the UCR review, comment, and concurrence process. The discussion of NATOPS Conference convening announcement, agenda development, and conference conduct remained largely unchanged. However, the Conference Report sections, including content, preparation, and disposition were rewritten to provide additional information and clarity. A new section was also written to detail publication production package requirements to successfully print the revised manuals.

⁸² OPNAV Instruction 3710.7S. Office of the Chief of Naval Operations. OPNAVINST 3710.7S. N789J3. 15 Nov 2001.

Chapter 4. NATOPS Transition

2002-Present

In April 2002, one of the two CNO NATOPS Coordinators attached to the already understaffed CNO NATOPS Office, retired and the billet was not backfilled. His workload fell to the remaining NATOPS Coordinator and turnaround time and communication with the fleet was further negatively affected. In January 2003, the remaining CNO NATOPS Coordinator retired, and again the billet was not filled. Based on a proposal prepared by the CNO NATOPS Coordinator prior to his retirement, OPNAV developed a plan to transfer the responsibility of the NATOPS program from OPNAV to Commander, Naval Air Forces (CNAF) and Commander, Naval Air Systems Command (COMNAVAIRSYSCOM).

In March 2003, the CNO released a Naval Message executing the transfer of responsibility for the NATOPS program management to CNAF and COMNAVAIRSYSCOM⁸³. The message is attached as appendix 31. The transfer of responsibility assigned cognizance for NATOPS policy interpretation, waiver authority, and OPNAVINST 3710.7 Model Manager status to CNAF. COMNAVAIRSYSCOM was given promulgation authority for all aircraft platform and general series NATOPS manuals and the NAVAIRSYSCOM Airworthiness Office (AIR 4.0P) was assigned the responsibility for the management of all NATOPS publications.

CNAF NATOPS responsibilities include: perform duties as the OPNAVINST 3710.7 Program Manager in accordance with CNO overall policy regarding execution of Navy and Marine Corps NATOPS Programs; provide guidance to the fleet in matters concerning policy delineated by the OPNAVINST 3710.7; and administer waivers regarding OPNAVINST 3710.7 policy.

4.0P NATOPS Office responsibilities include: oversight of all aspects of NATOPS publications production, including development, review, editorial upgrade, printing and distribution; approval and oversight of the processes used to issue NATOPS interim changes and revisions; monitoring of the progress of NATOPS urgent change recommendations and coordination of the development and review of interim change naval messages; promulgation of NATOPS publications and release of interim change messages; establishment of the required level of engineering review and coordination of the review of technical source data contained in the NATOPS publications in direct support of NATOPS interim changes and review conferences;

⁸³ OPNAV N789J. Washington DC. Naval Message. 061721Z MAR 2003.

establishment and maintenance of NATOPS Specifications and Standards; maintaining the database, files and records of all NATOPS changes issued and the master copies of all NATOPS products; and providing guidance and support to an aircraft system Integrated Product Team in planning and coordinating the development and review of changes to NATOPS products. The NATOPS Program and Product Administrators at CNAF and COMNAVAIRSYSCOM provide not only overall guidance and coordination for the NATOPS program, but they also allow for valuable cross-program and platform coordination, allowing the flow of lessons learned and changes to applicable operating procedures and limitations to another aviation communities as appropriate. This coordination is critical to begin to resolve discrepancies between the manuals that have resulted in the past fifteen years. A post-transition LOP is shown in Figure 9.

The 3710.7T revision is in final review at OPNAV at the time of this writing⁸⁴. The T revision incorporated changes approved at the December 2002 3710.7S conference as well as changes to reflect the transfer of the NATOPS Program to CNAF and COMNAVAIRSYSCOM as mandated by the interim change discussed above. While the above resulted in a significant rewrite of Chapter 2 of the 3710.7 instruction, substantial changes were not made to overall NATOPS policy. Instead, the points of contact for execution, management, and oversight of the program changed. NATOPS policy and program manager-ship of the 3710.7 is the responsibility of CNAF while management of the NATOPS publications and products and the NATOPS policy related to them, is the responsibility of COMNAVAIRSYSCOM.

The NATOPS Office consists of one officer located at CNAF and six personnel within AIR 4.0P at NAVAIRSYSCOM. The AIR 4.0P NATOPS office is structured as follows: NATOPS Officer (currently an unfilled billet), NATOPS Chief Engineer, NATOPS Project Engineer, NATOPS Engineering Coordinator, Global Support Team NATOPS representative, NATOPS Specialist, and the NATOPS Information Management Specialist. The NATOPS Officer and Chief Engineer responsible for managing all aspects of the NATOPS publication process mentioned above as well as for obtaining and managing funding for the NATOPS Program. The NATOPS Officer and Chief Engineer are also release authorities for NATOPS Interim Change messages. The NATOPS Program Engineer is the primary interface with the NAVAIR Engineering competencies and assists with the development and review of NATOPS Interim Changes. The NATOPS Engineering Coordinator assists with Interim Change activity

⁸⁴ Draft of OPNAV Instruction 3710.7T. Office of the Chief of Naval Operations. OPNAVINST 3710.7T. N789. 3 Nov 2003.



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D.C. 20350-2000

15 January 2004

LETTER OF PROMULGATION

1. The Naval Air Training and Operating Procedures Standardization (NATOPS) Program is a positive approach toward improving combat readiness and achieving a substantial reduction in the aircraft mishap rate. Standardization, based on professional knowledge and experience, provides the basis for development of an efficient and sound operational procedure. The standardization program is not planned to stifle individual initiative, but rather to aid the commanding officer in increasing the unit's combat potential without reducing command prestige or responsibility.
2. This manual standardizes ground and flight procedures but does not include tactical doctrine. Compliance with the stipulated manual requirements and procedures is mandatory except as authorized herein. In order to remain effective, NATOPS must be dynamic and stimulate rather than suppress individual thinking. Since aviation is a continuing, progressive profession, it is both desirable and necessary that new ideas and new techniques be expeditiously evaluated and incorporated if proven to be sound. To this end, commanding officers of aviation units are authorized to modify procedures contained herein, in accordance with the waiver provisions established by OPNAVINST 3710.7, for the purpose of assessing new ideas prior to initiating recommendations for permanent changes. This manual is prepared and kept current by the users in order to achieve maximum readiness and safety in the most efficient and economical manner. Should conflict exist between the training and operating procedures found in this manual and those found in other publications, this manual will govern.
3. Checklists and other pertinent extracts from this publication and concurrent use USN/USAF-approved flight manuals necessary to normal C-20A operations and training should be made and carried for use in this naval aircraft.

T.L. HEELY
Rear Admiral, United States Navy
By Direction of
Commander, Naval Air Systems Command

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ORIGINAL

Figure 9. Current NATOPS LOP

Source: NATOPS Office Files.

but is primarily responsible for facilitating the technical review of all routine change recommendations and appropriate interim flight clearances prior to each NATOPS conference. The Global Support Team NATOPS representative is a part of the AIR 4.0P Global Support Team and is responsible for the development and upkeep of the NATOPS website, Status Report, and metrics, as well as for developing NATOPS interim changes. The NATOPS Specialist develops interim changes and helps manage NATOPS Specifications and Standards. The NATOPS Information Management Specialist is responsible for the upkeep of the NATOPS Library and assists with data management. A number of NATOPS Logistics Element Managers at the Naval Air Technical Data and Engineering Service Command (NATEC) at NAS North Island supervise the NATOPS printing and distribution process. A team of editorial production contractors who report directly to the NATOPS Officer and Chief Engineer accomplish NATOPS product updates. Representatives from AIR 3.0 facilitate NATOPS editorial contracts. A total of eight onsite (CNAF, NATEC, and NAVAIR) personnel are dedicated to supporting the NATOPS Program.

Chapter 5. NATOPS Issues – Past to Present

This study of the history of the NATOPS Program revealed issues that have plagued the NATOPS program since its inception and are still relevant today. These issues include: 1) obtaining adequate funding for out-of-production aircraft NATOPS Flight Manual updates; 2) establishing and maintaining effective lines of communication throughout the NATOPS Program; 3) developing and maintaining accurate methods of NATOPS distribution to the fleet; 4) executing timely revisions to NATOPS products; 5) maintaining the priority and effectiveness of the NATOPS program during times of increased operational tempo; 6) development and maintenance of useable NATOPS specifications; 7) development and maintenance of tools to increase NATOPS Program Manager effectiveness; 8) engaging the Naval engineering organizations to facilitate the timely inclusion of technically accurate data in NATOPS products. The NATOPS office within NAVAIRSYSCOM is addressing these persistent NATOPS issues with various initiatives ongoing at the time this thesis is presented. These initiatives are discussed below.

Issue 1. Obtaining Adequate Funding for NATOPS Flight Manual Updates.

The NATOPS Program is funded in 2004 in much the same way as it was in 1967. Out-of-production manual revisions and changes are funded from the budget developed and managed by the NAVAIRSYSCOM 4.0P NATOPS Office. Development and maintenance of in-production aircraft manuals are covered by the specific aircraft acquisition contract funded within the appropriate aircraft program office. NATOPS changes due to Engineering Change Proposals (ECPs) incorporated into out-of-production aircraft are also typically funded by the aircraft program office. The NATOPS Office is currently responsible for funding the editorial revision, technical review, and printing and distribution of approximately 65 sets of NATOPS Flight and General Series manuals as well as the interim change process for all NATOPS products. NATOPS program funds also cover NATOPS program management and administration, as well as maintenance of the NATOPS library. The NATOPS program annual budget for these products and activities is approximately \$4 million dollars in FY 2004.

Historically, engineering support for out-of-production aircraft NATOPS manuals was provided by the engineering competencies at no cost to the affected out-of-production aircraft program office. However, current personnel funding strategies within NAVAIRSYSCOM require funding

lines for such engineering support. Most out-of-production aircraft program offices do not have the adequate funding available to support the engineering hours required to maintain up-to-date and accurate technical data within out-of-production aircraft and general series NATOPS manuals. Additionally, no funding is currently available for the comparison and review of NATOPS products for consistency of the technical data and operating and emergency procedures across NATOPS products (i.e. the helicopter wind envelope issue discussed previously).

The NATOPS Program budget submitted for the FY 2006 budget requested funding to support the editorial revision, print, and distribution of over 25 NATOPS publication sets per year and funding for engineering personnel to develop and/or review technical data for both NATOPS interim and routine changes. The funding strategy is based on the understanding that the edit, print, and distribution of revised NATOPS publications have no value if the technical information and procedures contained within are inaccurate or out-of-date. The out-of-production versus in-production aircraft funding strategy discussed previously for the NATOPS edit, print, and distribution was applied to the engineering budget request. In other words, the engineering budget for the maintenance of the technical data contained in out-of-production aircraft and general series NATOPS products should be covered by NATOPS program funding. The NATOPS Office is engaging the Fleet Commands via Operational Advisory Group meetings to highlight the Fleet prioritization of NATOPS products. This funding is critical for the continued recovery of the NATOPS program and renewal of the technical rigor required of NATOPS manuals. Accurate and up-to-date NATOPS products are directly tied to the safe and effective operation of Naval Aviation and must continue to be adequately supported.

Issue 2. Establishing Effective Communication Throughout the NATOPS Program.

The 4.0P NATOPS office is actively striving to develop and maintain effective lines of communication between all parties affected by the NATOPS Program. The historical method of communicating NATOPS information, the Naval Message system, has become increasingly unreliable, and the task of maintaining accurate email addresses for the constantly changing 150+ NATOPS Program Managers, COG commands, and advisory group members is very difficult. The NATOPS office uses these methods in collaboration with other communication methods to reduce the risk of miscommunication with the fleet. The former CNO NATOPS website previously maintained at the OPNAV NATOPS Office was moved under the cognizance of the current NATOPS office and updated. Numerous additional improvements to the website are

ongoing at the time of this writing, including development of a web-based change recommendation submission and tracking program to facilitate NATOPS conference agenda development, discussion of recommendations at conference, and reporting of conference results for the NATOPS Program Manager. Other information developed and currently resident on the website includes: feedback forms to facilitate comments on NATOPS products, policies, and processes; a matrix of the COG Commands and Advisory Groups members for each platform and general series manual; the NATOPS Status Report; and NATOPS point of contact information. A NATOPS office phone number and email address was established for use by anyone who wishes to contact the NATOPS office directly. A monthly email newsletter is released containing information on all interim changes released in the previous month, the status of all NATOPS manuals currently in editorial revision, the status of any changes in engineering review, and the schedule of upcoming NATOPS conferences and related meetings. An informal email is sent to all NATOPS Program Managers and COG Command representatives each month to discuss ongoing program initiatives, interim changes in development, and to address any concerns and priorities of the individual NATOPS programs. These multiple avenues of communication are designed to provide an effective flow of information both to and from the NATOPS Office.

The NATOPS Program Administrator (CNAF) and Products Administrator (4.0P NATOPS Office) are planning to hold a NATOPS Summit in summer of 2004. Representatives from all NATOPS Model Manager Units, Cognizant Commands, and Advisory Groups will be invited. The goal of the summit is to propose and discuss ideas for NATOPS Program and process improvements, fleet NATOPS priorities, methods and timeframes for transitions to digital media, and standardization issues.

Issue 3. Developing and Maintaining Effective Methods of NATOPS Distribution.

Developing and maintaining effective distribution methods is an issue that has plagued the NATOPS program since its inception. The Naval Aviation community is constantly in flux: squadrons deploy from their home bases to foreign countries and aboard ships; squadrons detach to training activities; etc. Additionally, the training squadrons have a steady flow of students who rely on NATOPS products. To further complicate the issue, when an aviation unit's mailing address is an APO or FPO address, packages of NATOPS products cannot be tracked. Thus lost packages of NATOPS manuals easily remain lost. Often NATOPS packages are delivered to a squadron's home address instead of the deployed address. All of these issues delay fleet receipt

of updated NATOPS products. NATOPS distribution is based on distribution lists initially compiled by the NATOPS Program Manager and subsequently maintained from each squadron's yearly submission to NATEC of their NATOPS product requirements via the Automatic Distribution Requirements List (ADRL) program. These lists include the exact number of specific manuals required as well as the mailing address for delivery. These lists must be maintained or the required manuals will not be printed much less distributed correctly. Historically, a distribution list greater than 60 days old will not reflect the most current fleet requirements. Thus, prior to printing a NATOPS revision, the NATOPS Logistics Element Manager at NATEC requests the appropriate NATOPS Program Manager review and update the distribution lists for their publications.

As NATOPS Products transition towards digital products, new distribution methods are being explored. Distribution via CD ROM is currently being used in some cases. Due to interim change activity levels, CD ROM updates may need to be distributed more frequently to account for the incorporation of new interim changes to NATOPS products. Other methods of digital NATOPS product dissemination have also been proposed including web-based hosting of the products for download in lieu of paper printing and distribution and distribution of memory stick drives containing the NATOPS products to which the aviation community can download updates as necessary. The level of computer technology available to the fleet NATOPS user limits these options. Although primarily digital NATOPS distribution would save money and time, NATOPS products must be readily accessible to all appropriate persons within the Naval Aviation community. Additionally, the environment of the fleet user must be taken into consideration. CD ROMs have proven unreliable in sand-swept desert environments. The NATOPS Flight Manuals and some general series NATOPS manuals will be more easily distributed via electronic media. Pilot Checklists (PCLs) and Functional Checkflight Checklists (FCFCLs) carried onboard the aircraft will remain as paper products until such time digital media can be effectively employed in the cockpit.

Issue 4. Executing Timely Revisions to NATOPS Products.

The NATOPS Program is working to improve the turnaround time for changes to NATOPS products via both the conference (routine) and interim (urgent) change processes. NATOPS manual revisions and changes over the last decade have, at worst, taken over two years from conference completion to delivery of the printed manuals. Some of this delay was due to a lack

of funding and staffing available for the edit, print and distribution of the manuals. In the early 1980's, the NATOPS Program encompassed over 50 people working on all aspects of the program including production, NATOPS Coordinators, and administration. By the late 1990's, the program fell to an unworkable staffing level of 3 plus a small team of editorial contractors. The current 4.0P NATOPS office includes 6 fulltime military and civilian personnel plus approximately 4 editing production contractor teams. Additional staff dedicated to the execution of the NATOPS Interim Change process is necessary to achieve the desired turnaround rate of interim changes to the fleet.

If staffing constraints can be adequately addressed and sufficient funding is made available, many improvements can be made to the NATOPS revision process itself to improve turnaround time. The current NATOPS office is striving to engage the editorial contractor in the revision process prior to the conference. The contractor works with the NATOPS Program Manager to incorporate the proposed changes into the NATOPS so they can be viewed and discussed in context at the conference. This upfront involvement allows most issues concerning inadequate graphics and poorly written change proposals to be addressed before they delay the revision process unnecessarily. This upfront involvement also reduces the pre- and post-conference workload for the NATOPS Program Manager who typically has numerous other duties in addition to their NATOPS responsibilities. All NATOPS publication source data prepared by the editorial contractors is delivered in electronic format to the 4.0P NATOPS office for use during future revisions, reducing future revision turnaround time. As NATOPS products move into Extensible Markup Language (XML), further reductions in production turnaround time are expected.

Currently, the NATOPS print and distribution cycle is unacceptably long. At this time, NATOPS publications are required by law to be printed via the government printing service. Current NATOPS print turnaround times are advertised to be 4-6 weeks. However, recent experience shows print and distribution turnaround times to be more on the order of 2-5 months. This results in an unacceptable delay in getting NATOPS publications to the fleet. Specific details of where the delays arise and ways to avoid or mitigate the delays are under investigation by the 4.0P NATOPS office at the time of this writing.

In the future, the NATOPS program hopes to move towards electronic publication distribution. Currently publications are posted on secure websites for reference and download as needed, but

the primary distribution method for NATOPS products is still paper publications. In the future, squadrons would possibly receive only a few paper publications along with sufficient CD or other digital media copies of the publications for all the appropriate personnel. This would significantly reduce print and distribution costs and digital publications could be sent to the appropriate activities in significantly less time than is required for printing. However, the move to digital publications cannot be made until the fleet has adequate technological resources available to make ready use of digital publications.

Much of the delay associated with NATOPS interim change turnaround in recent years was directly related to inadequate staffing to address the high interim change workload. The inadequate NATOPS staffing was the result of inadequate funding for the NATOPS program. This affected not only the NATOPS Coordinators Office but also the engineering organizations that support the development and review of the technical basis for a change. Funding is required to adequately staff the NATOPS office at an appropriate level to effectively execute NATOPS program functions as well as to support any engineering review required for out-of-production aircraft NATOPS changes.

The NATOPS Office is also pursuing other ways to reduce interim change turnaround times. One method is to leverage off of current technology to reduce approval cycle time. Email correspondence is being used for fleet review and concurrences in the urgent change recommendation/interim change process. An electronic document routing, review and concurrence tool originally tailored for the interim flight clearance process is in use for processing all comments and concurrences within NAVAIRSYSCOM for all technically-related NATOPS changes. Additionally, a proposal is in work to modify OPNAVINST 3710.7 policy such that a technical NATOPS interim change containing no procedures that has received all required technical concurrences could be released three days after notifying the appropriate COG Command, instead of waiting for COG Command response. Another proposal in work would allow the NATOPS Office to append approved technical information to a NATOPS conference record for inclusion in the pending NATOPS revision. Currently, an interim change must be drafted and released to allow the inclusion of changes not discussed during the conference. The proposal alleviates paperwork and time required to effect such changes, while still fulfilling the requirement for appropriate review of the change. Finally, the NATOPS Office is attempting to raise awareness within both the fleet and engineering communities as to the urgent nature of

many NATOPS interim changes in an effort to reduce the timeframe spent obtaining Advisory Group and engineering competency comments and concurrences for interim changes.

Issue 5. Maintaining NATOPS Program Priority and Effectiveness.

The NATOPS Program is striving to maintain the priority and effectiveness of the NATOPS program during times of increased operational tempo by re-emphasizing to both the fleet and the engineering communities the critical relationship between accurate NATOPS data and procedures and safety of flight. NATOPS manuals promulgate operating limitations and normal and emergency procedures that are critical to the safe operation and effective mission execution required of Naval Aviation. The NATOPS program provides part of the permanent flight clearance for an aviation system. NATOPS conferences and editorial updates facilitate the discussion, approval, and distribution of safety of flight changes to NATOPS and are critical to continued safe operations. This aim is furthered by ongoing interactions with the fleet aviation community; via meetings, conferences, and electronic communications; to determine fleet priorities for and difficulties related to and affected by the NATOPS program. The NATOPS program must be included on aircraft platform and Aircraft Type Commander prioritization lists to ensure adequate funding for NATOPS program execution. Inadequate NATOPS funding results in out-of-date and inaccurate technical data and operating and emergency procedures. This ultimately results in an increased risk of loss of aircraft and aircrew as well as decreased operational flight safety and mission effectiveness.

Issue 6. Development and Maintenance of Useable NATOPS Specifications.

The development and maintenance of useable NATOPS standards is critical to maintaining the "S" or standardization piece of the NATOPS Program. The specification for the NATOPS publications, MIL-M-85025A (AS), was last updated in 1980. The effort to develop NATOPS Military Standards was begun in the early 2000 timeframe, however a lack of personnel and funding impeded timely progress. In 2002, most of the computer files for the military standard development effort were lost during a computer system transition. The current NATOPS office has compiled sources of the old specification and available standard development efforts and is developing a new baseline of NATOPS standard material. Once the baseline is developed, the standard will be modernized to account for changes in required technical data as well as developments in computer, graphics, and printing technology. Development of NATOPS products using current technologies such as XML will be addressed. Methods and standards for

digital and web-based promulgation of NATOPS products will also be addressed. A draft of the new specification will be complete by summer 2004.

Issue 7. Increasing NATOPS Program Manager Effectiveness.

The NATOPS program is working to develop and maintain tools to increase NATOPS Model Manager effectiveness in numerous ways. The NATOPS Program Manager Guide, last revised in 1999, has been updated for clarity and to account for the NATOPS program transition. The updated guide contains detailed information on topics including when and how to conduct NATOPS conferences; explanations of the phases of a NATOPS editorial revision including responsibilities of the NATOPS Program Manager, the NATOPS office, and the editorial contractor; and explanations of NATOPS Program Manager responsibilities during the revision process. A quick reference version of the guide is being developed in a slide show format. Both versions of the updated guide will be available on the NATOPS website.

The “Changes” program currently available on the NATOPS website is being modified and expanded into a web-based tool through which any user can submit routine change proposals to their respective NATOPS Program Manager. The NATOPS Program Manager will be able to sort the proposals, develop conference documentation, and facilitate the conference process using the modified Changes database.

The 4.0P NATOPS office is also striving to develop cut and paste or replacement pages for complicated or lengthy interim changes messages. These change packages contain the Naval Message Interim Change release followed by the affected revised pages. The change packages are emailed as a pdf document to the appropriate NATOPS Program Manager and also posted on both the NATOPS and NATEC websites. The change packages allow for release of information that is not easily fit into Naval Message format like figures and tabular text. The replacement pages save the NATOPS Program Manager and the affected aviation community the time of typing up the change for incorporation themselves and increase the accuracy of the change incorporation as the actual pages are developed and released from the NATOPS program office.

Issue 8. Revitalizing Engineering Engagement in the NATOPS Processes.

The NATOPS office is striving to engage the Naval engineering organizations to facilitate the timely inclusion of accurate technical data in the NATOPS products. Management of the NATOPS publications within AIR 4.0P presents a valuable opportunity to reinvigorate not only

the NATOPS program but also the whole process of technical data development and promulgation to the fleet. AIR 4.0P executes CNO policy for all Naval aircraft flight clearances via the interim flight clearance process, and now the permanent flight clearance processes of the Naval Aircraft Technical Information Product (NATIP) and the NATOPS program. This allows for engineering efforts relating to any of the three flight clearance processes to flow readily into the other two products when appropriate.

The NATOPS office is working with the NATOPS Program Managers during the conference planning process to obtain information on any technical proposed changes as early as possible. These proposed changes are then staffed through the appropriate engineering competencies for review. Conclusions from the engineering review are then presented at the NATOPS Conference for discussion and incorporation into the NATOPS manual. This up-front engagement of the engineering competencies results in faster turnaround times of manual revisions and ensures that the voting members at the conference have access to accurate technical data on which to base any new or modified procedures for the manual. Any technically-based urgent change recommendations are staffed through the engineering competencies for review and concurrence prior to interim change release. The funding for engineering reviews discussed in issue 1 above is critical to support the engineering review of the technical data contained in the NATOPS manuals.

Conclusions

The NATOPS Program has experienced resounding successes as well as disappointing setbacks throughout its almost 45 year history. Statistics prove that a healthy NATOPS Program is vital to the continued success of Naval aviation. Significant improvements have been made during the program's evolution and improvements continue to be made to this day to the NATOPS program, processes, and funding strategies. These advancements greatly improve the NATOPS Program's ability to support the Naval Warfighter. However, it has taken almost four years for the NATOPS Program to recover from the financial and staffing setbacks of the late 1990s. We must not lose sight of how quickly the program can lose effectiveness when it receives inadequate support and priority. With sufficient support, the NATOPS Program will continue to improve and maintain its commitment to the fleet as well as fulfill the goal established by its founders,

*"To improve fleet air readiness through the conservation of combat aircraft and air crews by the elimination of aircraft accidents / incidents attributable to failure to adhere to standard air operating procedures."*⁸⁵

⁸⁵ Brandley, F. A. 5 Oct 1960.

List of References

References

- Architzel, RDML David, USN. Commander Naval Safety Center. "SECNAV Safety Brief". 28 Nov 2001.
- Brandley, F. A. Memorandum. Chief of Naval Operations. Op-561/se. Ser 1647P56. 5 Oct 1960.
- Bretz, Craig. NATOPS Specialist, 4.0P NATOPS Office. Personal Interview. 8 Jan 2004.
- BUWEPS Instruction 3510.1A. Bureau of Naval Weapons. BUWEPS 3510.1A. F-12. 22 Oct 1962.
- Charles, N. R. Memorandum. Office of the Chief of Naval Operations. Op-561/bws. Ser 819P56. 18 Apr 1963.
- Clark, S. D. NTDA Memorandum. NTDA/SDC/dd. 5600. Ser313-77. 1 Jul 1977.
- CNO NATOPS Coordinators. NATOPS Program Managers Handbook. Chief of Naval Operation (CNO N889J) 12 Oct 1999.
- CNO NATOPS Office Records. March 2000.
- Crowell, Jeff. Naval Terminology, Jargon and Slang FAQ Part 2 - N through Z. 31 Oct 2003. <http://www.hazegray.org/faq/slang2.htm>
- Dose, R. G. Memorandum. Office of the Chief of Naval Operations. Op-561/ags. Ser 1626P56. 30 Nov 1962.
- Draft of OPNAV Instruction 3710.7T. Office of the Chief of Naval Operations. OPNAVINST 3710.7T. N789. 3 Nov 2003.
- Eldridge, Richard A. "Chick". "A Look Back: Forty Years of Reminiscing" Naval Safety Center Website 22 Jan 2004. <http://safetycenter.navy.mil/media/approach/theydidwhat/eldridge.htm>
- Ellis, W. E. Naval Air Station NATOPS Manuals and Proposed OPNAVINST P3710.7B (NATOPS Manual – General Flight and Operating Instructions). Office of the Chief of Naval Operations. Op-561/bws. Ser 1304P56. 19 Jul 1963.
- Empey, R. E. Head, NATOPS Section U. S. Navy Tactical Doctrine Development and Production Activity. 26 Oct 1962.
- Empey, R. E. Head, NATOPS Section U. S. Navy Tactical Doctrine Development and Production Activity. 5 Feb 1963.
- Empey, R. E. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPA NOTE 3510. DDB:1s. 1 Jun 1964.
- Empey, R. E. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPA NOTE 3510. RHB:1s. 11 Jun 1963.

Empey, R. E. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPA NOTE 3510. RHB:ls. 23 Dec 1963.

Empey, R. E. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPA NOTE 3510. RHB:ls. 1 Jan 1965.

FY03 NATOPS Office budget from NATOPS Office Records.

Harris, CDR W. F. Memorandum for Director, Dept of Navy Safety and Survivability Program. "CNO NATOPS Program Support Funding Issue." May 2000.

HELSUPPRON THREE. Naval Message 082200Z MAR 2000.

Holmes, T. R. NTSA NATOPS Monthly Status Report. 3711. Ser 60 / 1U0515. 01 Oct 1991.

Holmes, T. R. NTSA NATOPS Monthly Status Report. 3711. Ser 60 / 2U274. 02 Mar 1992.

Leingang, CDR D. R. Memorandum. "NATOPS and TACMAN Programs." 11 May 2000.

Lockeman, G. F. Jr. OPNAV Notice 5450. OPNAVNOTE 5450. Ser 09B26/549929. Aug 11 1980.

Martin, W. I. OPNAV NOTICE 3510. OPNAV 3510. Op-561. Ser 658P56. 12 Jul 1965.

Military Specification, Preparation of Flight Crew Checklists. MIL-C-81222A(AS). 1 Aug 1966.

Mulligan, LCDR James A. Jr., Naval Aviation News. NavWeps No. 00-75R-3. NATOPS Program Constantly Expands, June 1964.

Naval Historical Society. United States Naval Aviation 1910-1995. Government Printing Office.

Naval Safety Center Statistics, 13 June 2002.

NAVTACTDOCACT INSTRUCTION 5450.2A. Naval Tactical Doctrine Activity. NTDAISNT 5450.2A. TSB:11t. 31 Oct 1967.

OPNAV CNO NATOPS Office, N889J. Washington DC. Naval Message. 271259Z JUN 2000.

OPNAV CNO NATOPS Office, N889J3. Washington DC. Draft Naval Message. June 2000.

OPNAV Instruction 3510.11. Office of the Chief of Naval Operations. OPNAVINST 3510.11. Op-561. Ser 827P56. 17 Aug 1966.

OPNAV Instruction 3510.11A. Office of the Chief of Naval Operations. OPNAVINST 3510.11A. Op-561. Ser 324P56. 23 May 1969.

OPNAV Instruction 3510.9. Office of the Chief of Naval Operations. OPNAV 3510.9. Op-561. Ser 509P56. 8 May 1961.

OPNAV Instruction 3510.9A. Office of the Chief of Naval Operations. OPNAV 3510.9A. Op-561. Ser 303P56. 26 Mar 1962.

OPNAV Instruction 3510.9B. Office of the Chief of Naval Operations. OPNAV 3510.9B. Op-561. Ser 1657P56. 1 Jan 1964.

OPNAV Instruction 3510.9C. Office of the Chief of Naval Operations. OPNAV 3510.9C. Op-561. Ser 767P56. 21 Sep 1964.

OPNAV Instruction 3510.9D. Office of the Chief of Naval Operations. OPNAV 3510.9D. Op-561. Ser 1021P56. 1 Sep 1967.

OPNAV Instruction 3510.9E. Office of the Chief of Naval Operations. OPNAVINST 3510.9E. Op-561. Ser 352P56. 23 Jun 1969.

OPNAV Instruction 3510.9F Change Transmittal 2. Office of the Chief of Naval Operations. OPNAVINST 3510.9F CH-2. Op-591. 15 Apr 1975.

OPNAV Instruction 3510.9F Change Transmittal 5. Office of the Chief of Naval Operations. OPNAVINST 3510.9F CH-5. Op-591. 7 Sep 1976.

OPNAV Instruction 3510.9F. Office of the Chief of Naval Operations. OPNAVINST 3510.9F. Op-591. 25 Nov 1974.

OPNAV INSTRUCTION 3510.9G Change Transmittal 2. Office of the Chief of Naval Operations. OPNAVINST 3510.9G CH-2. OP-591D. 10 Aug 1983.

OPNAV Instruction 3510.9G. Office of the Chief of Naval Operations. OPNAVINST 3510.9G. Op-591. 14 May 1980.

OPNAV Instruction 3710.7N. Office of the Chief of Naval Operations. OPNAVINST 3710.7N. OP-591H. 10 Apr 1990.

OPNAV Instruction 3710.7P. Office of the Chief of Naval Operations. OPNAVINST 3710.7P. N889J3. 1 Dec 1992.

OPNAV Instruction 3710.7Q. Office of the Chief of Naval Operations. OPNAVINST 3710.7Q. N889J3. 1 May 1995.

OPNAV Instruction 3710.7R. Office of the Chief of Naval Operations. OPNAVINST 3710.7R. N889J3. 15 Jan 1997.

OPNAV Instruction 3710.7S. Office of the Chief of Naval Operations. OPNAVINST 3710.7S. N789J3. 15 Nov 2001.

OPNAV N789J. Washington DC. Naval Message. 061721Z MAR 2003.

OPNAV Notice 3510. Office of the Chief of Naval Operations. OPNAV 3510. Op-561. Ser

1461P56. 10 Sep 1962.

OPNAVINST 3710.7L. Office of the Chief of Naval Operations. OPNAVINST 3710.7L. OP-591. 24 Sep 1984.

OPNAVINST 3710.7M. Office of the Chief of Naval Operations. OPNAVINST 3710.7M. OP-591. 31 Jul 1987.

Pirie, R. B. Memorandum. Chief of Naval Operations. Op-561E/ags. Ser 164P56. 21 Feb 1962.

Pirie, R. B.. Memorandum. Chief of Naval Operations Op-561E/ags. Ser 2040P56. 10 Dec 1960.

Roberts, W. J. NTDA Memorandum. NTDA/RGS/kmp. 5600. Ser PR-97-78. 1 Jun 1978.

Roberts, W. J. NTDA Memorandum. NTDA/RHLcrt. 5600. Ser PR-136-77. 31 Aug 1979.

Roberts, W. J. NTDA Memorandum. NTDA/WMF/rr. 5600. Ser PR-157-77. 1 Oct 1977.

Shute, J. W. NTDA Memorandum. NTDA:HHB:br. 5601. Ser. 64. 5 Mar 1968.

Shute, J. W. NTDA Memorandum. NTDA:HHB:ls. 5601. Ser. 138. 19 Jun 1968.

Swank, J. A. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPA 3510. JRC:jm. 10 Oct 1965.

Swank, J. A. NAVTACDOCDEVPRODACT NOTICE 3510. NTDDPANOTE 3510. JRC:dz. 1 Sep 1966.

Appendices

Appendices

See attached CD ROM (Plate 1) for Appendix material.

The Appendices on the CD contain historical NATOPS documentation referenced in the body of this text. Simply open the file on the CD named NATOPS Appendices. From the Appendix Table of Contents page click on the desired Appendix to view the material.

Vita

Kristin Swift graduated from Woodbridge Senior High School in Woodbridge, VA in 1990. She earned her Bachelor of Science degree in Aerospace Engineering from Virginia Tech in Blacksburg, VA in 1995. She graduated from the United States Navy Test Pilot School (USNTPS), Fixed Wing Test Engineer curriculum, as a member of Class 115, in 1999. Ms. Swift is currently pursuing her Master of Science degree in Aviation Systems from the University of Tennessee, Space Institute; Tullahoma, TN.

Kristin Swift started work with the Department of the Navy in 1992 as an engineering cooperative education student at the Naval Surface Warfare Center (NSWC) in Dahlgren, VA in the System Engineering and Analysis Branch of the Strategic and Space Systems Department. After her graduation from Virginia Tech in 1995, she returned to NSWC as an Aerospace Engineer with the System Engineering and Analysis Branch where she developed and conducted missile trajectory error basket analyses to test model constraints in the systems-effectiveness engineering model for the Theater Ballistic Missile Defense Program.

From October 1995 to July 1996, Ms. Swift completed a rotation to the Countermeasures Hands-On Program (CHOP) at Kirtland Air Force Base in Albuquerque, NM as part of Skunkworks Mission 8. She was the leader of the redesign team for the missile guidance and control system and countermeasure incorporation.

In 1996, Ms. Swift joined the NAVAIR with the Flight Dynamics Branch, AIR 4.3.2.4. She worked as the flight dynamics engineer responsible for flying qualities and stability and control issues, NATOPS changes, and flight clearances for numerous fleet and developmental aircraft. She completed a rotation to Lockheed Martin Aircraft Systems, Ft. Worth as a member of the X-35 Test Team assisting with the Joint Strike Fighter Variable-Stability In-flight Simulator Test Aircraft flight demonstration from September 1997-February 1998.

Upon her graduation from USNTPS in 1999, Ms. Swift returned to AIR 4.3.2.4 as the lead flight dynamics engineer for the F-14, C-2, E-2C, and C-130. In 2001, she completed a six-month rotation to the Airworthiness Office (AIR 4.0P) as Acting Assistant Flight Clearance Control Officer, responsible for the review and processing of flight clearance request messages as well as

daily interface with the test squadron flight clearance release authorities and Project Liaison Offices.

In 2002, Ms. Swift joined AIR-4.0P as a Senior Airworthiness Specialist and Deputy for the Naval Aviation Technical Information Program (NATIP). When the NATOPS Program was transferred from OPNAV in 2003, Ms. Swift became the Head and Chief Engineer of the NATOPS pillar of 4.0P, responsible for executing the Chief of Naval Operations (CNO) and NAVAIR policy for the NATOPS Program and the Airworthiness processes. She interfaces daily with participants in the NATOPS programs including; NATOPS Model Managers, Fleet TYCOMS, N78, NSAWC, CNAF, NATEC, NAVAIR Program Offices and the NAVAIR Class Desk and Engineering Organizations.

Ms. Swift is a member of the Senior Executive Management and Development Program and was certified by the Acquisition Professional Community in 2002. She is level 3 certified with the Defense Acquisition University in her primary career field of Systems Planning, Research, Development and Engineering and level 2 certified in Test and Evaluation. She is a member of the Society of Flight Test Engineers and the American Institute of Aeronautics and Astronautics.

Ms. Swift is author or co-author of numerous publications including: "Evolution of Minimum Control Airspeed Flight Test Techniques and Operational Procedures", Air Vehicle Engineering Conference, 2002; "X-35 VISTA Flight Demonstration Test Plan", Lockheed Martin Tactical Aircraft Systems, 1998; "Investigation of F-14 Spoiler Effectiveness: Wind Tunnel Test Report", NAVAIR, 1997; "The Skunkworks Mission 8 Final Report", CHOP 1996; "The Sea Based TBMD System Effectiveness Engineering Report", NSWCDD, 1994; and "The Design of a Vehicle Based System to Prevent Ozone Loss", 1994-1995 NASA/USRA Advanced Senior Design Team, Virginia Tech Department of Aerospace and Ocean Engineering.