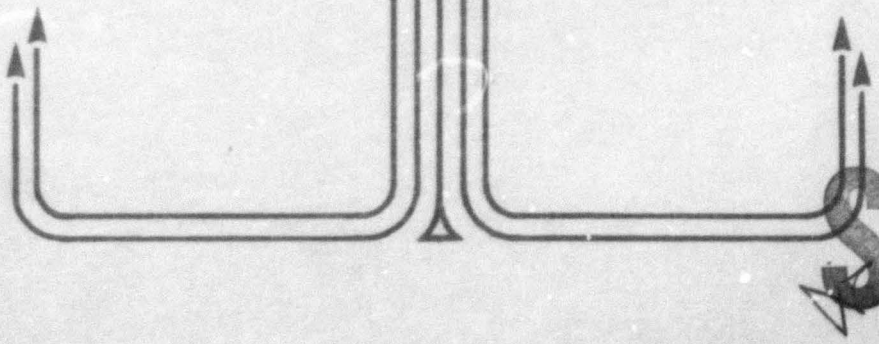
AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT

C-17 PILOT MANNING: THE NEED FOR A PLAN BASED ON CAPABILITIES AND LESSONS LEARNED

MAJOR NORMAN SCHAULE 85-2310

"insights into tomorrow"



DISCLAIMER

The views and conclusions expressed in this document are those of the author. They are not intended and should not be thought to represent official ideas, attitudes, or policies of any agency of the United States Government. The author has not had special access to official information or ideas and has employed only open-source material available to any writer on this subject.

This document is the property of the United States Government. It is available for distribution to the general public. A loan copy of the document may be obtained from the Air University Interlibrary Loan Service (AUL/LDEX, Maxwell AFB, Alabama, 36112) or the Defense Technical Information Center. Request must include the author's name and complete title of the study.

This document may be reproduced for use in other research reports or educational pursuits contingent upon the following stipulations:

-- Reproduction rights do not extend to any copyrighted material that may be contained in the research report.

-- All reproduced copies must contain the following credit line: "Reprinted by permission of the Air Command and Staff College."

-- All reproduced copies must contain the name(s) of the report's author(s).

-- If format modification is necessary to better serve the user's needs, adjustments may be made to this report--this authorization does not extend to copyrighted information or material. The following statement must accompany the modified document: "Adapted from Air Command and Staff Research Report (number) entitled (title) by (author)."

-- This notice must be included with any reproduced or adapted portions of this document.

REPORT NUMBER 85-2310

TITLE C-17 PILOT MANNING: THE NEED FOR A PLAN BASED ON CAPABILITIES AND LESSONS LEARNED

AUTHOR(S) MAJOR NORMAN SCHAULE

FACULTY ADVISOR MAJOR DANIEL M. RIMKUS, ACSC/EDOWD

SPONSOR COLONEL JACK W. SHELTON, JR. MILITARY AIRLIFT COMMAND, MAC/DPR

Submitted to the faculty in partial fulfillment of requirements for graduation.

AIR COMMAND AND STAFF COLLEGE
AIR UNIVERSITY
MAXWELL AFB, AL 36112

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION: UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S): 85-2310	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION: ACSC/EDCC; 6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State and ZIP Code): Maxwell AFB AL 36112	7b. ADDRESS (City, State and ZIP Code)
8a. NAME OF FUNDING/SPONSORING ORGANIZATION; 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State and ZIP Code)	10. SOURCE OF FUNDING NOS.

PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT NO.

11. TITLE (Include Security Classification): C-17 PILOT MANNING: THE NEED FOR A PLAN

12. PERSONAL AUTHOR(S): Schaule, Norman NMI, Major, USAF

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Yr., Mo., Day)	15. PAGE COUNT
	FROM _____ TO _____	1985 April	44

16. SUPPLEMENTARY NOTATION: ITEM II: BASED ON CAPABILITIES AND LESSONS LEARNED

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB. GR.	

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

Manning the C-17 with pilots as it is acquired will present significant problems to operational and personnel managers if an effort is not made to develop a plan that can be applied consistently throughout the delivery schedule. Dwindling experience levels and pilot distribution problems in all airlift systems will necessitate taut management practices by airlift personnel managers. The experience gained by 15 years or more of C-5 pilot force management will also aid in averting future personnel problems. The study calls for development of a concerted plan to man the C-17 with application of lessons learned by C-5 pilot force management.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION	
UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☒ DTIC USERS ☐	UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL: ACSC/EDCC Maxwell AFB AL 36112	22b. TELEPHONE NUMBER (Include Area Code): (205) 293-2483	22c. OFFICE SYMBOL

DD FORM 1473, 83 APR — EDITION OF 1 JAN 73 IS OBSOLETE.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

PREFACE

Decline in airlift pilot experience over the past few years has become a subject of intense interest to Military Airlift Command personnel managers and commanders. This study outlines that concern with application toward the projected C-17 manning requirement. Present and projected 1990 pilot experience and manning levels of all airlift systems become the key ingredients of the future ability to man the airlift force. Acquisition of the C-5B and C-17 coupled with the airlift total force concept will drive pilot requirements through the early 1990's. The active/reserve force mix will not only define those requirements, but will impact the capability of the active force to meet them. Lowered experience within airlift line units and the projection of an even younger pilot force by 1990 establishes the need to develop a comprehensive plan to manage airlift pilot requirements. The introduction of the C-17 into the airlift inventory compounds this need. The C-5 was the last new airlift major weapon system acquired by the Air Force and past pilot force management decisions offer many valuable lessons for developing the overall plan. This paper does not constitute a manning design per se, but calls for a development of a consistently applied master manning plan. The actual plan can be developed as specific C-17 delivery information is received.

I would like to acknowledge Major William H. Mills from Airlift Analysis, Headquarters Air Force Manpower and Personnel Center and Major Larry H. Harris, Directorate of Assignments, Deputy Chief of Staff for Personnel, Headquarters Military Airlift Command. Their assistance in providing the analytical data relating to the manning of major airlift weapon systems was invaluable.

ABOUT THE AUTHOR

Major Norm Schaule graduated from Angelo State University at San Angelo, Texas on 11 May 1973 with a Master of Arts in Teaching Degree and a Commission from the University's first Air Force Reserve Officer Training Corps graduating class. Eleven days after graduation he reported to Webb Air Force Base, Big Spring, Texas to attend Undergraduate Pilot Training. He graduated in June 1974 and was assigned as a C-141 pilot at Charleston Air Force Base, South Carolina. In 1978 he was assigned to the Personnel Plans Division of the Deputy Chief of Staff for Manpower and Personnel at Headquarters USAF. Following his one year stay at the Pentagon he was sent to Altus Air Force Base, Oklahoma where he served as a Transition Training Unit Instructor Pilot and as Executive Officer to the Wing Commander from 1979 to 1982. He was then selected for an assignment to Headquarters Military Airlift Command as the Chief of the Strategic Airlift Manning Section for the Deputy Chief of Staff for Personnel and then as the Chief of the Aircrew Manning Branch. After graduation from Air Command and Staff College Major Schaule will be assigned as a C-130 pilot at Dyess Air Force Base, Texas.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

FIGURES

EXECUTIVE SUMMARY

Part of our College mission is distribution of the students' problem solving products to DoD sponsors and other interested agencies to enhance insight into contemporary, defense related issues. While the College has accepted this product as meeting academic requirements for graduation, the views and opinions expressed or implied are solely those of the author and should not be construed as carrying official sanction.

"insights into tomorrow"

REPORT NUMBER 85-2310

AUTHOR(S) MAJOR NORMAN SCHAULE, USAF

TITLE C-17 PILOT MANNING: THE NEED FOR A PLAN BASED ON CAPABILITIES AND LESSONS LEARNED

I. Purpose: To establish the need for a comprehensive pilot manning plan for the C-17 as the aircraft enters the airlift inventory.

II. Problem: Decreased experience in strategic and tactical airlift units requires immediate attention to man future airlift pilot requirements. As strategic and tactical airlift pilot inventories are examined, the increased presence of younger officers substantiates the importance of pilot experience management. The Air Force total force concept will impact the active force capability to man all airlift assets as the C-17 is delivered in the early 1990's. A plan designed to account for each aspect of airlift pilot resource management is required.

III. Data: The USAF Airlift Master Plan documents the rationale for acquisition of the C-17 to offset the airlift shortfall during major mobility requirements and to help modernize the airlift force. The USAF Airlift Total Force Plan delineates the airlift force structure within the active and reserve components of the Air Force. Together, these plans form the foundation of the overall airlift pilot force requirements for both strategic and tactical airlift through the early 1990's. Evaluation of present and projected 1990 pilot inventories show significant problem areas with year group distribution. The heavy presence of youth and distinct shortage of

CONTINUED

"middle management" officers could present experience management problems when the C-17 is introduced into the airlift inventory. To complicate the situation, there is a distinct probability that reserve force airlift growth (C-5, C-141, and C-130) could adversely impact active force pilot retention. Experience decline within line units is inevitable as the C-17 is delivered, but early preparation of a manning plan can preclude unit experience dropping below minimum acceptable levels. Past C-5 pilot resource management experiences provide excellent lessons applicable to the development of the plan.

IV. Conclusion: The acquisition of the C-17 and reduced pilot experience establishes the need to develop a concerted manning plan that can be consistently applied throughout the system's implementation. Application of C-5 pilot resource management experience can preclude the recurrence of many personnel problems which have plagued the C-5 airlift force.

V. Recommendation: Air Force and Military Airlift Command personnel managers should develop a plan for manning C-17 and other airlift assets through the early 1990's. This plan should incorporate the lessons learned through fifteen years of C-5 pilot force management to preclude future experience and personnel problems. Early implementation of this plan will help defray the immediate loss of experience from all other airlift systems as C-17 initial requirements are filled.

Chapter One

A BASELINE LOOK AT MANNING THE C-17

INTRODUCTION

The purpose of this paper is to look at current and projected strategic and tactical airlift pilot manning and evaluate the Military Airlift Command's (MAC) capability to man the C-17 as it is received in the early 1990's. MAC has not manned a new major weapon system since the acquisition of the C-5A Galaxy in the mid 1960's. Many valuable personnel lessons have been learned through that experience as well as the subsequent manning policies that affected the C-5 pilot force. By applying those experiences to manning the C-17 we can avert many of the problems now facing the C-5 pilot force. Basically this study will examine two important questions. First, are current and projected active force airlift pilot manning and experience levels sufficient to provide for future manning requirements of the C-17? Secondly, can we apply those lessons learned from the past manning decisions made for the C-5A?

BACKGROUND

This chapter will present the C-17 as an integral element of the future airlift system, show how it fits into that system and how it's addition will present pilot manning problems. Even though there will be problems, force modernization must be initiated to meet future airlift mobility requirements. Pilot experience management is one specific problem important to the sucess of the overall plan to integrate the C-17 into the operational airlift force.

The United States Air Force Airlift Master Plan (AMP) documents the need for the C-17 and also encompasses utilization plans for all of our airlift weapon systems. Another important planning document, the United States Air Force Airlift Total Force Plan (ATFP) outlines the future airlift active/reserve force mix. These planning documents form the foundation of need for the C-17 and how the aircraft will be distributed within the airlift system. The AMP is the basis for long-term airlift management and employment and provides the growth necessary to reduce the present airlift shortfall. General Gabriel and Secretary Orr state in their joint memorandum:

> The Airlift Master Plan synthesizes numerous national airlift issues, focusing on the need to meet airlift shortfalls and to modernize airlift forces. We expect Air Force planners at all levels to use this document in their deliberations and decisions to assure the airlift needs of the United States Armed Forces are met to the degree possible within funding constraints. (2:1)

The AMP clarifies the position of the C-17 in the modernization process, "Future airlift plans also include the C-17, presently scheduled for an initial operational capability in the early 1990's" (2:II-3). Secretary of Defense Weinberger in his FY 1985 Annual Report to Congress states:

> Though the FY 1985-89 program makes significant improvements to our intertheater airlift capabilities, our FY 1989 capability will not meet our long-term goals. Consequently, the FY 1985 budget includes a request for funds to begin full-scale engineering development of the C-17 cargo aircraft. (5:178)

Through the myriad processes of defense planning the C-17 has been established as important to attainment of long range goals. The AMP is an integral part of that planning process.

The AMP essentially documents the need to improve our airlift capability if we are to offset the airlift shortfall. In May, 1984, Air Force Magazine's Senior Editor Edgar Ulsamer presented an excellent capsulization of the AMP and sums up the airlift shortfall:

> USAF'S new Airlift Master Plan, a cohesive roadmap for correcting existing shortfalls and meeting future mobility requirements, is the distillation and capstone of seventeen major mobility studies conducted over the past decade, all of which concluded that airlift requirements far exceed capabilities. (1:58)

Ulsamer states that the major mobility study used in the AMP, the Congressionally Mandated Mobility Study (CMMS), substantiates the intertheater airlift requirement in a variety of scenarios as 66,000,000 ton miles per day (66 MTM/D) (1:58). The AMP projects that in 1988, after the acquisition of the programmed 44 Primary Aircraft Authorized (PAA) C-5B's and 41 PAA KC-10's, the airlift capability will be 48.5 MTM/D (2:III-12). The projected 1988 airlift shortfall of 17.5 MTM/D is significant. However, as outlined in the FY 1985 Military Posture Statement prepared by the Organization of the Joint Chiefs of Staff, the C-17 is programmed to meet the remaining airlift shortfall (6:69). Although the addition of the C-5B and the KC-10 is substantial , the equation must also include the aging of the C-141 and C-130 aircraft on the airlift requirement.

The AMP also presents the C-17 as a dual role airlifter that can be utilized in both the inter and intratheater airlift environment. It can therefore represent the replacement choice for aging strategic C-141's and tactical C-130's. General Thomas M. Ryan, Jr., Commander in Chief MAC (CINCMAC) has repeatedly stated that modernization of the airlift force is one of his top priorities and in a curriculum update letter to the Commandant of the Air War College he stated, "programs like the C-17, C-5B, the KC-10,...will help us fill some of the capability gaps we face today. These programs will prevent a decline in capability due to aircraft aging in the C-130 and C-141 fleets as we approach the decade of the 1990's..." (18:ATCH 1). Force modernization is needed not only to reduce the airlift shortfall but also to offset the loss of capability due to aging airlift systems. The combination of the C-5B and C-17 acquisition programs satisfy those requirements.

Acquisition of the C-5B and C-17 will present manning problems for both the new and established systems. The addition of new aircraft will cause a drain on the manning and experience levels of existing aircraft systems. MAC recently experienced this problem on a much smaller scale when it established the manning for the European Distribution System Aircraft (EDSA), designated the C-23. The initial C-23 contract called for only 18 aircraft and the initial cadre requirement was established at a total of only 36 experienced pilots. For Rated Distribution and Training Management (RDTM) purposes the system was designated a tactical airlift system. However, the drain on the tactical airlift pilot crew force was significant enough to warrant assigning pilots from strategic airlift and other Air Force resources to offset the loss. The C-17 will be a much larger drain of experience and will necessitate manning to be proportioned throughout all airlift and Air Force pilot resources.

The C-5B, although a new system, will not be entirely additive to the active force. The total number of 44 PAA C-5B's programmed as additions will be offset by the transfer of the same number of C-5's to Air Reserve Forces (ARF). Even though the transfer will maintain the active C-5 aircraft force at it's current level the high experience requirements for C-5 entry remains a major drain on overall airlift pilot experience. This problem will be examined further in a following chapter.

Pilot experience management problems will be present throughout the C-5B and C-17 delivery schedule. If the current pilot experience base is not expanded and maintained for all airlift systems the drain in manning the C-17 could draw experience below desired standards. Maintenance of those standards above desired levels will require a studied and analytical evaluation of experience requirements and future pilot inventory growth capability for the airlift system as a whole.

At the March 1984 Rated Management Conference CT-39/Operational Support Aircraft (OSA) pilots were integrated into the Strategic Airlift RDTM Major Weapon System Group making them MAC assets (4:12-2). The OSA, C-21A and C-12F, are being substituted for the aging CT-39 and will be 75 percent manned by new Undergraduate Pilot Training (UPT) graduates. This manning policy not only helps Air Force absorption initiatives, but also provides an excellent aging process for MAC pilots. The EDSA, which will also be heavily manned by new UPT graduates, does much the same thing. Though not exactly the same process, support airlift systems give MAC a similar aging capability that the Strategic Air Command has with their Accelerated Copilot Enhancement (ACE) program. After completion of a three year support airlift assignment these young pilots should have approximately 1400 hours of flight experience transferable to any airlift system.

As pilots are transferred into the C-17 the overall reduction of experience within each of the other weapon systems can be averted, or lessened to a great extent, by adherence to a realistic and consistent manning plan. This plan must also accomodate the transfer of airlift assets to the ARF, which will impact the ability of the active force to age pilots. MAC must continually evaluate manning assets to determine future capability to man the additive requirements as they arrive. As the plan is devised, consideration should also be given to the problems personnel resource managers are now coping with in managing the C-5 pilot force. If the plan is devised early in the acquisition process, a stable transition towards C-17 operational capability can be affected with minimum disruption of pilot experience.

THE REMAINING CHAPTERS

The remaining chapters of this paper will propose the integral elements of an initial C-17 manning plan. Also, an assessment of the C-5 pilot force is presented with emphasis given to how problems created within that airlift system can be averted in the future. Chapter two will define the presently known active force pilot requirements for the C-17 as outlined in the AMP and ATFP. Chapter three will examine the existing and projected 1990 strategic and tactical airlift manning levels by year group distribution. These inventories will provide a rough estimate of experience levels available for all airlift systems. Chapter four will present an historical and present day look at the C-5 pilot force and how that force has evolved through the manning decisions made from its inception. Chapter five will encapsulate the previous chapters and express the need for development of a precise manning plan. The actual manning plan, hopefully initiated by this paper, can be employed to prevent many of the personnel problems caused by a large pilot force experience drain.

Chapter Two

C-17 ACTIVE FORCE PILOT MANNING REQUIREMENTS

With the substantiation of need for the C-17 well documented and supported throughout the Department of Defense and stronger support within congressional ranks it appears that the aircraft or, at minimum, a derivitive will become a reality. The AMP carefully balances the five year outlook for airlift and provides the basis of the airlift force structure into the next century. General Ryan states, "The Airlift Master Plan represents our effort to define an airlift force structure from the present through the early 2000's. ...It contains a clear and orderly set of cost effective actions that will make significant inroads into known airlift shortfalls--both inter and intratheater." (18:ATCH 1). This chapter will first investigate the requirement in terms of number of C-17 aircraft planned and secondly, the crew ratio that will be assigned to the active force. Then, from these factors the actual line pilot force requirements will be determined. Finally, the pilot initial cadre requirement and it's potential impact on the overall airlift pilot force will be examined. In order to determine the number of C-17's needed to meet the mobility requirement the airlift force structure must be studied.

The mobility requirement, as measured by the 1981 Congressionally Mandated Mobility Study (CMMS) cited by the AMP as "the most widely and officially accepted intertheater airlift capability objective" (2:IV-1), was calculated using all modes of strategic lift capability including airlift, sealift and prepositioning. This study outlined a considerable gap existing between mobility assets available and what was required (22:2). The minimum projected requirement of 66 MTM/day compared to the actual 1983 MTM/day capability using all airlift assets including the Civil Reserve Air Fleet (CRAF) was only 28.7 MTM/day. The AMP projects a capability increase to 48.5 MTM/day by virtue of added spares, CRAF enhancement, and purchase of the C-5B during the FY 84-88 time frame (2:III-10 - III-12). The force structure proposals studied during the development of the AMP had to consider methods of meeting the full 66 MTM/day. The force structure criteria statement given in the AMP states,

> The objective of this plan is to define an airlift force structure that best meets criteria of validated requirements, military utility, operating and support costs, manpower requirements, force stabilization, and

> force modernization. Each criterion alone is not absolute, but rather must be balanced against the other criteria to achieve the most beneficial result. (2:IV-1)

Development of the airlift force structure was a complex issue which required a realistic evaluation of the many factors cited in the criteria statement.

The CMMS served as the baseline for the intertheater requirement; however, the intratheater requirement also needed to be determined before total airlift force structure options could be developed. The AMP states there is an existing shortfall in intratheater airlift, but it has been insufficiently quantified. The Air Staff and MAC are conducting studies to quantify the shortfall (2:III-6). Current intratheater airlift capability of 9,000 tons per day (2:III-16) was used as a base for the plan. The AMP does specify that as, "requirements become more quantifiable, a solution must be planned and executed." (2:IV-2). With the inter and intratheater airlift requirements somewhat defined the focus can turn toward force structure selection.

Current acquisition of the C-5B will be complete in 1989. The C-5B and CRAF enhancement increases total airlift capability to 48.5 MTM/D. However, as the C-141 reaches retirement age the 17.5 MTM/D gap would widen. The AMP used several options in determining the specific force structure, each designed to meet the shortfall while offsetting the age problem of the C-141. To condense the options described by the AMP, the plan evaluated force structure determinations including various mixtures of status quo plus additive buys, the effects of aircraft aging and reducing utilization rates to extend airframe life. However, the desire was to design a force structure that did not discount the aging process that would inevitably need to be managed in later years. Various alternatives were examined. The preferred 1998 force structure combined C-130, C-141, KC-10, C-5A, C-5B, and 180 new C-17's in a total force concept. The chosen structure also called for retirement of 180 PAA C-130's and 54 PAA C-141B's by 1998. Figure 2-1 shows the AMP recommended force structure (2:V-1 - V-8). Figure 2-2 simplifies the AMP force structure and compares FY 84 assets to the programmed levels for outyear management. As shown; the C-5 fleet grows to 114 aircraft, the C-17 fleet will grow to 180 aircraft, the C-141 fleet declines to 180 aircraft and the C-130 fleet declines to 342 aircraft (20:25). As stated in the AMP,

> This plan provides substantial improvements over today's force across the full spectrum of airlift missions. Completion of the recommended modernized force structure not only increases FY 88 programmed MTM/D by 35 percent and T/D by 78 percent, but also adds significant, new capabilities of airdrop, extraction, and direct delivery of all types of cargo to forward operating locations. (2:V-11)

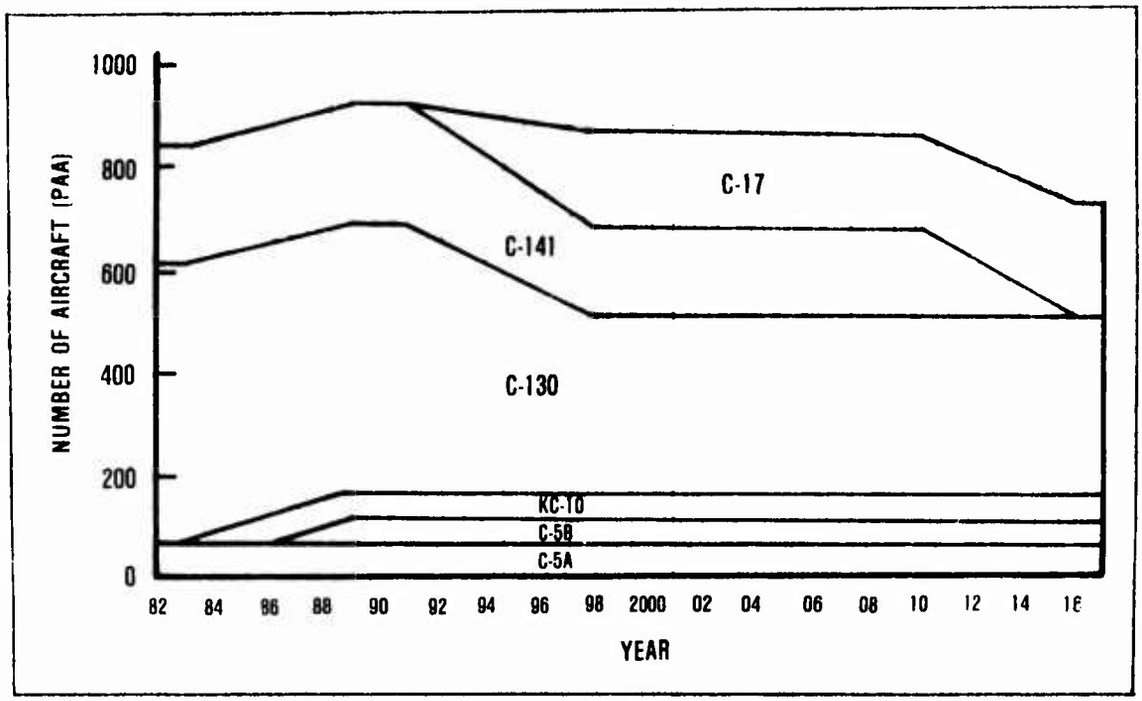


Figure 2-1 Recommended Force Structure (2:V-8)

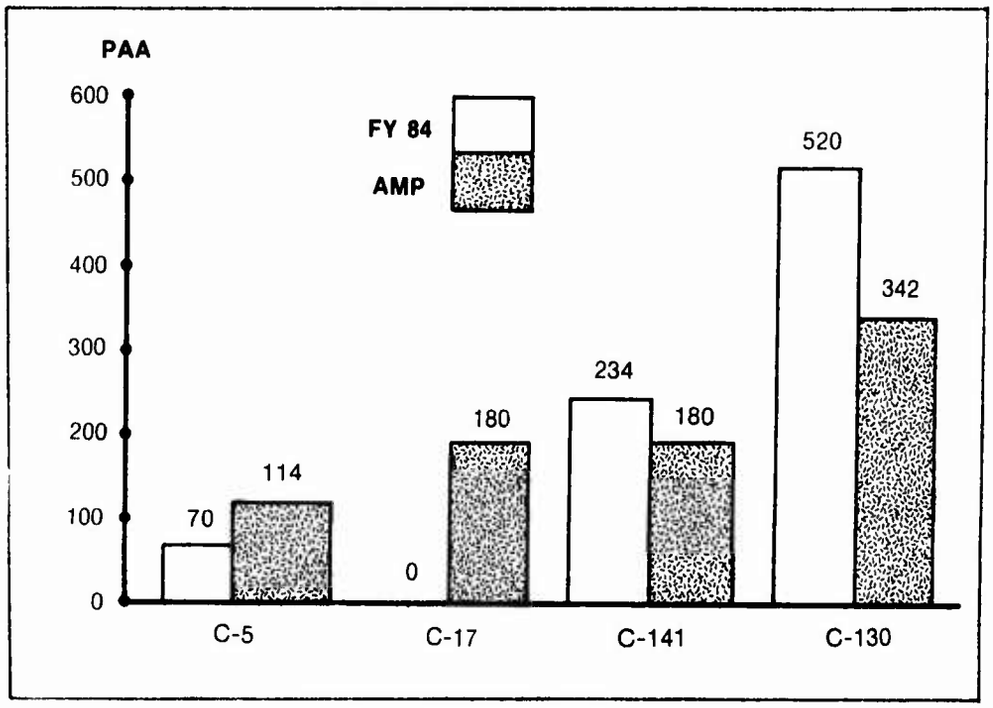


Figure 2-2 AMP Force Structure Changes (20:25)

The acquisition of 180 C-17 aircraft will be partially offset by the retirement of C-130 and C-141 aircraft. The force structure, as outlined by the AMP, is a total force concept that involves modernization of reserve forces by transfer of strategic assets to Air Force Reserve and Air National Guard units.

As this paper is limited to active force pilot manning concerns it will not go into a lengthy explanation of the requirements of ARF modernization. However, it is important to know the extent of the aircraft transfer program and how it will affect the active airlift force structure. The recently completed ATFP furnished the detail of, "...how the Air Force arrived at that active/ARF force mix for the long term force structure and to provide a road map to achieve that force mix." (20:1). It is a technical and detailed breakdown of aircraft assignment and crew ratio determination. This information formulates the active force manning requirements.

Active force manning requirements, of course, depends upon the active and ARF mix. The ATFP establishes the mix through an exhaustive process of blending pilot force sustainment, cost factors, and readiness issues. The AMP provided the framework of airlift resources required to meet the mandated mobility requirements and that framework formed the foundation from which to start. After extensive coordination and analysis between HQ USAF, the Air National Guard, Air Force Reserve and MAC, the force mix for the AMP force structure that was recommended by the ATFP is shown in figure 2-3 (20:39).

	C-5	C-17	C-141	C-130	TOTAL —
ACT	0	28	100	190	318
ACT/RES ASSOC	70	104	0	0	174
ARF	44	48	80	152	324
TOTAL	114	180	180	342	816
% CREWS ACT/ARF	31/69	50/50	56/44	56/44	49/51

Figure 2-3 Recommended Force Mix

The ATFP states, "The final force mix represents the minimum active duty participation we need to meet known readiness and force sustainment requirements..." (20:41). The structure of the force mix shown in figure 2-3 is a year 2000 picture, it will take that long to time-phase the force buildup and transfer program.

Time phase management of the chosen force mix has become a vitally important element in the final development of the airlift force structure. The implications are many and include; active force pilot sustainment, reserve force programming, recruiting and training, and military construction programs. The ATFP pointedly states that the time-phasing recommendations that it makes are dependent upon, "existing congressional guidance for active duty end-strength ceilings and near-term C-141 transfers," and emphasizes, "...the time-phasing would be quite different (although the final long-term force would be the same)." (20:44). A delay in the transfer program would help reduce many of the problems stated above, and as the plan recognizes, the concurrent transfer of aircraft to the reserves with delivery of new aircraft to the actives would minimize those problems. To comply with the congressional guidance, the transfer program was accelerated; this paper assumes that the following transfer plan (Figure 2-4) will remain unchanged by further guidance (20:45).

FY	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
ACTIVE																
C-5	08	05	03	00												
C-141	00	-04	-12	00	00	00	-16	00	00	-16	-16	-16	00	-32	-22	-00
C-17					00	00	07	07	10	11	16	14	15	14	25	13
ARF																
	08	00	08	18	10											
C-141	00	04	12	00	00	00	16	00	00	16	16	16	00	00	00	00
C-17									08	08	08	08	08	08	00	00

Figure 2-4 Recommended Transfer Plan

The early stages of the transfer program significantly impacts the force sustainment and Air Force pilot absorption initiatives of the active force. However, the outyear balance will assist in abating manning concerns as the C-17 is delivered. After determining the

force structure and mix, crew ratio is the only remaining variable to the manning requirement equation.

Crew ratio establishes the number of aircrews for each PAA aircraft and determines the aircrew manning required to fly a specific weapon system. Crew ratios are different for specific systems based on established aircraft utilization rates. If an aircraft is an efficient system and permits high utilization rates, as determined by mission capabilities, maintenance and support requirements and other factors relative to specific missions, then the crew ratio can also be high. A utilization rate capability study conducted at Headquarters USAF by the Deputy Chief of Staff for Research, Development and Acquisition established that the crew ratio for the C-17 could be increased from the 4.0:1 ratio established for other strategic airlift aircraft to 5.0:1. Improved utilization rates based on C-17 warranted performance parameters allowed the crew ratio increase (21:ATCH 2). The number of people required to fly an aircraft, based on the utilization rate, is the product of the crew ratio multiplied by the crew compliment. The pilot crew compliment for the C-17 consists of the aircraft commander and copilot. The 5.0:1 crew ratio multiplied by 2 pilots results in 10 pilots per PAA aircraft. Before this product can be applied to arrive at the total active force pilot manning requirement the active/reserve crew ratio split must first be addressed.

The projected C-17 PAA active force total stands at 132 aircraft, 28 purely active and 104 active/reserve associate. The remaining 48 PAA aircraft of the total 180 planned will be assigned to ARF units. For active force pilot sustainment purposes the crew ratio split for the associate program was set at 3.0:1 for the active force and 2.0:1 for the reserves (20:B-1 - B-9). The 28 active aircraft will be manned at the 5.0:1 ratio and will require 280 pilots (28x5x2=280) while the active portion of the 104 associate aircraft will require 624 pilots (104x3x2=624). The total requirement represents 904 rated position indicator (RPI) code 1 positions. Squadron staff positions must also be added.

Squadron staff authorizations, identified by the RPI code 6, total three positions per squadron: the Squadron Commander, Operations Officer and Standardization and Evaluation Officer. Tentatively, the 104 associate C-17 aircraft will support 8 squadrons of 13 PAA aircraft. The 28 active aircraft will support 2 squadrons of 9 aircraft apiece and 1 squadron of 10 aircraft. A total of 11 active force squadrons will be designated for the C-17. Thirty-three RPI code 6 authorizations for squadron overhead brings the total squadron level pilot requirement to 937.

The 937 pilot authorizations represent the final squadron level requirement at the end of the deployment phase of the C-17 acquisition cycle. The recommended plan for transfer of active aircraft to the ARF (Fig 2-4) can also approximate the tentative

delivery plan for the C-17. The delivery schedule coincides with the transfer of other assets to the reserves. Roughly, the manning requirements will follow that delivery and transfer schedule. A monthly schedule will be needed for actual development of the manning plan. There are other personnel considerations, such as; training, permanent change of station (PCS) lead times, etc. to contend with. The earliest manning concern will be the designation of the initial cadre requirements and selection of personnel to meet them.

Initial cadre pilot requirements for the C-17 will be determined by the MAC Deputy Chief of Staff for Operations (MAC/DO) and will be among the first assignment considerations in support of the C-17 delivery. The qualification requirements for the initital cadre are in the earliest stages of staffing; however, discussions with Training Directorate (MAC/DOT) personnel relate that the notional tasking will be to support an initial training facility of 12 aircraft with a 5.0:1 crew ratio. The 60 aircrews required will, of course, be made up of very highly qualified and experienced aircrew members (23:--). Selection of the initial cadre is potentially a very severe consideration when evaluating experience levels of other airlift systems. The extraction of 120 highly qualified pilots presents a tremendous "bow wave" or front loading effect that will adversely affect experience levels in all airlift systems. Experience levels should be increased and maintained to afford an ample lead time draw down within the flying units.

In summary, this chapter discussed the need for the C-17 to offset the airlift shortfall as substantiated by the AMP. It also examined the proposed active/reserve airlift total force mix and transfer plan as described by the ATFP. The need for 180 PAA C-17 aircraft to offset the airlift shortfall and to modernize the aging airlift fleet of both inter and intratheater aircraft was identified. The crew ratio was established at a 5.0 to 1 ratio for the C-17 because of its improved and warranted performance factors. The crew ratio was applied to the planned number of PAA aircraft and the active force squadron RPI 1 and RPI 6 pilot requirement was determined. Finally, the initial cadre was examined with concern that the sudden large drain of highly experienced pilots from the line units would present experience management problems that need to be immediately addressed.

Chapter Three

EXISTING AND PROJECTED FORCE MANNING AND EXPERIENCE LEVELS

Management of the airlift pilot force today is centered around experience concerns. Since 1981 major airlift weapon system pilot experience has dramaticaly declined. This situation is extremely disconcerting to line unit commanders, especially in view of increased mission sophistication and specialization. Special Operations Low Level (SOLL) requirements and the air refueling capability modification for the C-141 are prime examples. Strategic and tactical airlift pilot force structure will be the first topic of this chapter. Specific interest will be given to gradually declining experience levels and how absorption of UPT graduates and other pilots has impacted experience management. Then, a look at the current and projected 1990 strategic and tactical airlift pilot inventories will give an estimation of the force that managers will have available to man the C-17. Finally, further examination of those inventories will show shortfalls within specific year groups. These shortages can potentially impact the experience available for all systems.

Managers and commanders are deeply concerned over the continued decline in line pilot experience. The following numbers show the gradual decline in MAC experience levels since June 1981.

Percent Experienced of Authorizations

DATE	C-141	C-5	C-130
	%	%	%
JUN 81	79	82	74
JUN 82	72	78	68
JUN 83	70	73	67
JUN 84	62	65	56
OCT 84	54	65	56
			(8:1)

Minimum experience criteria, as outlined in the Rated Management Document, for the C-141, C-5 and C-130 are:

C-141: 50% must have 1150 hours total time and 400 PAA
C-5: 50% must have 1800 hours total time and 500 PAA
C-130: 50% must have 1000 hours total time and 300 mission hours in that particular C-130 model aircraft. (This is the standard C-130 experience definition; the

AC/MC-130 definition is higher.) (4:6-10)

The trend is a disturbing one and must be reversed if the future airlift force build is to be managed without drawing weapon system experience levels below the minimum acceptable levels that are listed above. Headquarters MAC personnel managers expect experience problems to remain critical for the foreseeable future and concern over C-141 aircraft commander shortages is receiving direct command section interest. That concern is noted in a 11 Jan 1985 Directorate of Assignments (MAC/DPR) point paper, "Currently a critical aircraft commander shortfall is the most serious issue with this force. CINCMAC has directed that the current deficit of 60 C-141 aircraft commanders will be erased by the close of FY 85." (8:2). Absorption of high numbers of UPT graduates and First Assignment Instructor Pilots (FAIPS) from ATC has ultimately caused this decline in experience.

Absoption is defined as, "the number of cockpit seats (authorizations) available to new UFT graduates or other new MWS (major weapon system) inputs, divided by the rate at which these new pilots are allowed to flow through these cockpits: absorption = cockpits/flow rate." (4:6-1). The flow rate must increase if more pilots are absorbed. Increasing pilot inputs to the point that the outflow of experienced pilots does not balance against the influx of inexperienced pilots to maintain the minimum experience requirement can be explained as one definition of overabsorption. Overabsorption of pilots into airlift systems (with the exception of the C-5) has been the main factor in declining pilot experience. MAC's attempts to ease the USAF pilot shortfall, caused by extremely low retention rates in the late 1970's, and support of pilot requirements external to the command has driven experience within line units very close to the minimums listed above. MAC comments concerning low pilot experience as outlined in a safety initiatives study conducted by the Air Force Inspection and Safety Center further clarifies the above causes:

> Even though MAC has enjoyed increased retention and shared in UPT underproduction, experience levels continue to decline. This decline is a result of increased UPT distribution to MAC systems and a high demand for experienced pilots across the Air Force. Many of the initiatives designed to improve experience and stability in the TAF (Tactical Air Forces) have resulted in lower experience and stability in MAC systems. The fighter pilot shortage coupled with actions such as modifying the Fair Share Methodology translate into more assignment quotas for MAC in areas including the ATC IP force, the TAF staff, and Air Force Special Officer Personnel Requirements. MAC will continue to support programs to sustain the inventory and will fill as much of the Air Force overhead as is prudent. However, MAC is approaching the point where actions will be necessary to prevent

experience and stability from declining below minimum acceptable standards. (19:ATCH 4)

CINCMAC's direction to correct the C-141 aircraft commander shortfall is the beginning of initiatives to quell the experience drain. It will not be an easy fix. Overmanning the pilot force will be necessary to protect the command's desired two years aircraft commander utilization and still absorb the large numbers of pilots MAC agreed to take. CINCMAC concern over stability and experience was evident when he asked personnel managers to, "Examine how we can extend aircrew tour length beyond 48 months. Objective sic is to retain upgrades beyond the 2 year fully qualified to perhaps 3 years after upgrade." (17:--). The answer basically stated that an increase of aircraft commander utilization from 2 to 3 years would either necessitate that pilot inputs from UPT be cut from approximately 250 to 150 or manning at 150 percent of authorizations. The last paragraph of the point paper attached to the Staff Summary Sheet (SSS) outlined the problems,

> Increasing aircrew tour length to ensure 3-year aircraft commander utilization is not conducive to Air Force absorption efforts. The overmanning required would ultimately lengthen the time to upgrade and present possible overall proficiency problems for our younger officers. From an AFMPC perspective, the effect of increased time-on-station would also cause overseas assignment inequities and reduce the pool of available officers to fill Air Force rated requirements which must be filled. (17:ATCH 1)

CINCMAC's dissatisfaction was evident by his hand written note at the bottom of the SSS, "Let's look at smaller increases: 1-2-4 months. Be sure you're using absorption commitment associated with latest projected UPT rates." (17:--). The above examples highlight the experience problems associated with C-141 pilot force management, but can be similarly applied to the C-130 force. Specific problems within the C-130 pilot force stem from growing instructor pilot requirements at the 34th Tactical Airlift Training Group, SOLL II expansion, and special operations force growth, each calling for increased experience availability. For the foreseeable future MAC will continue to overabsorb UPT graduates and expect that experience levels will probably never get as high as they were in 1980. It is a long-term problem which causes quick aging of young pilots to become a priority.

MAC's support airlift systems, the CT-39, C-21A, C-12F and C-23, are excellent aging cockpits. Approximately 75 percent of the pilot crew force for these systems will be made up of first assignment UPT graduates. After their initial tour in support airlift they will have extensive "hands on" flying experience that can be readily transferred to more complex systems. The C-5, with very high RDTM experience minimums, is the most complex aircraft and

currently relies exclusively on other airlift systems for experienced pilot inputs. OSA and the EDSA give MAC the opportunity to age pilots in inexpensive systems and then offset experience losses in other weapon systems by assigning a large majority of them to either the C-5, C-141, or C-130. General Ryan made this distinction in a letter to the 21st and 22nd Air Force Commanders,

> In the midst of the wing modification program and approaching C-5B acquisition, we must now look at rejuvenating this resource--relying upon CT-39/Operational Support Aircraft pilots and other young inputs to fill the major portion of future C-5 pilot requirements. (16:ATCH 1)

The young OSA/EDSA pilots will provide some relief to the experience problem. However, they will not offer the total answer as they will still be relatively inexperienced in comparison to the major weapon system pilots. The airlift pilot inventory, upon which the future airlift force structure will be built, is the key to the experience outlook.

Current strategic and tactical airlift pilot distribution by year group (FIGs 3-1 and 3-2) give an excellent look at the pilots available for cockpit duty (24:--). In both the strategic and tactical inventories a preponderance of pilots within the 2 through 8 year groups and again a large grouping in the 15 through 21 plus year groups can be readily seen. The pilots with 21 years or more service were added together to show the retirement eligible population. The strategic airlift force consists of all strategic coded pilots (C-140, C-141, C-5, C-9, WC-135, and OSA), likewise the tactical force consists of tactical coded pilots (MC-130, AC-130, WC-130, HC-130, C-130, EDSA, etc.). The charts show the current pilot inventory and 2 projections for the 1990 inventory. The first 1990 projection reflects a force aged using 4 year retention lookback RDTM rates for FYs 85 through 87, and FYs 88 through 90 using 5 year regular retention rates. The result of this formula represents the FY 86 Budget Estimate Submission (BES) numbers presented by HQ USAF in the current five year defense plan (FYDP). The second 1990 projection used a straight 5 year retention lookback factored into the UPT distribution and existing force through 1990. Exhibiting two projections based on different retention data shows the significance that retention has on long-range planning. Discussions with Rated Force Analysis Branch personnel at HQ AFMPC reveals that an inventory based on 8 year retention lookback shows significantly lower numbers available in 1990. The 8 year lookback includes the worst pilot retention years of 1978 and 1979. It should be noted that in each case presented, the highest retention years (those since the early 1980's) are used giving, perhaps, a better picture than might be possible. However, Air Force planners and programmers are currently using these better numbers.

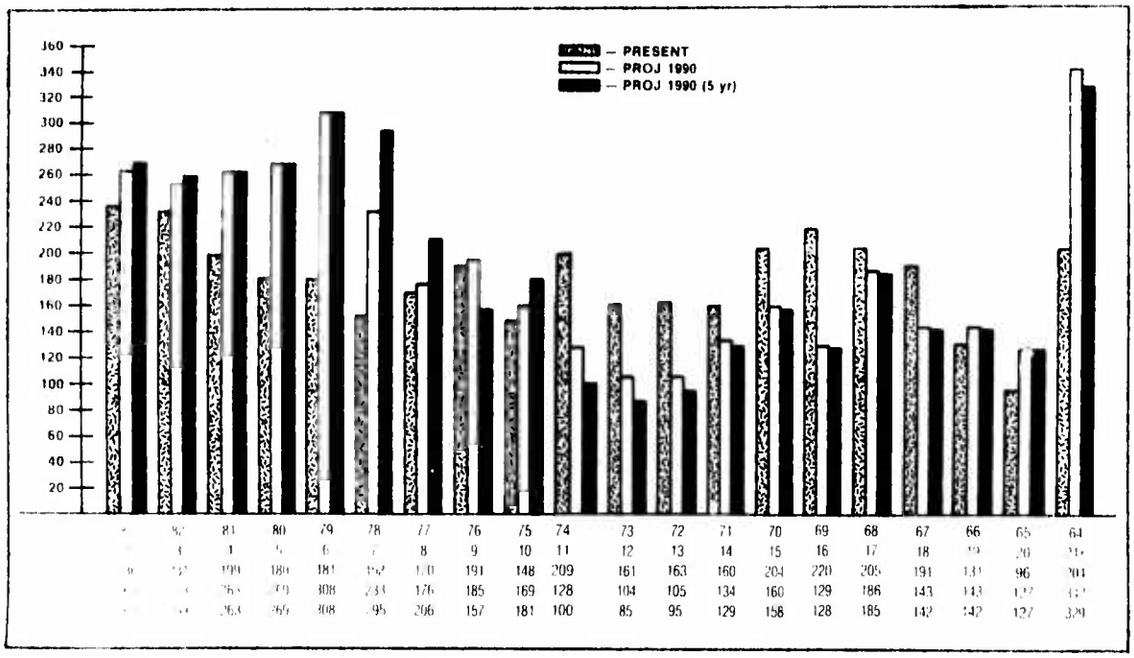


Figure 3-1 Strategic Airlift Pilot Inventory

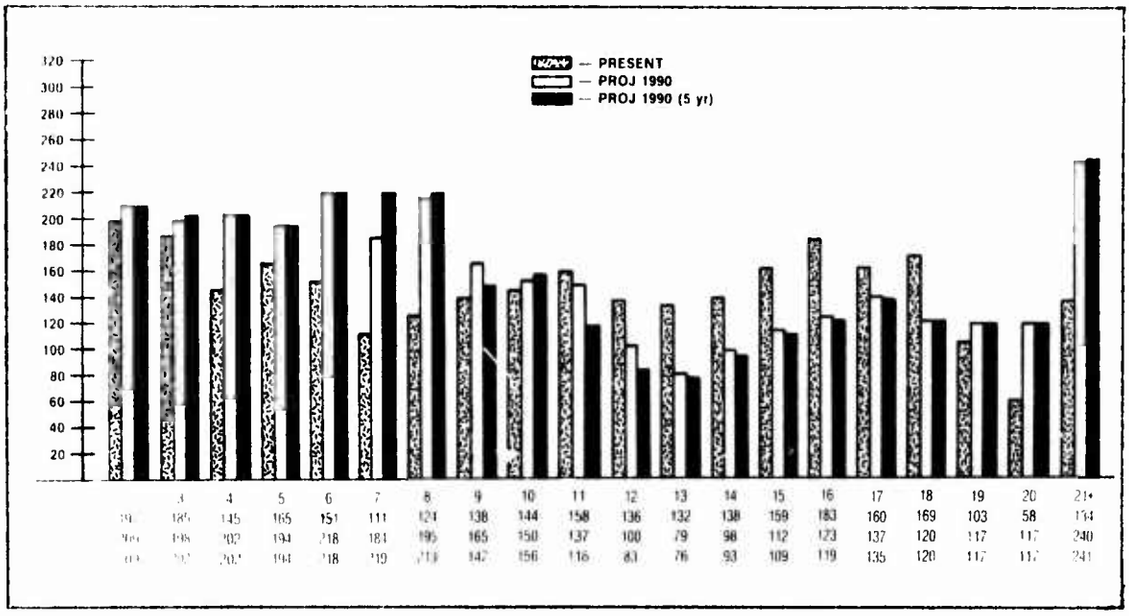


Figure 3-2 Tactical Airlift Pilot Inventory

Lowered experience and maximum absorption of new pilots appears to be a trend that will last into the 1990's. The charts show no

reprieve from current directions. The 1990 force picture shows continued emphasis on youth with a relatively low middle management grouping from which to select experienced personnel. The present day inventory numbers show the same dilemma. The projected numbers aggravate the situation and substantiate a definite pilot year group distribution problem. Graphically, the low numbers of middle management personnel within the 6 to 11 year groups show low accessions in the late 1970's and early 1980's. This, of course, coincides with the poor retention existing during the same time frame. Looking at the projected 1990 force, there begins to be a slight recovery in the 6 to 8 year groups. However, the 9 to 15 year groups, consisting of the senior captains and majors needed for the experience required overhead positions and squadron level instructor and flight examiner positions, are even worse than today. Emphasis will be placed more on training because of the youth present within the airlift crew force. Across the board adjustments will be required to accomodate manning line unit experience requirements. A briefing given to CINCMAC on the status of the airlift pilot crew force explained forthcoming problems,

> Look how much smaller the middle management has dwindled [sic]. We're not going to have the captains and majors to fill overhead positions we do today, and with the emphasis on training that will still be prevalent then we will have even more difficulty getting them off the line. Use of deferred officers will by necessity change. We'll have to man our staffs with more senior people. ...This middle management void is something we must begin dealing with today,... (14:--)

The examples given reinforce the need for a well defined manning plan for the C-17.

This chapter has discussed present concern over line unit experience levels within the airlift system. Experience declines continue to present personnel and operations managers and leaders with seemingly unanswerable force stability and pilot absorption problems. Pilot aging in OSA/EDSA systems will help the problem to a small degree, but an experience imbalance will be present throughout the FYDP. This was evident by the large gap present in middle management personnel as seen by the year group distribution of the strategic and tactical airlift pilot inventories. Aging today's force through 1990, applying retention factors and adding programmed UPT production rates tells the general makeup of the airlift force that will be available in 1990. The experience shortfall can be foreseen and application of the force to meet the outyear airlift requirements will have to be planned and adjusted accordingly. Initial cadre selection will predominantly come from older pilots within the strategic and tactical airlift inventories. This can possibly present long range problems to the future C-17 pilot force if the lessons we learned from management of the C-5 crew force are not respected and heeded.

Chapter Four

A HISTORY OF C-5 MANNING PROBLEMS

The C-5A was the last major airlift weapon system acquired and past manning decisions made to crew it represent excellent examples for establishment of a viable manning plan for the C-17. The C-5 pilot force, as it currently stands, presents real personnel assignment problems. Many of those problems may have been avoided if the personnel community had adhered to consistent manning policies. However, historical information points to many policy alterations made to accomodate drastic changes in Air Force structure during the height of the Viet Nam era and the following drawdown. This chapter will first, briefly discuss those past decisions made in building the C-5 pilot crew force, followed by an explanation of how they contributed to the problems we now have with the C-5 pilot force. Then a critical look at today's C-5 pilot force will be presented. The results of those decisions present valuable personnel lessons learned and, to conclude, those lessons will be commented upon with emphasis given to their possible application to the C-17.

A history of the C-5 manning process, as it evolved over the past fifteen years, is important to understanding the need to establish a plan to man the C-17. That history is one of many changes--changes that have adversely affected the viability of the present day C-5 pilot crew force. As a result, the C-5 pilot force is largely a stagnant entity incapable of sustaining itself (14:--). The purchase of 44 PAA C-5B's would have presented the active force substantial manning problems if it were not for the transfer of an equal number of C-5's to the ARF. The transfer will still cause some active force experience loss as the reserves will need to draw from active pilots. Force sustainment is vital to continued capability of a weapon system, but because of stagnation within the C-5 crew force it cannot sustain itself without external input of experienced pilots. This problem is a direct result of past manning policies.

Looking back at past decisions will shed some light on the process that made the C-5 a stagnant force. The minutes and recommendations of a C-5 pilot symposium held in 1982 presents an excellent summary of C-5 manning from 1969 to 1979:

> From 1969 to 1971, pilots entering the C-5 program were required to be previously qualified as an aircraft

commander (AC) in a heavy jet aircraft (C-141, C-135, B-52, B-47, etc.) if they were to become C-5 AC's. Copilots required previous qualification in a four engine aircraft (C-124, C-130, C-118, etc.) During the Southeast Asia drawdown (1971-75), new pilot inputs were required to have more than 1000 hours.

Then in Feb. 1976, CINCMAC directed that pilot inputs to the C-5 be limited to experienced C-141 aircraft commanders. That decision was made at a time when the C-141 was overmanned and able to absorb the drain on pilot experience. Since that time, overmanning of the C-141 and the resource of experienced C-141 pilots disappeared. Other factors had a bearing on manning policy revisions. These include:

- Increased training costs
- Accelerated pilot flow through the C-141 causing decreased tour lengths when AF policy was to increase tour length and save PCS costs.
- Increased availability of highly experienced ex-MAC C-124, C-133, and C-135 pilots.
- Options for crossflow between tactical airlift C-130's and strategic airlift.
- Lack of opportunity for experienced ATC First Assignment Instructor Pilots (FAIPs) to fly the C-5.

As a result, in June 1977, CINCMAC changed the C-5 pilot manning policy to allow experienced MAC multi-engine pilots into the C-5 (including C-130 pilots). Other pilots with at least 1600 total hours were allowed in. However, in all cases, selected pilots should be career officers, have good records, and possess promotion potential.

In 1979, the RDTM subcommittee lowered the number of hours required to 1300 total. This action increased the number of individuals available and caused a rapid increase in C-5 manning and a drop in the experience level. (8:1)

As inputs continued to the point of overmanning, a fast flow of pilots through the weapon system was established as they were selected for a fair share of Air Force assignments. This was a short lived luxury as the advent of the C-5 wing life problem and its related training profile restrictions made experience and proficiency levels of the assigned pilots more important. To retain high experience levels within the pilot force, a three year controlled tour in the C-5 was established in 1980 (11:2). Also, inputs for 1981 and 1982 were reduced in an attempt to stabilize the crew force. Close monitoring of outbound assignments was established to maintain high experience levels. Each decision, made to either enhance the available pool of pilots or to maintain

experience, culminated in promoting the stagnation and unsalability of the C-5 pilot force.

How did these decisions collectively contribute to the personnel problems facing the C-5 pilot crew force today? It is not a new argument to point out that the C-5 aircraft is a highly complex weapon system and that it requires more experience to upgrade to aircraft commander. "MAC experience with the C-5 has shown that due to the complexity of basic systems and associated emergency conditions, a relatively high upgrade point to aircraft commander is required (2000 hours total time)" (3:31). The early entry requirements pointed to previous heavy jet or four engine experience, then progressed to experienced C-141 aircraft commanders. As C-141 pilots became scarce the requirement was reduced to a 1,600 total flying hour prerequisite and then reduced again to 1,300 hours total flying time. The entry requirement, even as it now stands, is very high and calls for the input of a pilot with extensive flight experience. The C-5 has not grown its own experience. With the exception of only eight UPT graduates assigned in 1980, every pilot assigned has had extensive flying experience. In very general terms, the pilot selected for C-5 duty probably needed a career broadening tour outside of flight duties. This is, of course, not true in every case, but it is the dominant perception and it does seem hard to dispute past promotion track records of those assigned to the C-5 that did not receive that opportunity. When entry requirements were reduced to 1300 hours and overmanning was present there was a healthy flow through the C-5 crew force and some pilots were afforded career broadening assignments. However, when wing life problems caused the flow to stop the crew force was theoretically held captive to the high experience requirements. Career stagnation resulted and today the C-5 force presents personnel managers many problems.

The present C-5 crew force is heavily retirement eligible (approximately 40%) and characterized by the large presence of deferred officers. These problems, brought about by the inability to establish any semblance of force sustainment, present personnel managers with significant concerns. Maintenance of the high experience level necessitates the continued assignment of our most experienced pilots. This caused recurring and revolving problems of seniority in the force. Personnel managers have attempted to remedy the seniority problem as best they can by assigning FAIPs and other pilots that are not identified with major weapon systems. These pilots were assigned by a board of officers at Headquarters Air Force Manpower and Personnel Center (AFMPC). Those pilots selected for the C-5 were usually not quality inputs, as explained in a 1982 point paper from the MAC Deputy Chief of Staff for Personnel:

> During the last four years, new pilots assigned to the C-5 weapon system have come primarily from the FAIP/OTHER process. This is in effect an assignment board that selects an individual for major weapon system training

based on the merit system. While we agree this system rewards an individual for past performance, the yardstick used to measure this performance is the officer's record. The individual's record is certainly an indicator of officer performance and potential, but may not reveal the true flying record. Specifically, an individual's flying record (Q-1s, Q-2s, Q-3s) is not considered in the assignment equation. Since the C-5 has not historically finished high as a favorite by FAIP/OTHER (due to less flying time, longer upgrade period, rank structure of the force, etc.), the individuals selected for the weapon system in some cases have not had the strongest of flying credentials. ...Two other groups of individuals are presently being looked at for possible C-5 assignments. MAC is considering the C-5A and C-5B as a UPT acceptance aircraft (this to be decided at a later date) and using the T-38 program for first assignment pilots as a C-5 lead in program... (15:3)

Making the C-5 UPT acceptable has been an on-going argument. Wing deficiencies prohibited the opportunity to assign new graduates because of reduced flying hours available and the constrained training restrictions levied on the aircraft to extend the wing life. However, after much deliberation MAC has finally decided to assign a limited number of UPT graduates to the C-5 starting in 1986. This, coupled with younger inputs from the CT-39/OSA systems, has started a rejuvenation process for the C-5 pilot crew force. Lack of young pilots flowing into the system and providing a firm base of youth upon which the C-5 can sustain itself caused a senior force to accumulate. Stagnation also caused the force to be represented by a large number of deferred officers.

The numbers of deferred officers in the C-5 pilot ranks indicate deep problems within that crew force. In 1984 MAC conducted a study of the "in place" C-5 pilot crew force. One specific area of concern was the presence of high numbers of deferred officers. This interest, although not initiated by, was highlighted in the 60th Military Airlift Wing (MAW) Commander's end of tour report in February 1984. In his letter he states,

> A combination of low utilization rate, low flying time, assignment stagnation, and poor management by MAC and the Air Force has made it extremely difficult for C-5 pilots to get the jobs they need to be promoted. At Travis, we rely on a relatively stagnant force of lieutenant colonels and majors (40 to 50% passovers) to supply the stability and maturity we need. (16:ATCH 3)

This strong statement pointedly indicates the scope of the problem. The following numbers are the result of a study in preparation for a C-5 aircrew manning working group held in April, 1984 (10:1). The rank structure and percentage of each grade that is deferred is

presented. They include the line C-5 pilot force, wing and below.

CAPT---	44%	Deferred---	18%
MAJOR--	36%	" ---	37%
LTC----	20%	" ---	25%
TOTAL--	100%	" ---	28%

In comparison the C-141 and C-130 forces were:

C-141

LT-----	27%	Deferred---	<1%
CAPT---	50%	" ---	2%
MAJOR--	13%	" ---	13%
LTC----	10%	" ---	32%
TOTAL--	100%	" ---	8%

C-130

LT-----	28%	Deferred---	<1%
CAPT---	51%	" ---	3%
MAJOR--	15%	" ---	31%
LTC----	6%	" ---	17%
TOTAL--	100%	" ---	9%

(7:--)

Three factors are noteworthy; the absolute lack of lieutenant presence in the C-5, the 28 percent deferred rate in comparison to the 3 and 9 percent for the C-141 and the C-130 respectively and the high percentage of field grade officers in the C-5. Lack of UPT inputs accounts for the absence of lieutenants. Numerous factors caused the high passover rates.

The disturbingly high passover rate in the C-5 pilot force can be simply explained. The preceeding paragraphs enumerate the entry requirements and wing life management policies that ultimately led to the stagnation of the force. In my opinion, another contributory factor was the doubtful quality of many of the officers assigned. As alluded to earlier, the C-5 was not perceived as a popular assignment and in sending pilots to that crew force quality screening was not a prerequisite. Officers were assigned with poor or mediocre records which were perpetuated while they were held in the crew force. They came to the system unpromotable and low manning levels coupled with the high experience demand caused assignment deferrments. The culmination of these factors resulted in an unsalable pilot crew force consisting largely of senior, deferred, and retirement eligible officers. Failure in past management of the C-5 pilot crew force should serve as an excellent example for managers and leaders. That failure should stress the need to approach C-17 manning policy with consistency and appreciation for the lessons learned.

Even though experience management will be the key factor in manning the C-17, problems that arise from front loading a new system with only very experienced inputs can not be ignored. Relatively speaking, the high experience requirements for C-5 entry never declined after the initial force was built and the aircraft became operationally capable. Older, experienced pilots were input from the bottom and stagnated until retirement. An assignment flow was virtually non-existent, partially because of the need to capture and maintain very high experience and also because the lack of career broadening opportunity inevitably destroyed the marketability of assigned pilots. If a pilot force is to sustain itself it must be able to grow at least some of its own experience. C-5 managers were never really able to accomplish that. This is one lesson that must be applied to C-17 management. After the initial cadre requirements have been met managers should begin inputing UPT graduates to build the base of youth needed to grow C-17 experience. This base of younger pilots is essential to the establishment of an assignment flow. Experience maintenance during the early years of operational capability can be effected by pilots assigned from other weapon systems.

The C-5, at one time, relied heavily upon the C-141 force for its new inputs. The C-17 will not be able to, and should not, rely on a single source-- a wider range of available pilots must be used. Because of its inter and intratheater mission the C-17 can be manned by both strategic and tactical airlift pilots. The capability of the MAC pilot experience base to man all airlift weapon systems will determine the amount of support needed from other Air Force pilot resources. Unlike the C-5, the C-17 will more likely be considered a "choice" assignment and interest among the pilot force will be high. This will allow the C-17 crew force to be comprised of a more representative cross section of pilots from all airlift systems.

Availability of pilots must be closely scrutinized to avert the past and present problems associated with the C-5 pilot force. Avoidance of harmful reduction in experience levels of all other airlift systems is imperitive. The C-5 represents the best example, in a program review of 60th MAW C-5 training this interesting comment was made:

> In the process of this review, and after talking with senior aircrew managers, it was very apparent that the current lower experience level of pilot inputs to the strategic force requires "rethinking" of our overall training procedures, methods for initial upgrade, and currency requirements. Also, it may well be appropriate to again utilize the C-141 experienced pilot resource for the conversion to the C-5 aircraft. (12:12)

The C-5 pilot force has not recovered from the effects of its inability to sustain itself and continued reliance upon the C-141

pilot force experience in the mid 1980's has been dramatically curtailed because of C-141 experience shortages. Both systems would ultimately be hurt by this proposal, the C-141 because of the drain on its experience, and the C-5 because it would remain unable to build its own. This problem must be avoided in the C-17 by drawing initial experience from across the entire airlift spectrum, but more importantly, young pilots must be introduced into the aircraft as soon as feasible.

In this chapter the history of the current C-5 pilot force was discussed with emphasis given to its stagnation and unsalability. A comparison of passover rates and rank structure of the C-5, C-141, and C-130 pilot forces also portrayed major C-5 problems. The lessons learned from the C-5 manning experience lends credibility to the need to establish a balanced plan for manning the C-17. The application of that experience can avert future pilot force problems.

Chapter Five

NEED FOR A DEFINED C-17 MANNING PLAN

Experience management will be the key to manning the C-17 and other airlift systems in the early 1990's. Concerns will be centered around training and mission capability as pilots are tasked within the airlift system to support the high experience requirements of the C-5, the remaining C-141 and C-130's and the new C-17. Overall airlift mission requirements have become more sophisticated and the pilot force should reflect those changes. Mission accomplishment is even further complicated by present day pilot absorption and the decreased experience base within line units. Planners will need to address all of these factors in preparation for C-17 operations. This chapter will first review pilot experience concerns with application to the early 1990's. The need to adjust the present RDTM experience definitions to reflect the evolution of the airlift mission will also be addressed. Also, the increased presence of youth within the airlift systems necessitates an increase in the manning levels of training personnel and should become a top priority. Chapter four outlined problems within the C-5 pilot force and in this chapter further consideration will be given to the use of those past experiences in the preparation of the final C-17 manning plan. Examination of the force structure proposed by the AMP will then outline specific problems with experience management. This is especially important as a result of the increase in C-5 aircraft and the subsequent ARF transfer plan. Finally, a review of the programmed 180 PAA C-17 acquisition will outline the need for a concerted plan to man the active force requirement of nearly 1000 pilots. The presence of an experience base upon which to build, is the stem of any preparatory plan for manning a new aircraft.

MAC's mission has become more complex over the past few years. Experience concerns within the command became more discernible as execution of the airlift mission became more specialized. The MAC statement in the Readiness Objectives/Constraints and Concerns chapter of the Rated Management Document states the situation very well,

> ...MAC is responsible for accomplishing airlift services during peacetime in a manner that will promote the emergency and wartime capability of assigned forces and insure support of all DOD components. The task of meeting these responsiblities has been compounded by an aging

> aircraft inventory and the need for more specialized mission capabilities. The demand for a qualified and experienced aircraft commander and instructor force is basic towards meeting these responsibilities. (4:2-2)

The experience problems outlined in chapter three are currently plaguing the airlift force and are working against the attainment of increased experience within line units. The MAC statement further explains,

> Overabsorbing new pilots into MAC systems is reducing the stability of the experienced force and aggravating the capability of achieving and maintaining special mission requirements in airdrop, aerial refueling, and special operations low level. In order to maintain necessary upgrade capabilities in the future, a minimum of two years stability is required for the aircraft commander force. (4:2-2)

The problem has been identified, but, to date, MAC has been unable to implement a remedy. In fact, mainly because of increased specialization, MAC has initiated a review of the RDTM experience standards. Increasing the experience standards will exacerbate the problem, but it is an essential maneuver to protect future mission capability.

The RDTM experience standards, listed in chapter three, were established to insure that the necessary number of pilots were available for upgrade to aircraft commander. These standards have remained unchanged since the early 1970's; however, mission requirements such as aerial refueling in the C-141 and specialized performance minimums for C-141 and C-130 Special Operations Low Level missions have changed dramatically. Airlift experience definitions have not kept pace with mission demands. Higher experience parameters are needed to reflect true mission requirements and then management actions to meet those standards must be rigidly enforced. This is vitally important, not only in view of mission needs, but also for manning support of future force requirements. If future requirements are to be met, training resources will need top priority.

In 1984 the MAC training line manning, consisting of all wing, squadron and transition training unit instructor pilot and flight examiner personnel, was far below other commands by comparison. MAC training line manning stood at 80% while the Tactical Air Forces and Strategic Air Command were manned 93% and 95% respectively (14:--). In the past the MAC training line was being manned "to need" and not authorizations because the large influx of new pilots did not occur and increased training capability was not required. However, since beginning overabsorption, the training line needed to be rebuilt to accomodate the training increase. Additionally, recent authorization increases in both tactical and strategic airlift

schoolhouses caused resource managers significant manning problems. Absorption has increased the importance of training while at the same time decreasing the stability of the experienced line crew force. A MAC/DPR point paper provides the recovery direction needed.

> Because of rapidly declining pilot experience levels...resource managers will be closely scrutinizing assignments out of rated duties and out of the command. We will be limiting access to the rated supplement and will man the force line before staff assignments. AFIT eligibility, although not discontinued, will also be closely monitored to limit the loss of experienced personnel. In the past, large numbers of MAC pilots...have been committed to duties outside the command. In view of our experience limitations, we will need to restrict that kind of movement in the future. (13:4)

These actions will inevitably cause overmanning in the line units and must be carefully managed to preclude development of problems similar to those encountered with the C-5 pilot force.

Repeat of similar C-5 stagnation problems must be avoided when the C-17 is built. The high C-5 experience standard is a major cause of pilot stagnation and the advent of wing life troubles facilitated the problem. To avoid recurrence of these problems C-17 mission requirements must not preclude the assignment of recent UPT graduates. The inability of the C-5 to sustain itself by growing its own experience is a major lesson to be learned and applied. Entry of initial assignment pilots must be established as early as possible. Their entry will also help relieve the large "bow wave" loss of experience needed for the 120 tentative initial cadre requirements. Once again experience management becomes the central concern.

Across the board, experience availability for all airlift systems will drive the actual 1990's manning plan for the C-17. The projected pilot distribution for strategic and tactical airlift, figures 3-1 and 3-2, graphically portrays the resources that may be available in 1990 depending on retention. The proposed AMP force structure will heavily impact pilot requirements for each system as well as pilot retention. The active force pilot requirement, as already discussed, depends upon the number of aircraft dedicated to either active or associate units and the crew ratio assigned. Retention, as always, remains more of an enigma. As airlift assets are transferred to the ARF the possibility of lowered retention becomes more of a reality. The ARF, to a large degree, depends upon the pool of active force pilots for their recruiting endeavors. Future ARF forces will be significantly larger and will be comprised of a much wider array of airlift systems. The loss of active force C-141 and C-5 pilots and possibly C-130 pilots to meet the ARF's new

C-5 commitment may prove to be significant. Therefore, the impact of the force mix is important to the the active force in terms of retention and the ability to man existing active airlift systems while, at the same time, projecting C-17 manning.

In chapter two the overall C-17 requirement was established as 180 PAA aircraft, 132 of which will drive active force manning needs. The other 48 aircraft, assigned to reserve forces, will also draw pilots from the active inventory. In this situation, in addition to the factors cited above, the potential reduction of active force pilot strength is unknown. Close scrutinization of airlift pilot manning levels will obviously be needed. If retention drops to late 1970's levels, the impact will be much worse than we have seen in the past few years. The large Viet Nam era pilot surplus is no longer available to backfill line unit losses. Force planning and trend observance becomes more critical as a result of these unknown variables. The projected 1990 inventory of airlift pilots becomes the foundation for manning all future airlift systems.

The C-17, as designed and advertised, will conduct inter and intratheater airlift. The tactical and strategic missions meld together. Filling approximately 1000 active force line pilot requirements for the C-17, including wing overhead, will present a substantial challenge. Remaining active force C-141 and C-130 pilot requirements will also demand attention. Meeting the C-17 requirement will necessitate a mixture of tactical and strategic expertise. As C-17 mission requirements become more defined, planners can evaluate the existing crew force and devise the long-range manning plan that will meet the operational needs of all airlift systems. Even though the C-141 and C-130 pilot resources presently support higher experience requirements within strategic and tactical airlift systems, they both represent the majority of C-17 inputs. For example, the C-141 has been the crutch of the C-5 force in recent years and if the C-5 remains unable to regenerate its own experience, the C-141 will probably remain it's primary source of pilots. On the other hand, the C-130 provides experienced pilots for MC-130 force growth. The strategic and tactical airlift pilot inventories nearly mirror each other in distribution and an equal representation of each to support the C-17 pilot force will, in all likelihood, be required.

The C-17 is a necessary addition to the airlift force. It is needed not only to offset the airlift shortfall, but to also provide for future force modernization. Manning this new system becomes another concern that must be realistically inspected in respect to pilot experience levels and the ability of the airlift pilot force to support the requirement. This study provides a look at experience management concerns within the airlift pilot force by examining the current and projected strategic and tactical airlift pilot force inventories. Application of answers to these concerns is important to MAC's ability to man airlift requirements in the

early 1990's. Building line unit pilot experience to maintain RDTM standards is vital and experience management will, by necessity, become harsh in terms of assignment opportunity. However, as evidenced by present C-5 pilot force problems, assignment and career broadening opportunity can not be totally disregarded if the airlift pilot force is to remain viable.

The factors above define the inescapable need to develop a comprehensive manning plan for active force C-17's and other airlift assets in the early 1990's. There are many variables and unknowns, but consistent application of experience gained from C-5 pilot force management can preclude serious follow-on pilot force problems. Finally, to fair-share available experience, the C-17 will need to be manned by a representative cross section of all airlift pilots with emphasis placed on the importance of early introduction of first assignment UPT graduates.

BIBLIOGRAPHY

Articles and Periodicals

1. Ulsamer, Edgar. "The Airlift Master Plan." Air Force Magazine, Volume 1, Number 5 (May 1984): pp. 58-65.

Official Documents

2. U.S. Department of the Air Force. U.S. Air Force Airlift Master Plan. Washington D.C., 29 September 1983.

3. U.S. Department of the Air Force. Rated Distribution and Training Management Executive Committee Report, Volume 1. Washington D.C., August 1978.

4. U.S. Department of the Air Force. Rated Management Document, 13 March 1984. Volume 1. Washington D.C., March 1984.

5. U.S. Government: Office of the Secretary of Defense. Annual Report to Congress. Washington D.C.: Government Printing Office, February 1984.

6. U.S. Government: The Organization of the Joint Chiefs of Staff. Military Posture FY 1985. Washington D.C.: Government Printing Office, Undated.

Unpublished Materials

7. Daggitt, Michael M., Captain, USAF. Chief, Strategic Airlift Manning Section, Directorate of Assignments, HQ Military Airlift Command. "C-5 Manning Update Briefing." Briefing presented to a C-5 Aircrew Manning Working Group, Travis Air Force Base, California, 23 April 1984.

8. Harris, Larry H., Major, USAF. "Decline in Officer Aircrew Experience." HQ MAC/DPROA Point Paper, 11 January 1985.

9. HQ Military Airlift Command Directorate of Aircrew Standardization and Evaluation (HQ MAC/DOV). Minutes of C-5 Pilot Symposium, Phase II, 30 March - 2 April, 1982.

10. HQ Military Airlift Command Directorate of Aircrew Training and Resource Management (HQ MAC/DOT). "C-5 Aircrew Manning Working Group." Message 261940Z, March 1984.

CONTINUED

11. HQ Military Airlift Command Directorate of Assignments (HQ MAC/DPR). "C-5 Pilot Force Management." Message 072202Z, May 1982.

12. HQ Twenty-Second Air Force, Military Airlift Command. "22nd Air Force Review of the 60th MAW Aircrew Training Program." February 1984.

13. Kaufman, Robert. Lt Col, USAF. "Decline in Officer Aircrew Experience." HQ MAC/DPRO Point Paper, 19 December 1983.

14. Klazynski, George J., Major, USAF. Chief, Assignment Control Division, Directorate of Assignments, HQ Military Airlift Command. "Pilot Utilization and Experience Update Briefing." Briefing presented to the Commander in Chief Military Airlift Command, Scott Air Force Base, Illinois, 22 August 1984.

15. Ramos, Antonio J., Major, USAF. "C-5 Pilot Selection Criteria." HQ MAC/DPROA Point Paper, 19 March 1982.

16. U.S. Department of the Air Force: HQ Military Airlift Command (DP). "C-5 Aircrew Manning Concerns." Staff Summary Sheet. Scott Air Force Base, Illinois, 20 March 1984.

17. U.S. Department of the Air Force: HQ Military Airlift Command (DP). "Aircrew Tour Length Extension." Staff Summary Sheet. Scott Air Force Base, Illinois, 23 April 1984.

18. U.S. Department of the Air Force: HQ Military Airlift Command (DP). "Air War College Curriculum Update." Staff Summary Sheet. Scott Air Force Base, Illinois, 12 April 1984.

19. U.S. Department of the Air Force: HQ Military Airlift Command (IG). "BROAD LOOK Status Report." Staff Summary Sheet. Scott Air Force Base, Illinois, 10 January 1984.

20. U.S. Department of the Air Force: HQ Military Airlift Command (XP). "U.S. Air Force Airlift Total Force Plan." Scott Air Force Base, Illinois, 20 July 1984. Draft.

CONTINUED

21. U.S. Department of the Air Force: HQ United States Air Force (RD). "C-17 Utilization Rates." Staff Summary Sheet. Washington D.C., 21 October 1981.

22. Wooten, James P. "The C-17 Cargo Plane and the Airlift Shortfall." Congressional Research Service, The Library of Congress, Issue Brief Number IB84099, Washington D.C., 9 May 1984.

Other Sources

23. Dukes, Ronald E., Lt Col, USAF. Chief, Instructional Systems Division, Directorate of Aircrew Training and Resource Management, Military Airlift Command, Scott Air Force Base, Illinois. Telecon, 28 November 1984.

24. Mills, William H., Major, USAF. Assistant Chief, Rated Force Analysis, Directorate of Assignments, HQ USAF Military Personnel and Manpower Center, Randolph Air Force Base, Texas. Telecon, 15 November 1984.