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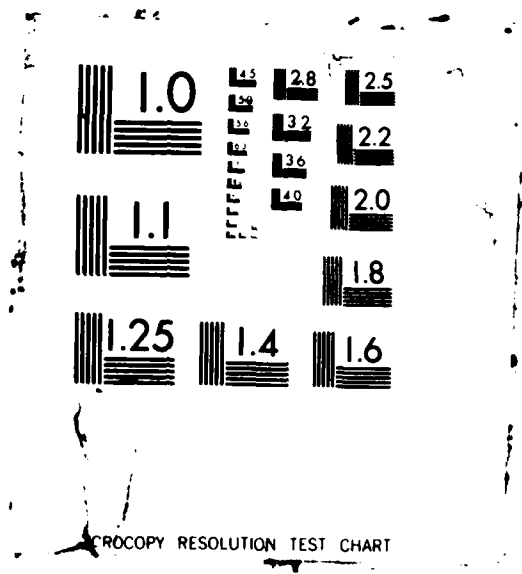
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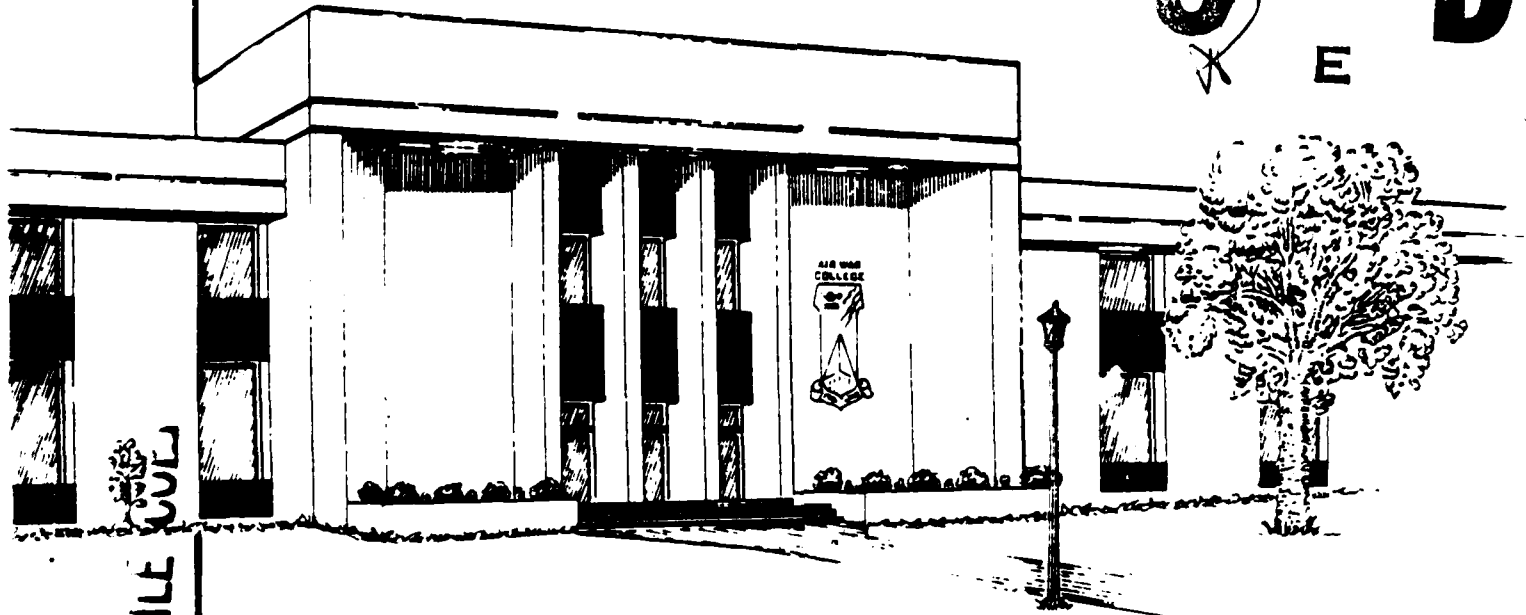
## RESEARCH REPORT

No. AU-AWC-86-033

FIGHTER TRAINING IN THE YEAR 2000

By LT COL ROBERT E. BRYAN

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AIR UNIVERSITY  
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AIR WAR COLLEGE  
AIR UNIVERSITY

FIGHTER TRAINING IN THE YEAR 2000

by

Robert E. Bryan  
Lieutenant Colonel, USAF

A RESEARCH REPORT SUBMITTED TO THE FACULTY  
IN  
FULFILLMENT OF THE RESEARCH  
REQUIREMENT

Research Advisor: Colonel Glenn T. Caldwell

MAXWELL AIR FORCE BASE, ALABAMA

May 1986

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AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: Fighter Training in the Year 2000

AUTHOR: Robert E. Bryan, Lieutenant Colonel, USAF

The problems of selecting and training pilots for the tactical air forces is the main focus of this study. A history of the fighter training process is provided as background information to the development of the Lead-in Fighter Training (LIFT) program currently in operation at Holloman AFB, New Mexico. The pilot selection process for fighter pilots is described and three major flaws in the system are outlined. The author's solution to these problems is to expand the LIFT program. The expanded program and the advantages gained by the expansion are discussed in some detail. In addition, the formation of a new Tactical Fighter Training Center is recommended to include the expanded LIFT program and Tactical Air Command's Aggressor operation currently located at Nellis AFB, Nevada. The last chapter describes the new multi-role fighter/training aircraft required for the operation and highlights the benefits of such a procurement to the tactical air forces.

## BIOGRAPHICAL SKETCH

Lt Col Robert E. Bryan (B.S., Aero Engr., University of Kansas) entered the Air Force at Vance AFB, Oklahoma and received his wings in August 1967. His first operational assignment was in F-100s, 612th TFS, Phu Cat AB, RVN. Upon his return he completed pilot instructor training and was stationed at Laughlin AFB, Texas until January 1972. He then returned to Southeast Asia via F-4 RTU and was stationed with the 34 TFS at Korat Royal Thai Air Base, Thailand until April 1973. Completing his second SEA tour, he was assigned to the 43 TFS in the F-4E at Elmendorf AFB, Alaska. During his four years in Alaska he held the positions of Flight Commander, Chief of F-4 Wing Stan Eval Division, and Chief of F-4 Operations, Alaskan Air Command. In 1977 Lt Col Bryan was assigned to the 4485 TEST Squadron at Eglin AFB, Florida as an F-4 operational test and evaluation pilot. He converted to the F-15 and served as assistant operations officer, F-15/F-16 operations. In February of 1983 he joined the 4450th Tactical Group at Nellis AFB, Nevada until he was selected to command the 433d TFTS (Satan's Angels) at Holloman AFB, New Mexico in August 1983. Lt Col Bryan is a command pilot with over 4,500 flying hours, 400 combat missions, and over 830 combat hours. Numerous decorations include the Silver Star, Distinguished Flying Cross with 4 OLC, Meritorious Service Medal with OLC, Purple Heart with OLC, and Air Medal with 26 OLCs. Lt Col Bryan is a graduate of the Air War College, class of 1986.

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## CHAPTER I

### INTRODUCTION

In an address to the assembled members of the 479th Tactical Fighter Training Wing in October 1984, the commander of the Tactical Air Command, General William Creech stated that, "the lead-in fighter training (LIFT) conducted by you in this room is the best paying program I have in TAC." What he meant by that statement was the LIFT program was more productive in terms of flying sorties and training provided for the least number of dollars spent than any flying operation in TAC. As the Air Force prepares to move into the year 2000, what is to become of this admittedly vital program?

Lead-in fighter training is now being conducted in an aging, modified T-38 jet training aircraft that is approaching 30 years of age. In spite of efforts to extend the life of the aircraft to the year 2010 through structural modifications, the technology and performance gap will continue to widen between this transition vehicle and the complex weapons systems of the next decade. (1:3) While this gap does not necessarily translate to a negative learning environment, it will certainly reduce the overall effectiveness of the fighter lead-in program.

This paper will address the solutions to this approaching problem and propose a complete reorganization of the tactical fighter training business. In the author's opinion, there is a much better and more efficient way to

select and train those pilots who will fly the front line tactical fighter aircraft of tomorrow. This paper will investigate the formation of a new and centralized fighter training facility, a re-allocation of training time from the follow-on fighter training unit to the LIFT program, and the acquisition of a new fighter/training aircraft to make the program more efficient.

## CHAPTER II

### THE HISTORY OF LIFT

As an aid to the reader a short history of the lead-in fighter training program and why it was established is in order. In the mid-1960s, as the requirement for fighter pilots began to increase, the personnel system began to draw upon those pilots who were in staff positions and those pilots currently flying bomber and transport aircraft to fill fighter cockpits. It was discovered that a large percentage of those pilots had a very difficult time making the transition because of the vast difference in the characteristics of the aircraft. The elimination rate, due to lack of proficiency and the accident rate of the fighter retraining units (RTU), became unacceptably high. To address this problem a six week fighter transition program was established using a modified T-33 aircraft. Using this medium performance aircraft, these pilots were exposed to the maneuvers and flight regimes where high performance fighters routinely operated. The program included some of the very basic air-to-air combat maneuvers and an introduction to the air-to-ground gunnery pattern. The program was a success and those pilots lacking the aptitude for fighter aircraft were reassigned saving valuable training time and resources. It was noted that the combined elimination rate remained about the same, but many of the problems were identified in the less expensive T-33 thus realizing a substantial cost savings.

The program was expanded to include those recent graduates of undergraduate pilot training (UPT) and a lead-in fighter training program was established at Holloman AFB, New Mexico in 1974. (2:56) The aircraft chosen for the program was the supersonic T-38 Talon which was the aircraft in use by the Air Training Command (ATC) as the advanced phase trainer. The aircraft was modified by adding a manual gun or bomb sight and a centerline station which was capable of carrying six practice bombs or a 7.62 millimeter cannon and redesignated the AT-38B. Except for the minor modifications noted, the aircraft was exactly the same as the UPT aircraft which provided the advantage of not having to qualify a recent UPT graduate in a new aircraft prior to starting fighter training. In a relatively familiar aircraft, the new fighter pilot was better able to concentrate on the task of learning new maneuvers and not learning a new aircraft at the same time.

The program, as currently structured, lasts 10 weeks and consists of 18 common or core missions. These core missions include such things as transition, formation, instruments, and basic fighter maneuvers (BFM). Approximately 14 additional missions are flown on each student tailored to the aircraft to which he is already assigned. In addition to flying, the student attends approximately 80 hours of classroom instruction on all types of fighter operations. (3:3-6)

## CHAPTER III

### THE FIGHTER PILOT SELECTION PROCESS

Upon completion of the fighter training course at Holloman AFB, a new fighter pilot departs for his assigned retraining unit to begin upgrade training in his previously assigned fighter aircraft. Unfortunately, he is frequently headed toward the wrong weapons system, and here-in lies the first major problem that could be solved with an expanded LIFT program.

As the assignment system is currently structured young pilots are selected for qualification in fighter and reconnaissance (FAR) type aircraft toward the middle of the advanced phase of training in the T-38. The timing is driven primarily by the momentum of the personnel system, and the time required to coordinate a follow-on assignment. (4:3) There are three major problems with this selection process.

1. The selection process is conducted far too early in the program. In many cases the FAR selection board must be convened prior to the student entering the more difficult phases of training such as two and four ship formation flying and the final instrument evaluation. (4:6) It is not unusual for a student pilot to arrive for the LIFT program with two or more unsatisfactory flight evaluations in the last two months of training. Experience has shown that, even with greatly increased supervision, these individuals have great difficulty in

the fighter training program. In most cases, even if these students are identified before leaving ATC, it is too late to do anything about it due to the constraints of the personnel system.

2. The FAR selection process is conducted, for the most part, by ATC instructor pilots with little or no previous fighter experience. It is difficult to make a judgement as to the suitability of an individual to fly fighters when you have only a vague idea of the skills required. Aside from assigning more experienced fighter pilots to ATC, which is another issue entirely, delaying the selection process seems to be the only answer to this difficult problem.

3. The final selection of the weapons system to which the FAR qualified student is assigned is made by the Military Personnel Center (MPC) at Randolph AFB, Texas. This agency has even less information than the FAR selection board to determine the suitability of an individual for fighter aircraft much less match him to a particular weapons system where he might excel. I will not enter the argument of different levels of skill required to fly different types of aircraft except to say that years of experience has proven the long held Air Force policy that pilots are universally assignable to any aircraft is incorrect. It must be stressed the fault does not lie with those individuals making the assignments but rather the time constraints and lack of adequate information to make the optimum selection.

## CHAPTER IV

### THE EXPANDED LIFT PROGRAM

The solution to those problems addressed in the previous chapter is an expanded LIFT program. An expanded LIFT program where the final weapons system selection is made would provide ATC more time to evaluate a student's ability to perform in high performance aircraft. The time constraints imposed by MPC in coordinating follow-on training would be eliminated. All students bound for fighter or reconnaissance type aircraft would be assigned to Holloman AFB in a permanent change of station status thus reducing the pressure on the personnel system to make these critical decisions too early in the training process. The final aircraft selection would be determined at some point in the LIFT program to be discussed later in this chapter. The selection would be made by experienced fighter pilots who are thoroughly familiar with what it takes to succeed in fighter aircraft. This selection would be made only after evaluating the students' performance in a wide range of tactical flying areas. The responsibility would be lifted from MPC for making the end assignment, and their role would be one only of coordinating Air Force requirements against training slots available.

The current fighter/reconnaissance training cycle is approximately eight months in duration: two and one-half months at LIFT and five and one-half months at fighter RTU.

What the author is proposing is a near reversal of this time allotment. Most of the task being taught at the ATUs could easily be taught in an expanded LIFT program using a less expensive aircraft, to be described in a later chapter. The primary role of an ATU would then change from one of completely training a new fighter pilot to one of transitioning a moderately experienced fighter pilot to a different weapons system. Purely from the standpoint of the ATUs and the tactical air forces this approach offers many advantages.

1. Because the student input to the ATU would be more fully trained and experienced, the training requirement tasked against first line combat aircraft and fully trained fighter pilots performing in the role of instructors would be greatly reduced. With little or no additional expense, units formerly dedicated to a training role could be brought to a fully combat ready status enhancing the overall combat readiness of the tactical air forces.

2. The overall quality of the fighter force would be greatly improved. Students that demonstrate certain key skills in the LIFT program necessary in performing a particular type of mission would be assigned and trained toward an assignment in the aircraft performing that mission. There are those that would argue this approach would in effect stratify and separate the tactical air forces much as the assignment system out of UPT did in times past. At that time most of the top ranked students went to tactical aircraft while those lower ranking

students went to multi-engine aircraft. This gave the impression that if you were in big airplanes you were less skilled than fighter pilots and created tension between the two. I would argue that skill level is not the important ingredient here, but skill type is the key factor. The ability to visualize and execute a complex approach and aerial attack against a ground target is not the same as that required to visualize and execute an attack against another aircraft. To be very good at one of these tasks does not necessarily mean that the other can be accomplished with the same ease. Comparing the quality of these skills is much like comparing apples and oranges. While not comparable, these skills are easily identifiable. Identifying and matching individual skills required for a certain aircraft would allow putting a square peg in a square hole and round peg in a round hole, optimizing the overall performance of the tactical air forces.

3. With a majority of the fighter training being conducted at a central location, standardization of training practices would be more effective than ever before. The RTUs and the gaining units would be receiving a known quantity specifically picked and trained to that weapons system.

4. A substantial savings could be realized in training cost by utilizing a less expensive aircraft for the majority of the training period. The average cost per flying hour of an F-15, for example, is approximately \$6,000 dollars as compared to a proposed cost of flying a new and less expensive aircraft

of \$2,000 dollars per flying hour. This savings translates into more than \$170 million dollars per year if 40 sorties per LIFT student are moved from an RTU to the LIFT program.

To examine how the expanded LIFT program would work, a brief description of the current LIFT program is provided in tables one and two for a typical air-to-air and air-to-ground LIFT student. Table one illustrates how the current LIFT program is structured and table two shows how it would be expanded to provide additional training time and include the decision process for final aircraft assignment. For an explanation of the abbreviations used in the tables refer to the glossary at the back of the text.

The LIFT program outlined in table one is representative of the current program. Sortie numbers and type may vary slightly depending on the experience level of the input and on mission requirements unique to the final aircraft assignment. Note there is no place in the program to match particular pilot skills to type aircraft. On rare occasions assignments have been changed due to an obvious mismatch of skill type and aircraft assigned, but the personnel system cannot handle these changes on a routine basis.

In contrast, the expanded LIFT program outlined in table two has several decision points available to match pilot skills and desires to the proper aircraft. At the end of a 22 sortie core block of training, those pilots best able to visualize maneuvering in the three dimensional arena

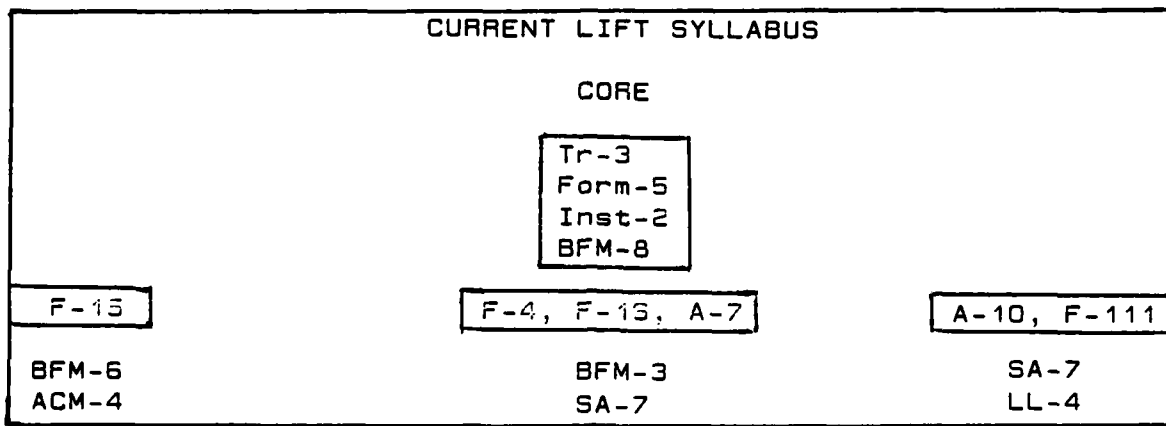
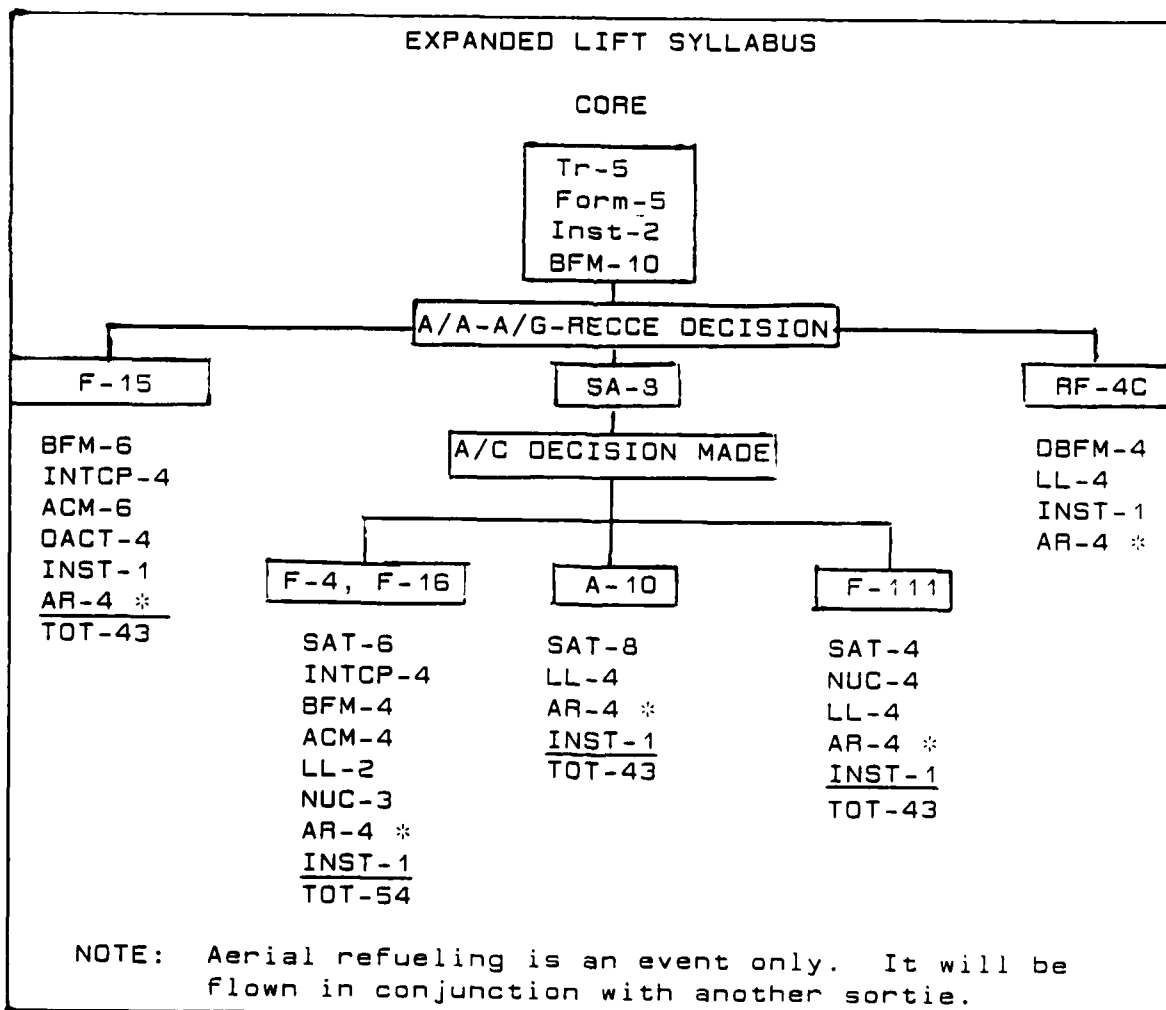


TABLE ONE



NOTE: Aerial refueling is an event only. It will be flown in conjunction with another sortie.

TABLE TWO

of the air superiority fighter can easily be identified and assigned to an aircraft performing that role. The decision to a dedicated reconnaissance aircraft would be a bit more difficult, but, with a thorough evaluation of aircraft handling skills matched against individual preference, an intelligent assignment is possible. This first division would occur approximately seven to eight weeks into the training cycle leaving more than adequate time for a final assignment. The final decision point for the air-to-ground aircraft would occur about two or three weeks later. The final decision in the air-to-ground aircraft would occur after an evaluation of six to eight ground attack sorties. The overall program is designed to put the right man in the right aircraft.

Because the LIFT program would be graduating a much more experienced and skilled product that has been specifically selected for his gaining aircraft, the time spent in the RTU phase of training could be drastically reduced. Only time and experience will tell for sure, but the program would probably settle about midway between the number of sorties now flown to train a new fighter input and the number of sorties flown by an experienced fighter pilot converting to the new aircraft.

Listed in tables three and four are the current and proposed F-15 (5:2-3) and F-16 (6:4-6) training syllabus. The tables have been abbreviated and do not show a complete break out of sortie types within each category. For more

# F-15 SYLLABUS

## CURRENT

TR-2  
FORM-3  
INST-2  
BFM-14  
INTCP-8  
ACM-8  
DACT-4  
DART-2  
DRSUP-33  
TOT-76

## REVISED

TR-2  
FORM-2  
INST-2  
BFM-6  
INTCP-4  
ACM-6  
DACT-3  
DART-2  
DRSUP-14  
TOT-41

## TABLE THREE

# F-16 SYLLABUS

## CURRENT

TR-7  
INST-4  
FORM-1  
INTCP-5  
BFM-12  
ACM-3  
DART-2  
NUC-6  
SA-11  
SAT-8  
DRSUP-35  
TOT-94

## REVISED

TR-5  
INST-2  
FORM-1  
INTCP-3  
BFM-4  
ACM-2  
DART-2  
NUC-5  
SA-5  
SAT-6  
DRSUP-16  
TOT-51

## TABLE FOUR

complete information refer to the referenced syllabus. The sortie reductions are, in most cases, directly reflected by an increase of specific task training in the LIFT program. As stated earlier, sortie reduction is also possible because the student has been carefully selected for duty in that aircraft. The overall result would be to maximize training and greatly increase the quality of the tactical air forces.

## CHAPTER V

### A NEW ORGANIZATION

To implement a greatly expanded LIFT program would require a complete reorganization of the current program. Because the new program would have such a tremendous impact on the nature of all fighter training, it follows that it should be under the direct control of the command charged with training and equipping the tactical air forces--the Tactical Air Command. This type of command arrangement would provide the necessary responsiveness and flexibility required to respond to changing developments in the fighter community which is now lacking. This lag in response time is currently due to the numbered air force and air division layers of command between the directing and implementing organizations. The solution to this problem is the formation of a new Tactical Fighter Training Center (TFTC) which reports directly to HQTAC. The structure and method of operations would be similar to the way the Tactical Air Warfare Center at Eglin AFB and the Fighter Weapons Center at Nellis AFB are currently operating. Both of these centers perform work that impacts all the tactical air forces and as such work directly for TAC, unincumbered by unnecessary layers of supervision.

What this author is proposing is the formation of a new centralized training facility to address those problems already identified in the LIFT program plus the solution to

another very serious problem, the Aggressor training mission. As the reader may or may not know, the Aggressors were originally formed as an elite group of air-to-air instructor pilots whose mission was to fly with and train other USAF tactical units in the art of air-to-air combat. The unit was formed at Nellis AFB under the control of TAC's Fighter Weapons Center. The unit began flying in the T-38 and later transitioned to the F-5 aircraft. These small aircraft were chosen because they closely resembled, in size and performance, the primary threat of the day--the Soviet MIG-21 Fishbed. Each pilot was carefully selected for the assignment based on his demonstrated skill in air-to-air flying, and everyone in the unit was highly schooled in Soviet tactics and method of operations. The idea behind this unit's mission was to expose USAF fighter pilots to a realistic threat so they would not be surprised the first time they encountered it in an actual combat situation.

The concept was highly successful as long as each member could be carefully selected for this specialized mission. In addition to good flying skills, a great deal of discipline was required to effectively accomplish the objective. If the Aggressors were 100 percent effective in training USAF pilots against Soviet tactics they would then lose every air-to-air engagement they fought, and that is a difficult fact to accept.

The burden of hand-picking each pilot for the Aggressor mission slowly became more than the system could handle

and eventually the Aggressor assignment was handled in much the same way as any other. This fact quickly manifested itself in a decreasing reputation and an increasing accident rate. In 1984 the Aggressor accident rate was 22.9 accidents per 100,000 thousand flying hours compared to a 3.2 rate for the remainder of TAC. According to the Fighter Weapons Center commander, the majority of these accidents were directly due to a lack of discipline. In a talk with the Aggressors he stated, "Something is terribly sick and terribly wrong. It's non-professionals flying airplanes that either exceed the airplanes capability or their own--or both--and leave wreckage all around TAC." Combining the Aggressor mission and the LIFT mission would once again provide a method of selecting pilots with that special combination of skill and discipline required to accomplish this vital mission. (7:1)

The basic organization of the TFTC should consist of seven flying squadrons plus an academic squadron and necessary support squadrons. Five of the flying squadrons should be dedicated directly to the LIFT mission, and the remaining two would perform the Aggressor function. To accommodate the increased number of students on station, due to the longer program, each squadron should be assigned 30 aircraft plus spares or approximately 240 aircraft for the Center.

This arrangement provides the perfect environment to identify the types of skills and maturity required to perform each of the TFTC's missions in the most efficient manner. An

incoming instructor pilot would ordinarily be assigned for a four year tour. All initial assignments would be as a LIFT instructor pilot for a minimum of two years. During that two year period, supervisors could easily identify those instructors with the required skills and self-discipline to perform the Aggressor mission.

This is only one of many methods of organization that could fulfill both mission requirements. Another might be to have an Aggressor flight within each squadron. The exact organizational make-up could be the subject of an entire study in itself. Whatever the organizational make-up evolves to, the basic advantages of having a pool of experienced pilots to choose from remains. The additional advantage of having this training function supervised by a training organization is also something to consider. At Nellis, the Aggressor was just one small part of a very diverse mission and may not have received the supervision it took to accomplish the job in the safest and most efficient manner.

In summary, the formation of a centralized training facility provides the Tactical Air Command the opportunity to greatly increase the effectiveness of training and, therefore, the readiness of those pilots bound for the tactical air forces. In addition it also provides a healthy and competitive learning atmosphere for those young fighter pilots assigned to instructor duty in competing for the coveted Aggressor position.

## CHAPTER VI

### A NEW AIRCRAFT

Neither the AT-388 nor the F-5 is a satisfactory aircraft to successfully accomplish the new proposed LIFT program and, at the same time, fulfill the needs of the Aggressor mission. Each lacks the necessary avionics and radar for the accurate employment of air-to-air or air-to-ground weapons and the AT-388 is not air refueling capable. To upgrade the F-5 avionics would be a very expensive proposition and the end result would still be a fairly low performance fighter/training aircraft. In addition, both of these aircraft are lagging in the capability to simulate a realistic Soviet threat required for the Aggressor mission. What the author is proposing is the procurement of a new low cost, multi-role training aircraft that is combat capable to fulfill both mission requirements. In addition to fulfilling the LIFT and Aggressor requirements, purchase of these combat capable aircraft would in effect provide the equivalent of three additional tactical fighter wings to the tactical air forces at a very moderate cost.

In response to a query from HQTAC about a replacement aircraft for the AT-388, the 479th Tactical Training Wing Deputy for Operations answered in a message that stated "The LIFT program should have the same aircraft as Air Training Command with additional systems for air-to-air and

air-to-ground training. It should be capable of at least simulating the employment of air-to-air weapons and be capable of dropping air-to-ground weapons." (8:1)

There was sound logic for using ATC's advanced trainer as a transition vehicle to tactical flying for all the reasons previously stated but, as ATC moves toward procurement of the T-46 for their advanced trainer, this logic quickly begins to break down.

Although the manufacturer was quick to announce a combat version of the T-46 aircraft, it would be acceptable in only the lowest intensity conflict and is not air-to-air capable at all. (9:67) The top speed of this small aircraft is only 315 nautical miles per hour. The low performance and small payload, coupled with a low survivability index in a scenario such as Central Europe, totally discounts the AT-46 as a useful aircraft to the United States tactical air forces.

The Air Force has contracted Battelle Laboratories of Columbus, OH to "conduct a study to define the training requirements for Undergraduate Pilot Training and Lead-in Fighter Training about the turn of the century." In a letter from HQTAC Deputy for Operational Training (DOC) to HQ Twelfth Air Force DOT, several of the essential performance parameters being used in the study are outlined. While not going into great detail, some of the performance characteristics called for such as a required climb rate of 27,900 feet per minute, sustained high speed cruise of 0.95 MACH at an intermediate

power setting, and capable of sustaining a minimum of 6.5 times the weight of gravity (G) airframe load factor at 15,000 feet would seem to indicate the requirement for a relatively high performance aircraft has been recognized.

There is currently an aircraft on the market that is highly capable of fulfilling both the LIFT and Aggressor mission requirements while affording the additional luxury of adding the equivalent of three tactical fighter wings to the tactical air forces--the F-20 Tigershark. It would appear the Air National Guard may already be moving to buy approximately 300 of these aircraft in an air defense role. In its Red Book Review the National Guard Association of the United States has recommended the National Guard should buy a minimum of 300, and the Air Force buy at least two squadrons of F-20s.(11:37) It would also appear there may be mounting congressional pressure for the Air Force to buy some as yet unspecified number of the F-20 aircraft. Senator Ted Stevens was quoted in the Wall Street Journal as saying to unidentified "top Air Force officials" the Air Force "was going to get some F-20s whether they like it or not." (12:32)

In this author's opinion, the time is right to get on board and press for the procurement of this new aircraft for both the LIFT and the Aggressor mission. The aircraft certainly exceeds every requirement for both missions. With its sea level rate of climb of 53,800 feet per minute, MACH 2 maximum speed and 9G maximum load factor, it rivals the

performance of the F-16 while the cost of ownership is less than half that of the F-16, extended over the life of the aircraft. (13:28) The initial cost of the aircraft is not inexpensive at the advertised price of \$15 million dollars per unit, but the price could probably be reduced by scaling down the avionics package for the LIFT and Aggressor mission. An Air Force buy of 240 of these state-of-the-art aircraft might also boost the confidence of foreign buyers; thereby increasing the quantity produced and possibly reduce the cost.

In these coming years of tight defense budgets the Air Force cannot afford to spend a single dollar that does not contribute directly to an increase in combat readiness. In the F-20 is a chance to fill the need to replace an aging LIFT aircraft, increase the effectiveness of the Aggressor training mission, and add the equivalent of three highly capable tactical fighter wings to US tactical airpower in a single move. The major cost of adding additional wings to existing forces--the people--would not be a factor. The people are already in place and highly trained. The total cost of buying three additional fighter wings would be less than half that of buying one additional space shuttle. In the author's opinion, these would be dollars well spent.

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## GLOSSARY

|       |                                                                                                                                                                                                       |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A/A   | Air-to-Air                                                                                                                                                                                            |
| A/C   | Aircraft                                                                                                                                                                                              |
| ACM   | Air Combat Maneuvering. Maneuvering in coordination with two or more aircraft in an attack against one or more aerial targets in a controlled situation. Number in flight is indicated by 2V2 or 2V4. |
| A/G   | Air-to-ground                                                                                                                                                                                         |
| AR    | Aerial Refueling                                                                                                                                                                                      |
| BRM   | Basic Fighter Maneuvers. Maneuvering against a single aerial target to gain a tactical advantage and employ a weapon.                                                                                 |
| DACT  | Dissimilar Air Combat Tactics. Similar to ACM except that the adversary aircraft is of a different type and the scenario is less controlled.                                                          |
| DART  | Attacking and firing the aircraft cannon against a towed aerial target.                                                                                                                               |
| DBFM  | Defensive Basic Fighter Maneuvers. Basic defensive maneuvering against a single aircraft to defeat his weapons employment opportunity.                                                                |
| DASUP | Sortie flown in another aircraft in direct support of student training.                                                                                                                               |
| FORM  | Formation Flying                                                                                                                                                                                      |
| GA    | Ground Attack. Air-to-ground weapons delivery in a fixed standard weapons delivery pattern.                                                                                                           |
| GAT   | Ground Attack Tactics. Air-to-ground weapons delivery from random tactical patterns.                                                                                                                  |
| INST  | Instrument Flying                                                                                                                                                                                     |
| INTCP | Intercepts. Using the on-board radar to arrive at an advantageous position when attacking an aerial target.                                                                                           |
| LL    | Low Level Navigation Training                                                                                                                                                                         |
| NITE  | Night Flying                                                                                                                                                                                          |

GLOSSARY CONT'D

|       |                                     |
|-------|-------------------------------------|
| NUC   | Practice Nuclear Weapons Deliveries |
| RECCE | Reconnaissance                      |
| TR    | Transition Flying                   |

END

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DTIC