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**BUDGET EFFECTS ON DEFENSE PLANNING**

by

**Charles Ventura**

A Thesis submitted to the  
Faculty of the School of Graduate  
Studies in partial fulfillment  
of the  
Degree of Master of Arts

**Western Michigan University  
Kalamazoo, Michigan  
November 1966**

## PREFACE

The Department of Defense (DOD) program budget was developed to link defense planning to defense spending. The budget is designed to reflect total program costs. Military managers require such costs in order to make optimum allocation of resources. The program budget has been a useful tool in bringing uniformity to military plans but its effectiveness, the author contends, has been limited because it contains inaccurate cost data.

The author intends to prove that incorrect financial information is included in the budget because some resource expenditures cannot be accurately traced. The same resource is "common" to several different weapon systems. It is not possible to separate and to apportion these common assets, in proper proportion, to the programs which actually consume the resources. Current defense management and funding procedures, in the author's opinion, prevent correct cost allocations. Consequently, such expenditures are pro-rated and actual system costs are never compiled or reported.

The purpose of this paper is to describe the reasons for inaccurate reporting and to recommend a solution to the problem. Acceptance of this solution will permit the basic tool for military planning, the program budget, to correctly reflect total program costs. The use of the more accurate data will enhance defense decision-making and improve this nation's military posture. The Air Force

Logistics Command (AFLC), the largest military organization managing common resources, is used as the example for this study. The author believes that the problems that AFLC has in supporting the program budget are experienced by all military units which control common assets. The command's mission and operation are investigated to prove that accurate resource accounting cannot be accomplished within the current funding technique. After isolating the problem areas, a basic funding revision is recommended which the author believes will provide accurate program costs.

The author gratefully acknowledges the contributions that Mr. Raymond Kristy, AFLC Supply Analyst, made to this paper. Mr. Kristy first brought the problem of incompatible accounting to the author's attention and performed extensive research to support the views expressed in this paper.

Charles E. Ventura

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## CHAPTER I

### THE PROGRAM BUDGET

#### Background of Programming System

Early in 1961 the Department of Defense (DOD) initiated a new planning and programming process for achieving this nation's security objectives. The new system was an attempt to bridge the gap between military planning, accomplished by the separate military departments, and military spending, accomplished by budget personnel. Prior to President Kennedy's administration there had been no successful attempts at defining defense objectives in program and budget terms. The new system's objective was to do this in order to assist decision-making in the Defense Department.

The critically important functions of planning and budgeting were performed by two different groups of people. Planning was accomplished by the military planners and the budgeting was done by the civilian secretaries and their comptroller organizations. The division was further compounded by the fact that each department acted unilaterally in both objectives and financial activities. Charles J. Hitch, former Defense Comptroller, explicitly made this point when he said:

Each service tended to exercise its own priorities, favoring its own unique missions to the detriment of joint missions, striving to lay groundwork for an increased share of the budget in future years by concentrating on alluring new weapon



systems, and protecting the over-all size of its own forces even at the cost of readiness. These decisions were made by patriotic generals and admirals, and dedicated civilian leaders as well, who were convinced that they were acting in the best interests of the Nation as well as of their own service - but the end result was not balanced effective military forces.<sup>1</sup>

The departments each had a separate concept of the "next war" and therefore planned requirements for divergent military objectives.

The DOD responded to the criticism of disjointed defense objectives in 1956 by initiating the first Joint Strategic Objectives Plan (JSOP). The JSOP, prepared by the Joint Chiefs of Staff organization, projected major force requirements some four or five years in the future. Planning was extended from a year-to-year basis. The document contained each military service's projected needs. It was the first attempt to embody all defense requirements, for an extended period, in one comprehensive plan. The JSOP in theory was a sound planning document but for several reasons it did not provide the comprehensive picture of the defense organization's unified objectives or future directions. Essentially it was a pasting together of unilaterally developed service plans. Charles Hitch, after examining this situation; commented:

Planning was performed in terms of missions, weapon systems, and military units or forces - the "outputs" of the Defense Department; budgeting, on the other hand, was done in terms of such "inputs" or immediate products as personnel, operation and maintenance, procurement, construction, etc.; and there was little or no machinery for translating one into the other.<sup>2</sup>

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<sup>1</sup>Charles J. Hitch, Decision-Making for Defense (Berkeley and Los Angeles: University of California Press, 1965), p. 24.

<sup>2</sup>Ibid., p. 26.

The JSOP tended to reflect unattainable goals. The military requirements were stated in force terms without reference to cost. The JSOP always far exceeded any budget that the administration would request and therefore did not have a significant impact in unifying defense objectives.

The individual department's comptroller organization, responsible for budget submission, was faced with the fact that each service received a rather fixed percentage of the defense budget. Congress "stabilized the allocation of funds among the three services. Beginning in 1951, and continued throughout the next nine years, the Air Force received 47 percent of the budget, the Navy approximately 29 percent and the Army about 22 percent."<sup>1</sup> Each year the services would receive rigid budget guidelines which controlled their growth and direction. These guidelines were set with little knowledge of their strategic implications because the budget people simply did not have knowledge of military strategy. In essence, decision-making was left to those who were not qualified to make such a choice.

General Maxwell D. Taylor, later to be Joint Chief of Staff, complained of the fact that budget and plans were incompatible.

Before the U.S. Senate in 1961 he stated:

As a matter of fact, it is very difficult to determine their implications because of the way in which the defense budget is constructed. In spite of the fact that modern war is no longer fought in terms of a separate Army, Navy and Air Force, nonetheless we still budget vertically in these service terms.

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<sup>1</sup>William W. Kaufmann, The McNamara Strategy (New York: Harper and Row, Publishers, 1964), p.23.

Hence it is not an exaggeration to say that we do not know what kind and how much defense we are buying with any specific budget.<sup>1</sup>

Each of the three services realized the inadequacy of the prevailing dichotomy between planning and budgeting and began projects to change the situation. The RAND Corporation, a non-profit research organization founded with Air Force sponsorship, began to work on the costing of actual and alternative forces by mission. In 1954 definite proposals for a mission-oriented fiscal structure were developed by RAND. David Novick, a RAND employee and former controller of the War Production Board in World War II, outlined a new budgeting and accounting method for the Federal Government. Weapon systems were to be examined for effectiveness in accomplishing missions. This was a traditional approach. However, resource cost studies were coupled with effectivity and, through this cost-effectiveness concept, alternative resource allocations would appear. These choices were to be investigated as to what inputs produced the most outputs. Besides cost analysis, budgets were to be prepared by weapon systems rather than the traditional functional categories of personnel, procurement, construction and development.<sup>2</sup> The Navy, by 1958, had

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<sup>1</sup>U.S. Congress, Senate, Subcommittee on National Policy Machinery, Committee on Government Operations, Organizing for National Security, 86th Congress, 2nd Session (Washington: 1960), p. 769.

<sup>2</sup>See David Novick, Efficiency and Economy in Government Through New Budgeting and Accounting Procedures (Santa Monica: RAND Corporation, R-254, 1954)

developed the Polaris-type submarines but could not procure it in addition to its other shipbuilding requirements. The department argued that it was not realistic to fiscally treat the submarine like any other naval vessel because its military mission was unique in that service. The Navy contended that the Polaris was actually a part of the deterrent forces, an instrument of strategic reprisal. It therefore was more analogous to a Strategic Air Command (SAC) bomber or Intercontinental Ballistic Missile (ICBM) than to other naval vessels. Since the missions of the Polaris and ICBM were the same, funds should come from traditional Air Force monies instead of ship-building appropriations. The Army also began to take interest in mission-oriented budgets when it discovered that the Air Force was spending most of its new procurement funds on SAC weapons and little on the ground support weapons of the Tactical Air Command. Without extensive air support the Army believed its divisions would not receive necessary air support in war conditions. They also began to proclaim that military missions should be considered in budget requests.

Each service recognized a need but nothing was accomplished until 1961 when Secretary of Defense Robert S. McNamara discovered the lack of coordination between military plans and budgets. When he came into office he found that the three military departments had been establishing their requirements independently of each other. He later gave a graphic commentary on the then prevailing situation:

I think the results can fairly be described as chaotic. The

Army planning for example was based, largely, on a long war of attrition, while the Air Force planning was based, largely, on a short war of nuclear bombardment. Consequently, the Army was stating a requirement for stocking months of fighting supplies against the event of a sizeable conventional conflict, while the Air Force stock requirements for such a war had to be measured in days, and not very many days at that.<sup>1</sup>

Duplication, besides chaos, was a result of each service independently determining its requirements. Every military department spent large sums of money to develop IRBM's and ICBM's although each of the missiles were to perform very similar missions. Another example of duplicative effort was the Air Force and Navy development of an all-weather fighter aircraft. During the late fifties four such aircraft, with the same tactical mission and operational characteristics, were developed. Only two, the F-105 and F-4 were bought and the development and termination costs of the others were lost, or wasted.

The entire research and development cost area was not realistically portrayed. Cost data were presented to DOD and Congress on a yearly basis. The full, time-phased cost of a proposed weapon system, which generally took about five years, was not stated. The costs of most programs are small in their first year. This led to the starting of many projects that could not be simultaneously completed within amounts close to existing budget levels. It was "clear that there were a great many wasteful stretch-outs and cancellations of

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<sup>1</sup>Robert S. McNamara, "Decision-Making in the Department of Defense", Address before the American Society of Newspaper Editors, Washington D.C., 20 April 1963, DOD Press Release No. 548-63.

programs that would not have been started if the costs of all of the approved programs had been anticipated."<sup>1</sup>

During the 1956 - 1960 period many critics of defense management stated solutions to military problems. Many of the conclusions were included in one book, The Economics of Defense in the Nuclear Age by Roland N. McKean and Charles J. Hitch. The book was published by Harvard University Press, Cambridge, in 1960. The authors both worked for the RAND Corporation. The primary thesis of the book was that all military problems should be considered in economic terms before rational decision-making could occur. Economics, in this case, means the allocation of resources, not the reduction of expenditures. The object was to measure inputs against outputs of defense spending and then to determine whether proper fund allocations had been determined. The two could not be measured against each other. Inputs were identified by functional classes such as Military Personnel and Installations. Outputs, which were never measured, were missions such as air defense or sealift. Until both inputs and outputs were stated in similar terms, the DOD could never make, or even approach, a rational allocation of resources and unbalanced programs and waste would always result.

The newly appointed Secretary in 1961, Robert S. McNamara, had read the McKean-Hitch book and was impressed with its logic.

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<sup>1</sup>Bert Mogin, "The DOD Programming System Today", ARMED Forces Comptroller, Vol. 11, No. 1. (January, 1966), p. 13. Mr. Mogin is the Assistant to the Deputy Comptroller for Programming, Office of the Secretary of Defense.

His budgetary views coincided with those in the book and Charles J. Hitch was appointed the Assistant Secretary of Defense, Comptroller. The similarity of attitudes was described by Mr. Hitch when he said:

The Secretary and I both realized that the financial management system of the Defense Department must serve many purposes. It must produce a form acceptable to the Congress. It must account for the funds in the same manner in which they were appropriated. It must provide the managers at all levels in the defense establishment the financial information they need to do their particular jobs in an effective and economical manner ... But we were convinced that the financial management system must also provide the data needed by top defense management to make the really crucial decisions, particularly on the major forces and weapon systems needed to carry out the principal missions of the defense establishment. And we were well aware that the financial management system, as it had evolved over the years, could not directly produce the required data in the form desired. It was clear that a new function, which we call programming, would have to be incorporated in the financial management system.<sup>1</sup>

The words "crucial decisions" in the above quote are the key to all subsequent financial changes. Secretary McNamara believed that only when funds could be mission appropriated, and accounted for, could effective decision-making be made at the DOD level. Funds are the common denominator in all defense efforts and only through translating all defense efforts to this denominator could decisions be made and weighed. Since the crucial decisions had to be made by the Secretary of Defense, he must have the necessary tools to do so.

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<sup>1</sup>Hitch, Decision-Making for Defense, p. 28.

## The Programming System

The programming system was proposed in the spring of 1961 and was developed and installed throughout the DOD during the remainder of the year. The new system was used as the basis for the fiscal year 1963 (FY63) budget submitted to Congress in January, 1962. From its beginning, programming was established as an administrative process, to assist in making DOD decisions. The regular budget, using the functional appropriation accounts such as Military Construction and Procurement, was still presented to Congress. Administration leaders believed the legislators were comfortable with the old system and would not accept a new format. Therefore the program budget was and still is purely an administrative technique. However, it has become the principal management mechanism of the DOD.

The new planning-programming-budgeting structure consists of five major elements. They are: (1) a program structure in terms of missions, forces and weapon systems; (2) the analytical comparisons of alternatives; (3) a continually updated five-year force structure and financial program; (4) related year-round decision-making on new programs and changes; and (5) progress reporting to test the validity and administration of the plan. These five features of the new budget system will be presented as they were chronologically developed.

The first action was to review thoroughly the Joint Strategic Objectives Plan (JSOP) to determine the military requirements for



the next ten years. An examination of the entire arsenal was conducted. For example, the question of how many strategic bombers, combined with how many missiles, were needed to meet all contingencies of the plan. In addition the question of the most economical "mix" of weapons was considered and answered. Each weapon and possible successors to each were considered in relation to the war plans. The entire costs of the weapon systems were computed in one package. That is, the cost of a Minuteman would be the total of: (1) Military Personnel to operate it; (2) Operation and Maintenance to keep it in an operational status; (3) Procurement costs to acquire the missile and its spares; (4) Research, Development, Test and Evaluation to develop the weapon; and (5) Military Construction to house the missile and its support facilities. Otherwise, the traditional budget appropriation accounts were used to compute the total cost of a weapon system but once that cost was determined, the individual accounts lost their separate identities and became simply the cost of the Minuteman program. This is the fundamental difference between the two budgetary systems. The traditional process maintains accounts by function. Each function is treated as a separate entity, distinct from all others. The interrelationship of functions is not given fiscal recognition. As basic a proposition as this may appear, the Defense Department had never accounted for its expenditures in a manner which would support the interrelated, or total program concept. The Minuteman costs had always been segregated into the traditional cost accounts and a comprehensive price, or

total package price, had never been determined.

Once the real cost of a weapon was known, cost-effectiveness studies were made by systems analysts to decide whether to buy more of an operational system, develop a new system, delete a present weapon or use part of each alternative to best support the JSOP. Emphasis should be placed on the point that all cost information was used to support the joint plan, not to determine its contents. The JSOP remained the overall statement of defense policy. The financial data provided a management tool to determine those parts of the plan which were feasible within always present resource constraints and to select possible alternative plans.

The next phase was to group the hundreds of programs and activities of DOD into meaningful program elements. A program element is "an integrated activity; an identifiable military capability; a force, support activity, research activity, etc., comprising a combination of men, equipment and facilities."<sup>1</sup> The program elements are the basic building blocks of the new budgeting process. The number fluctuates each year but there are usually between 800 to 1,000 elements. A program element can be one weapon system such as a B-52 or a radar warning system or special types of training and intelligence. The one prerequisite is that when the element is in operation it must function independently from other activities to the degree that it never loses its identity. The delineation is not

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<sup>1</sup>Department of Defense Directive, DOD Programming System, Number 7045.1, October 30, 1964, p. 2.

always easy, especially when dealing with minor weapons or organizations whose only input is personnel, where equipment is almost totally absent.

The next task was to relate the program elements to the major missions of the Defense Department. The objective was to assemble related groups of program elements which should be considered together because they were close substitutes. For example the B-47 was substitute for the B-52, the Houd Dog missile supported the B-52 mission as part of its retaliatory ordnance, therefore all should be grouped in the same program package. The unifying principle underlying each major program is a common mission or set of purposes for the elements involved. Originally the nine program packages (the word "package" has subsequently been dropped) were:

1. Central War Offensive Forces
2. Central War Defensive Forces
3. General Purpose Forces
4. Sealift and Airlift Forces
5. Reserve and National Guard Forces
6. Research and Development
7. Service-wide Support
8. Classified Projects
9. Department of Defense

Criticism immediately developed about the titles and the delineation of forces. The most important criticism of the titles

concerned the Central War Offensive Forces. Many argued that this carried the connotation that the U.S. would act as an aggressor and start a war. The title was dropped. Three others, the last three listed above, were incorporated into one program because Pentagon officials believed they did not constitute significant enough areas to warrant separate identities. The structure was redesigned and the new list, which still exists, was initiated. The new programs (with brief description) were:

1. Strategic Retaliatory Forces  
The primary mission is to deter military attacks against the U.S. and its allies. This force should be powerful enough to inflict so much damage on any would-be aggressor that no nation would desire to attack the U.S. or its allies. It is comprised of over 850 ICBM's, over 650 strategic bombers and over 450 Polaris missiles aboard submarines. The main systems are the B-52, B-58, B-47, Minuteman, Titan II and Polaris.
2. Continental Air and Missile Defense Forces  
The basic objective is to provide a force which will reduce damage from various forms of attack and make the problem of attacking the U.S. as difficult as possible. The force is comprised of interceptor aircraft, surface-to-air missiles, warning and control systems and the civil defense. The main systems are the F-102, F-104, F-106, BOMARC, NIKE and the various radar systems such as the Ballistic Missile Early Warning System (BMEWS). Also the shelter program is an element of this program.
3. General Purpose Forces  
The primary mission is to successfully prevail in large conventional wars and lesser forms of conflict. It is comprised of almost the entire Army and Marine Corps, large portions of the Navy and the tactical Air Force wings. Weapon systems are not as discernable or

important in the program element structure of this force as in the previous two. Organizations such as Marine and Army Divisions, attack carrier task forces, carrier air groups and tactical air squadrons are the basic elements.

4. Airlift and Sealift Forces

The basic mission is to concentrate military forces rapidly and to sustain them in conflict. The force is comprised of troopships, cargo ships, tankers and a large number of cargo and transport aircraft.

5. Reserve Forces

The mission is to mobilize and deploy highly trained units to support already actively engaged combat troops. Most of the reserve forces, which are comprised of the separate service Reserves and National Guards, would fall into categories 2, 3 and 4, listed above, in event of their activation.

6. Research and Development

The main mission is to develop for the U.S. military forces the best possible systems to curtail aggression and to wage combat when necessary. It is comprised of a multitude of programs and systems, most of which are either not named or classified. Some of the known examples of R. & D. efforts are the F-111, the B-70, the anti-missile and infra-red troop sensing devices. The R. & D. program supports the entire military program structure except number 8 listed below.

7. General Support

This program is an "all other" or catch-all category. It includes all of the activities not readily allocable to mission forces or weapon systems. Some of its major elements are training and education, service academies, intelligence collection, medical services and department-wide logistics. It is essentially overhead that is difficult to cost out to particular missions.

8. Retired Pay

This is, as the title infers, payments made

to retired military personnel. It is a separate program because it represents costs beyond administrative control since the terms and rates of pay of retirement are established by law.

9. Military Assistance

The basic mission is to provide our allies with the best combination of forces to repel aggression and to wage combat. The two elements of this program are Military Assistance Program (MAP) which gives aid to foreign nations and Military Assistance Sales (MAS) which sells arms to friendly nations. Most of the U.S. military's older systems filter down into this program but recently such systems as the F-104, F-5 and tentatively the F-111 have been included in MAP and MAS.

The major programs, and their aggregate of elements, comprise the Five-Year Force Structure and Financial Program (FYFS & FP).

This document, the summation of all DOD approved programs, projects the anticipated costs of each program for five years in the future.

It is the source of all information pertinent to missions, forces and weapons in the defense establishment. It contains a total record of every cost input the DOD makes and, more importantly, it continuously audits defense spending to insure inputs and outputs are in balance relative to military objectives and projections.

Each program element, those originally or subsequently approved personally by the Secretary of Defense, is entered in the FYFS & FP. Every cost associated with the element is recorded or projected. This cost is the Total Obligational Authority (TOA) and represents the total financial requirements of each element for the next five years. The cost categories are:

1. Research and Development  
Those program costs primarily associated with research and development efforts including the development of a new or improved capability to the point where it is ready for operational use. These costs include equipment costs funded under the RDT & E appropriations and costs. They exclude costs which appear in the Military Personnel, Operation and Maintenance and Procurement appropriation.
2. Investment  
Those program costs required beyond the development phase to introduce into operational use a new capability, to procure initial, additional or replacement equipment for operational forces or to provide for major modifications of an existing capability. They include Procurement appropriation costs except those associated with research and development. They exclude RDT & E, Military Personnel and Operation and Maintenance appropriation costs.
3. Operating  
Those program costs necessary to operate and maintain the capability. These costs include Military Personnel, Operation and Maintenance and recurring Procurement appropriation costs (such as replenishment spares).<sup>1</sup>

Each program cost is updated on a monthly basis and must remain within prescribed limits. No program can exceed its projection by DOD prescribed dollar amounts unless the Secretary of Defense approves additional money to the program. These limits, called "thresholds", are basically:

1. Research and Development - A \$10,000,000 increase limit on any first program year requirements and a \$25,000,000 on the TOA for five years.

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<sup>1</sup>Ibid.

2. Investment - The same increase limits as R & D plus a \$5,000,000 limit on any construction projects.
3. Operating Costs - A \$20,000,000 limit on first year increases and \$50,000,000 on total five-year plan.

Anytime a manager anywhere in DOD believes a "Threshold" is going to be exceeded he must submit a Program Change Proposal (PCP). The cost increase can be a result of unforeseen circumstances or a decision that an enlarged program is necessary to meet the JSOP objectives. The PCP is sent to the Secretary of Defense in brief form. If the Secretary believes the proposal warrants further review a request is made for a detailed proposal to be submitted within ten days. On these proposals that involve large increases, or in rare instances large decreases, a cost-effectiveness study is conducted to assist in the final decision.

Although hundreds of PCP's are annually proposed, only a few warrant detailed review. The cost-effectiveness study run on these is conducted by the Office of Assistant Secretary of Defense, Systems Analysis. This office, often criticized for permitting the computers to make decisions, weighs and measures the impact of alternative decisions. Computations are made to determine if program increases will produce marginal benefits equal to increased costs and will not decrease another element capability by extracting money from the other program. The cost-effectiveness studies are comprehensive efforts to place the limited available financial resources into those programs which produce the best military posture. Some of the major decisions that have resulted from these efforts are the



decision to develop the joint Air Force-Navy F-111, to drop the Skybolt because its accuracy and penetration ability were too limited to warrant any additional spending, to delete the Dynasoar because Gemini performed almost identical missions and not to procure a presently developed anti-missile missile because its probability of interception was too low to justify the billions of dollars required to finance the program. Probability is the key to the systems analyst and on his projections, whether it be financial realism or potential mission capability, a great percent of DOD decision-making is based.

The final part of FYFS & FP is the quarterly reporting to audit whether programs, on which no PCP has been made, are in line with approved projections. The quarterly reports are summarized for the Secretary of Defense in seventy tables. The tables are broken into the following categories:

1. Summary Table - Entire Program
2. Force Structure by Program
3. Manpower by Program
4. Financial Summaries by Program
5. Procurement Summaries by Program
6. Construction Summaries
7. Miscellaneous Program Summaries
8. Appropriation - Program Conversion Tables
9. Inventory Summaries
10. Balance of Payments Tables

The Bureau of the Budget uses the FYFS & FP to organize DOD budget requests each year. The Congress, as mentioned, uses the traditional accounts to appropriate funds. Through a special coding system the two budget systems are intertwined. For example, the standard Budget Program Activity Code (BPAC) used by Congress for missile procurement is Account 57X3020. DOD adds four more digits to the BPAC which identify the weapon system. The four alpha/numerics which identify the Titan I are 107B. The complete BPAC then becomes 57X3020107B. Further, conversion tables can then be used to determine which force structure program contains weapon system 107B. (In this instance it is the Strategic Retaliatory Forces program). The entire FYFS & FP is computerized. By keying off the BPAC numbers the computerized system is capable of producing the program budget or the functional appropriations budget upon request. To produce the appropriation type budget, the machine does not read the final four digits of the BPAC and arranges a listing by the first seven digits. To produce the program budget, the machine reads the entire BPAC, is keyed to put weapon system 107B into its proper force structure and produces a listing in force structure sequence. The combination of summary lists are great as the aforementioned seventy tables indicate. Each of those statistical compilations are produced from the FYFS & FP computer program. The computerized system requires only one source of data for both budgets. This insures that both will reveal compatible financial data since they share a common source. Tables I, II, III, and IV portray the Department of Defense

budgets in both formats.

The functional classification budget is submitted once a year to Congress. It is tied to a rigid cycle which begins sixteen months before any funds are actually received. Prescribed steps in the cycle limit the DOD, for all practical purposes, to a one-time review each year. The program budget is free of this cycle. It can and is updated on a continuous basis. The peak, once a year effort is avoidable and financial planning can be accomplished under less strained conditions. In effect, changes are made when they are required rather than being tied to a calendar. Timely accomplishment of objectives is enhanced under this situation.

This is not to imply that the program budget is free of Congressional control. The legislative appropriations are a fiscal year ceiling in each of the functional accounts. The Defense Department cannot exceed these limits. However, the DOD is permitted to reprogram within accounts and this is the area where the continuous updating is accomplished and timely decisions can be effected.

#### Program Budget Effect

The program budget has changed the decision-making process in the Department of Defense. The technique provides information, that was formerly not available or not compiled, to assist in making defense decisions. "Assist" is the key to the program system. In itself, it makes no decisions but it contains information on which more logical decisions can be made than was previously possible.

TABLE I

FISCAL YEAR 1964, 1965, 1966 DEFENSE PROGRAM BUDGETS<sup>1</sup>

(DOLLARS IN BILLIONS)

| PROGRAM                                  | FY64 | FY65 | FY66 |
|--|------|------|------|
| Strategic Retaliatory Forces             | 7.3  | 5.3  | 4.5  |
| Continental Air & Missile Defense Forces | 2.1  | 1.8  | 1.8  |
| General Purpose Forces                   | 17.7 | 18.1 | 19.0 |
| Airlift/Sealift Forces                   | 1.3  | 1.5  | 1.6  |
| Reserve and Guard Forces                 | 2.0  | 2.1  | 2.0  |
| Research, Development, Test & Evaluation | 5.3  | 5.1  | 5.4  |
| General Support                          | 13.7 | 14.3 | 14.6 |
| Military Assistance Program              | 1.2  | 1.2  | 1.3  |
| Retired Pay                              | 1.2  | 1.4  | 1.5  |
| TOTAL                                    | 51.9 | 50.9 | 51.7 |

<sup>1</sup>The Budget of the United States Government: Fiscal Year Ending June 30, 1967. U.S. Government Printing Office, Washington, D.C., 1966, pp. 70-76. The tables are condensed from much longer budget lists. The abbreviated format should, in the author's opinion, allow the reader to more readily understand the two budgets than the longer tables which contain several times the data listed above.

TABLE II

## FISCAL YEAR 1964, 1965, 1966 DEFENSE PROGRAM BUDGETS

BY DEPARTMENT AND AGENCY (DOLLARS IN BILLIONS)<sup>1</sup>

| DEPARTMENT/AGENCY           | FY64 | FY65 | FY66 |
|-----------------------------|------|------|------|
| ARMY                        | 12.5 | 12.0 | 12.4 |
| NAVY                        | 14.8 | 14.7 | 15.3 |
| AIR FORCE                   | 20.3 | 19.4 | 18.9 |
| CIVIL DEFENSE               | .1   | .1   | .2   |
| a DEFENSE AGENCIES / OSD    | 3.0  | 3.3  | 3.5  |
| MILITARY ASSISTANCE PROGRAM | 1.2  | 1.2  | 1.3  |
| TOTAL                       | 51.9 | 50.9 | 51.6 |

<sup>a</sup>This includes the cross-service agencies that support all defense departments with common equipment and services. Also, the Office of Secretary of Defense (OSD) is included in this category and Retired Pay.

<sup>1</sup>Ibid.

TABLE III

## FISCAL YEAR 1964, 1965, 1966 DEFENSE FUNCTIONAL CLASSIFICATION BUDGETS

(DOLLARS IN MILLIONS)<sup>1</sup>

| FUNCTIONAL CLASSIFICATION        | DIRECT BUDGET PLAN (TOA) |              |              | EXPENDITURES |              |              |
|----------------------------------|--------------------------|--------------|--------------|--------------|--------------|--------------|
|                                  | FY 1964                  | FY 1965      | FY 1966      | FY 1964      | FY 1965      | FY 1966      |
| MILITARY PERSONNEL               |                          |              |              |              |              |              |
| Active Forces                    | 12,288                   | 12,720       | 12,771       | 12,312       | 12,666       | 12,584       |
| Reserve Forces                   | 695                      | 787          | 730          | 674          | 774          | 706          |
| Retired Pay                      | <u>1,211</u>             | <u>1,399</u> | <u>1,529</u> | <u>1,209</u> | <u>1,380</u> | <u>1,510</u> |
| Total                            | 14,194                   | 14,906       | 15,030       | 14,195       | 14,820       | 14,800       |
| OPERATION & MAINTENANCE          | 11,693                   | 12,450       | 12,472       | 11,932       | 12,220       | 12,160       |
| PROCUREMENT                      | 15,831                   | 14,026       | 13,917       | 15,351       | 13,275       | 13,220       |
| RDT & E                          | 7,137                    | 6,563        | 6,764        | 7,021        | 6,700        | 6,400        |
| MILITARY CONSTRUCTION            | 988                      | 911          | 1,357        | 1,026        | 1,000        | 920          |
| FAMILY HOUSING                   | 672                      | 667          | 748          | 580          | 630          | 660          |
| CIVIL DEFENSE                    | 111                      | 105          | 194          | 107          | 125          | 110          |
| REVOLVING & MANAGEMENT FUNDS     | -                        | -            | -            | -452         | -670         | -370         |
| TOTAL MILITARY FUNCTIONS         | 50,625                   | 49,628       | 50,481       | 49,760       | 48,100       | 47,900       |
| MILITARY ASSISTANCE <sup>c</sup> | <u>1,237</u>             | <u>1,223</u> | <u>1,258</u> | <u>1,485</u> | <u>1,200</u> | <u>1,100</u> |
| TOTAL                            | 51,862                   | 50,851       | 51,739       | 51,245       | 49,300       | 49,000       |

TABLE III--Continued

| FUNCTIONAL CLASSIFICATION<br>(Millions of dollars) | DIRECT BUDGET PLAN (TOA) |         |         | EXPENDITURES |         |         |
|--|--------------------------|---------|---------|--------------|---------|---------|
|  | FY 1964                  | FY 1965 | FY 1966 | FY 1964      | FY 1965 | FY 1966 |
| DEPARTMENT OR AGENCY                               |                          |         |         |              |         |         |
| ARMY   | 12,465                   | 12,049  | 12,439  | 12,050       | 11,935  | 11,726  |
| NAVY   | 14,827                   | 14,720  | 15,341  | 14,520       | 14,107  | 14,741  |
| AIR FORCE  | 20,272                   | 19,440  | 18,882  | 20,509       | 18,963  | 18,235  |
| DEFENSE AGENCIES / OSD                             | 2,950                    | 3,315   | 3,625   | 2,574        | 2,969   | 3,088   |
| CIVIL DEFENSE                                      | 111                      | 105     | 194     | 107          | 125     | 110     |
| TOTAL MILITARY FUNCTIONS                           | 50,625                   | 49,628  | 50,481  | 49,760       | 48,100  | 47,900  |
| MILITARY ASSISTANCE <sup>c</sup>                   | 1,237                    | 1,223   | 1,258   | 1,485        | 1,200   | 1,100   |
| TOTAL  | 51,862                   | 50,851  | 51,739  | 51,245       | 49,300  | 49,000  |

<sup>c</sup>Consistent with the FY 1966 Budget Document presentation, Military Assistance orders (reservation) placed with the military departments are treated in the same manner as obligations.

<sup>1</sup>Ibid.

TABLE IV

## FISCAL YEAR 1966 DEFENSE FUNCTIONAL CLASSIFICATION BUDGET BY DEPARTMENT AND AGENCY

(DOLLARS IN MILLIONS)<sup>1</sup>

| FUNCTIONAL CLASSIFICATION                 | DIRECT BUDGET PLAN |       |       |           |                                    |
|---|--------------------|-------|-------|-----------|------------------------------------|
|   | Total              | Army  | Navy  | Air Force | Defense Agencies and Civil Defense |
| MILITARY PERSONNEL                        |                    |       |       |           |                                    |
| Active Forces                             | 12,771             | 4,343 | 3,950 | 4,479     | -                                  |
| Reserve Forces                            | 730                | 460   | 138   | 132       | -                                  |
| Retired Pay                               | 1,529              | -     | -     | -         | 1,529                              |
| TOTAL                                     | 15,030             | 4,802 | 4,088 | 4,611     | 1,529                              |
| OPERATION AND MAINTENANCE                 | 12,472             | 3,672 | 3,525 | 4,702     | 573                                |
| PROCUREMENT                               |                    |       |       |           |                                    |
| Aircraft                                  | 6,367              | 344   | 2,172 | 3,850     | -                                  |
| Missiles                                  | 1,806              | 254   | 391   | 1,161     | -                                  |
| Ships                                     | 1,906              | -     | 1,906 | -         | -                                  |
| Ordnance, Vehicles, and Related Equipment | 1,980              | 1,024 | 599   | 355       | 1                                  |
| Electronics and Communications            | 999                | 240   | 417   | 334       | 7                                  |
| Other Procurement                         | 859                | 173   | 419   | 240       | 27                                 |
| TOTAL                                     | 13,917             | 2,036 | 5,905 | 5,491     | 35                                 |
| RDT & E                                   |                    |       |       |           |                                    |
| Military Sciences                         | 1,039              | 169   | 200   | 169       | 500                                |
| Aircraft                                  | 992                | 92    | 195   | 705       | -                                  |



TABLE IV--Continued

| FUNCTIONAL CLASSIFICATION                 | DIRECT BUDGET PLAN |        |        |           |                                    |
|---|--------------------|--------|--------|-----------|------------------------------------|
|   | Total              | Army   | Navy   | Air Force | Defense Agencies and Civil Defense |
| Missiles                                  | 1,780              | 641    | 381    | 758       | -                                  |
| Astronautics                              | 1,040              | 20     | 24     | 995       | -                                  |
| Ships                                     | 332                | 2      | 330    | -         | -                                  |
| Ordnance, Vehicles, and Related Equipment | 364                | 184    | 180    | -         | -                                  |
| Other Equipment                           | 624                | 281    | 85     | 258       | -                                  |
| Programwide Management and Support        | 443                | 75     | 76     | 293       | -                                  |
| Emergency Fund                            | 150                | -      | -      | -         | 150                                |
| TOTAL                                     | 6,764              | 1,464  | 1,473  | 3,177     | 650                                |
| MILITARY CONSTRUCTION                     |                    |        |        |           |                                    |
| Active Forces                             | 1,314              | 449    | 342    | 435       | 88                                 |
| Reserve Forces                            | 42                 | 16     | 10     | 17        | -                                  |
| TOTAL                                     | 1,357              | 465    | 351    | 452       | 88                                 |
| FAMILY HOUSING                            | 748                | -      | -      | -         | 748                                |
| CIVIL HOUSING                             | 194                | -      | -      | -         | 194                                |
| REVOLVING AND MANAGEMENT FUNDS            | -                  | -      | -      | -         | -                                  |
| TOTAL -- Military Functions               | 50,481             | 12,439 | 15,341 | 18,882    | 3,818                              |
| MILITARY ASSISTANCE                       | 1,258              |        |        |           |                                    |
| TOTAL                                     | 51,739             |        |        |           |                                    |

<sup>1</sup>Ibid.

A high-ranking defense official expressed this fact succinctly when he said:

Let me assure you that we are under no illusion that our planning programming-budgeting system will in itself make the hard decisions easy or the complex problems of defense simple. What this system will do, we hope, is facilitate the rational analysis of defense problems. It will make us more aware of the full cost implications of the choices we make and will permit us, more rapidly and with greater accuracy, to cost out the various alternatives to us. Only in this way can we hope to achieve a maximum military capability from the resources our governments make available to us.<sup>1</sup>

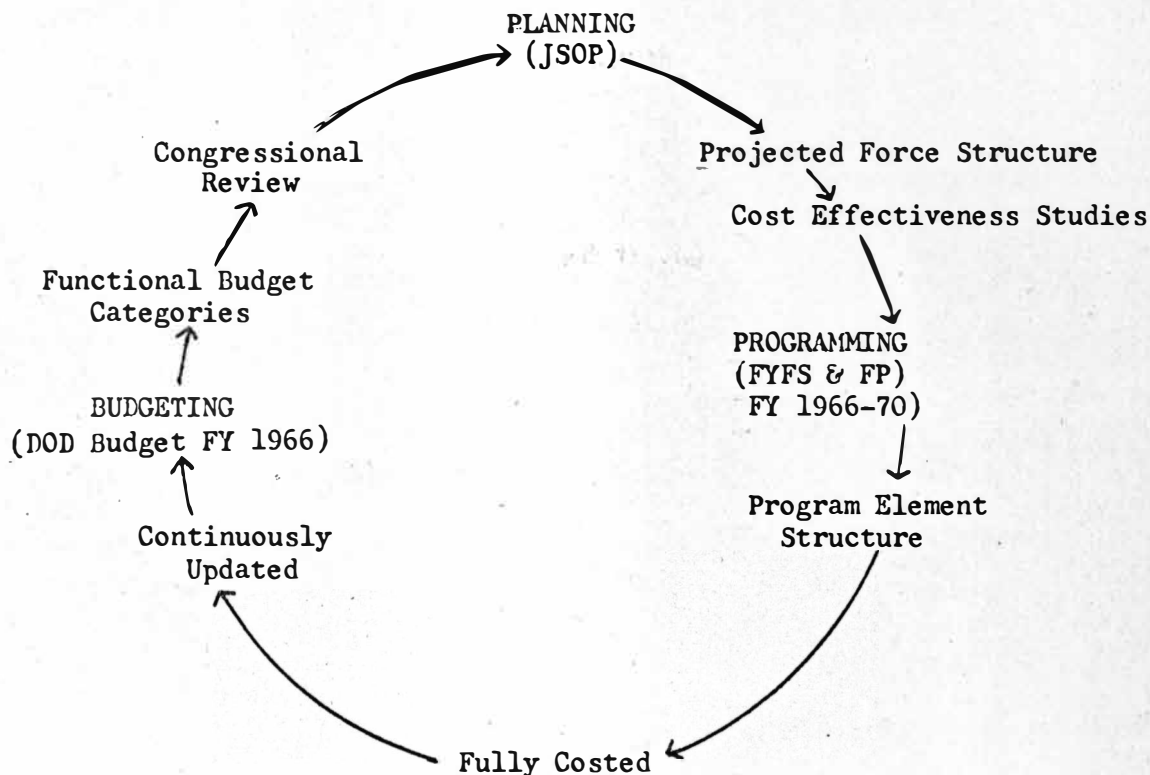
Military planning has become the basis for defense decisions. The Joint Strategic Objectives Plan (JSOP) is the source of all defense efforts. The program budget is the instrument which linked defense activities into a rational sequence of events. By translating missions into dollars, decision-making in all departments is aimed at accomplishing one set of objectives. The drawing on the following page graphically depicts the program budget role as the link between financial and plans personnel.

The Secretary of Defense, through the program budget is able to manage his department for the first time. The inherent authority has been vested in the office since 1958. In that year the National Security Act, which was enacted in 1947 and originally established the Office of Secretary of Defense, was amended. The amendment

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<sup>1</sup>Alain C. Enthoven, "Programming and Budgeting in the Department of Defense", Modern Design for Defense Decisions, ed. Samuel A. Tucker (Washington: Industrial College of the Armed Services, 1966), p. 118. Mr. Enthoven is the Assistant Secretary of Defense, Systems Analysis. This position was created in 1965. The Systems Analysis office is responsible for DOD cost-effectiveness studies.

# Program Budget Cycle



specified that the three military departments were no longer to be separately administrated as they had been in the past. While the services maintained separate organizations, the Defense Secretary was given the authority to direct and control all military departments. The one drawback was the Secretary did not have the financial information to control the large organization and he reacted to requests as a funds manager. He fit service requests into informal but rather rigid appropriations guidelines. Now he participates in the planning phase plus the financial phase of the department. Unbalanced and divergent programs are less possible when the Office of Secretary of Defense (OSD) is the single review and audit agency.

The use of cost-effectiveness studies, or system analysis, creates alternative courses of action. The decision-maker is not presented one plan but many ideas. Through mathematical models, simulations and probability studies defense managers are given alternatives from which to choose. Obviously the choice of alternatives does not insure correct decisions but it does provide a more complete view on which to decide complex issues.

The Five Year Force Structure and Financial Plan (FYFS & FP) presents a long-range plan for the size of a force structure and its costs. This assists military managers because a low, first year cost is less likely to be bought if the total obligation is projected. The multi-starts, few completions, of development projects has been curtailed through the total cost concept. The projected costs also help planners have a "feel" for the latitude that they have in projecting long-range objectives. If the next five years are obligated close to the anticipated budget ceilings, then very few large programs can be realistically integrated into the JSOP. Low projected obligations create the opposite situation where large new systems have a good chance of being developed.

All the relevant information that defense managers need to make sound decisions is compiled in one place and is available at any given time. The computerized system not only produces pre-decision data, it also provides information to control the execution of a decision. "Out of control" situations, when a program exceeds its "thresholds" for example, are automatically printed on exception

listings and top officials are immediately apprised of this status.

The long-range effect of the program budget appears to go beyond Defense Department application. President Johnson has met with his Cabinet to "discuss the introduction of a new planning and budgeting system throughout the Government."<sup>1</sup> In this meeting the department chiefs were told that they would work with the Bureau of the Budget to define their responsibilities in program terms. The fiscal year 1968 and later-year programs were to be identified. During the spring and summer of 1966 each of the major agencies attempted to fulfill the President's order. The results have not been published but it is obvious that the planning-programming-budgeting technique, at least for the present, will be used throughout the executive branch of the government.

Mr. Hitch, analyzing the first four years of the program budget, believes "it is fair to say that the . . . system is now well established and is working smoothly. Admittedly, there are still difficult problems to be surmounted."<sup>2</sup> One of these problems is a second budget cycle has started to appear. While many changes occur to the program budget continuously through the year, the major decisions get postponed to the last possible moment, which is when

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<sup>1</sup>President Lyndon B. Johnson, "Introduction of New Government-Wide Planning and Budgeting System," 1965. Statement made by the President to Cabinet Members and Agency Chiefs on August 25, 1965.

<sup>2</sup>Hitch, Decision-Making for Defense, p. 63.

the functional budget review occurs. So both budgets, involving double paperwork, reach a peak concurrently and increase an already intensified effort. Many of the five year projections (precise numbers are classified) are simply straight line projections of the program's first year expenditures. These unrealistic projections effect the same "foot-in-the-door" opportunities that previous one year requests entailed.

The principal weakness of the program budget is that common or "spillover" services and equipment cannot be directly allocated to program elements. The common resource, one used by many elements and across force structure lines, is accounted for by functional appropriations such as Aircraft Spare Parts and Depot Aircraft maintenance. Since they cannot be identified with a particular program, they are arbitrarily allocated to weapon systems and other elements. By "rough rule of thumb" the common resources are costed to programs, which costs are in turn projected against the system for five years. Obviously any cost effectiveness study or attempt to reallocate resources would be based on potentially false information. True analysis cannot occur until all costs can be realistically ascertained against each budget element.

Accurate accounting, both current and projected, is the cornerstone of the programming system but it does not presently exist. The thesis of this paper is that a radical change in DOD funding procedures must be made before the program budget can reflect actual costs. Until such changes are made defense managers will use

incomplete and inaccurate data on which to base their decisions.

The proposed funding revision will be aimed primarily at resolving the accounting problems relative to common support areas. Other benefits, in the author's opinion, will also be accrued as a result of the proposals but they will receive a secondary consideration.

The Air Force Logistics Command (AFLC) will be the organization that will serve as the model for both examination and revision proposal. The reason for this choice is that logistics represents the largest dollar expenditures on common resources. Most logistics spending is aggregated in Program VII, General Support. This program, which will be retitled Logistics in fiscal year 1969, represents over twenty-five percent of the entire DOD budget. This is a very large percent to be arbitrarily apportioning to the various force structure programs. AFLC, and the Army and Navy logistics organizations, while each operates slightly different, experience the same problem of managing common resources. The author believes the command offers a valid model to use in developing the paper's thesis. In succeeding chapters the examination of AFLC will provide substance to the author's opinion that the program budget cannot be supported within current funding techniques.

## CHAPTER II

### AIR FORCE LOGISTICS COMMAND

#### Air Force Commands

The United States Air Force (USAF) is composed of sixteen major air commands. The command missions fall into three distinct categories. The categories are regional, support, and global. The breakout is:

##### 1. REGIONAL

- Continental Air Command (CONAC)
- Pacific Air Forces (PACAF)
- U.S. Air Forces in Europe (USAFE)
- U.S. Air Forces Southern Command (USAFSO)
- Alaskan Air Command (AAC)
- Air Defense Command (ADC)

##### 2. SUPPORT

- Air Force Logistics Command (AFLC)
- Air Force Systems Command (AFSC)
- Air Training Command (ATC)
- Air University (AU)
- Headquarters Command (HQS. USAF)
- Military Airlift Command (MAC)
- Air Force Communications Service (AFCS)
- U.S. Air Force Security Service (USAFSS)

##### 3. GLOBAL

- Strategic Air Command (SAC)
- Tactical Air Command (TAC)

Those commands with regional or global missions are the strike or combat forces, the units which, in the event of an outbreak, would directly face the enemy in a shooting situation. Each of these commands has a unique mission which can fit neatly into one of the



following Force Structure Programs:

1. STRATEGIC RETALIATORY FORCES  
Strategic Air Command
2. CONTINENTAL AIR & MISSILE DEFENSE FORCES  
Continental Air Command  
Air Defense Command
3. GENERAL PURPOSES FORCES  
Pacific Air Command  
U.S. Air Forces in Europe  
U.S. Air Force Southern Command  
Alaskan Air Command  
Tactical Air Command

The support commands cannot be as easily placed in the FYFS & FP structure since these units service all the air combat organizations. Of the support commands, three manage funds in excess of \$100 million. They are AFLC, AFSC and MAC. However, both AFSC and MAC can distribute their expenditures, to a high degree, to a particular program element or at least to a major command.

AFSC is responsible for the Research, Development, Test and Evaluation (RDT & E) efforts of the Air Force. This includes the development and initial acquisition of all new weapons and associated support equipment. Since the Air Force planners and organization commanders levy the requirements on AFSC, the cost of fulfilling these mission requirements can be traced and costed to the proper program elements. The F-111 provides a good example of being able to trace the RDT & E expenditures. The aircraft is specifically funded in the budget and is being developed in three basic configurations. The F-111A is for TAC and plans call for procuring about 1,000; the F-111B is for the Navy and about 250 are planned to be

bought; and the B-111 is for SAC and about 250 of these are to be procured. The Navy and TAC aircraft support ground forces so they are costed to General Purpose Forces and all SAC costs are funded out of the Strategic Retaliatory Forces. Of course some of the ground support equipment is common to each configuration, but the amount is directly related to the number of F-111's being delivered to each command. In other words, a certain number of airplanes require a given number of units of support equipment. The problem of commonality is not acute in the RDT & E area.

Military Airlift Command (MAC), formerly titled Military Air Transport Service (MATS), operates a global airlift system. It is the primary air transporter of USAF men and materials around the world. The command provides airlift for every Air Force organization but MAC charges for its services. Through the industrial funding technique, which will be examined at length later in this paper, every command which uses the airlift service must pay for it from their funds. Accounts are kept by commands and since these commands generally fit into one force structure program, MAC costs can be distributed to the proper program categories.

The Air Force Logistics Command is the largest of the support commands both in terms of personnel and management of funds. Its expenditures cannot be, to a high degree, traced to a weapon system or program element. Their current management philosophy and funding techniques prevent an accurate apportionment of costs to program elements.

## AFLC Mission and Organizations

Logistics appears to be an elusive word to define. An examination of literature on the subject of military logistics will reveal that each author has a different definition or set of definitions. This author believes the following statement best describes the mission of the military logistics organization: Logistics is getting the right material, to the right place, in the correct quantity at the best time to support the combat forces in gaining their objectives.

Each of the military departments has a single command to manage the logistics function. Previously, the Army and Navy had several organizations involved in managing the subdivisions of logistics. During the past five years the efforts of the two services have been unified under one command. The Air Force has always managed through one command since its inception, in 1947, as a military department. The Air Material Command (AMC), changed to AFLC in 1961, underwent a decentralization of personnel in 1952 but the command retained complete management of all air logistics support. The people were moved to the numerous depots and storage sites that were controlled by AMC. The number of installations has been reduced and currently AFLC Headquarters, located at Wright-Patterson Air Force Base, manages seven field organizations. AMC controlled the acquisition of new systems but this responsibility is now assigned to the Air Force Systems Command.

The basic mission of the command is that "The Air Force Logistics Command provides worldwide logistics support to the Air Force. This includes the procurement, storage and distribution of supplies and the arrangement for the performance of depot level maintenance on material."<sup>1</sup>

This mission statement is reflected in both the organization of AFLC Headquarters and its field agencies. Chart I depicts the Headquarters' organization. Chart II represents the standard Air Materiel Area (AMA) organization. This chart is based on the author's review of the individual AMA charts. Each organization that is common to every AMA is listed on Chart II. The functions of supply, maintenance, procurement and transportation can be traced organizationally from the command's highest to lowest management levels. AFLC manages, for the most part, by traditional logistics functions. However, the Systems Support Manager (SSM) divisions are organized along weapon system lines.

Logistics objectives and general policy guidance are established at Air Force Headquarters. These objectives are in consonance with the JSOP plans and are communicated to AFLC through the Deputy Chief of Staff, Systems and Logistics.

AFLC Headquarters directs its field organizations but does not generally participate in actual operations. Its main functions are

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<sup>1</sup>Office of the Federal Register, National Archives and Records Service, General Services Administration, United States Government Organization Manual 1966-67 (Washington, D.C., 1966), p. 202.

CHART I

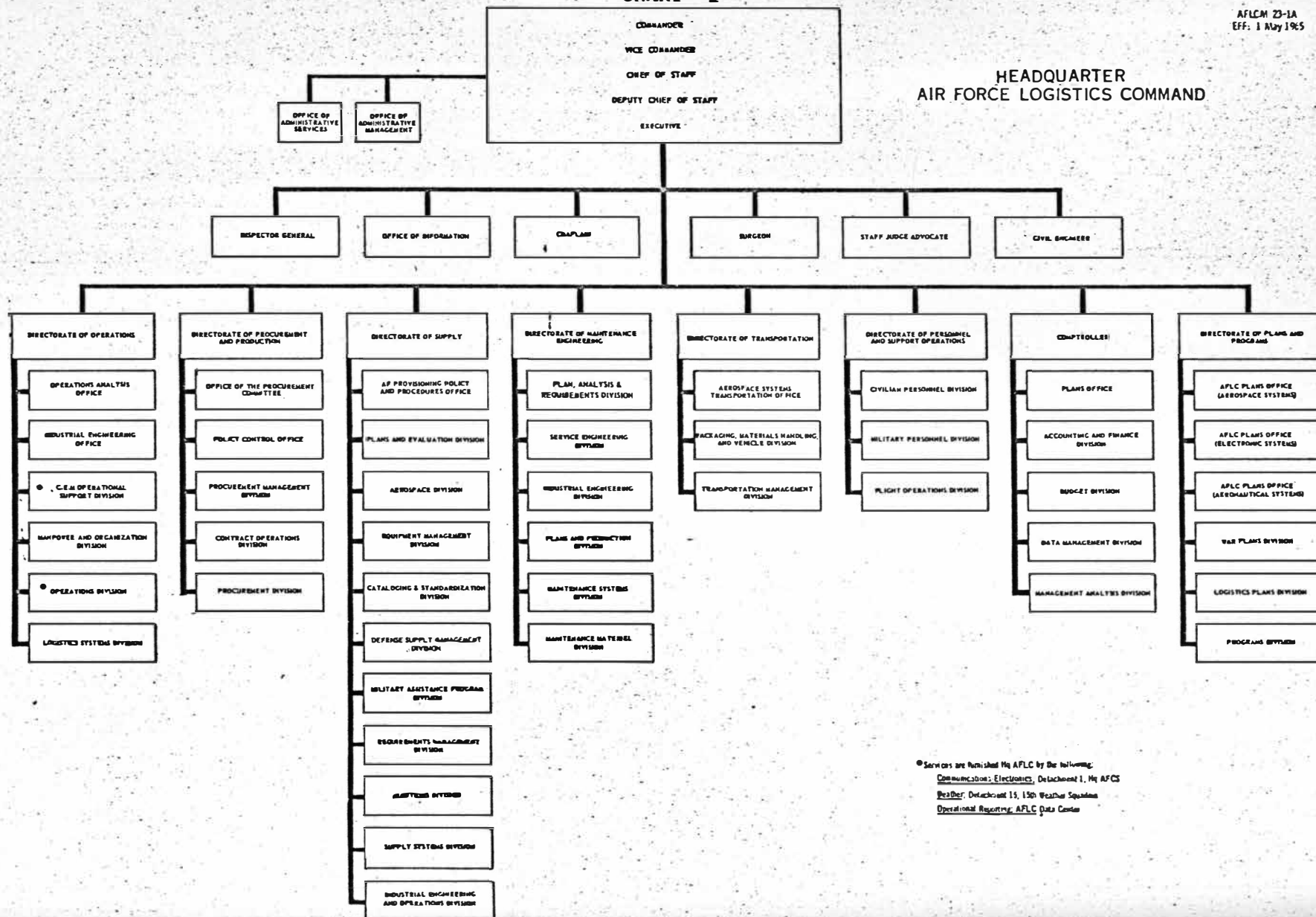
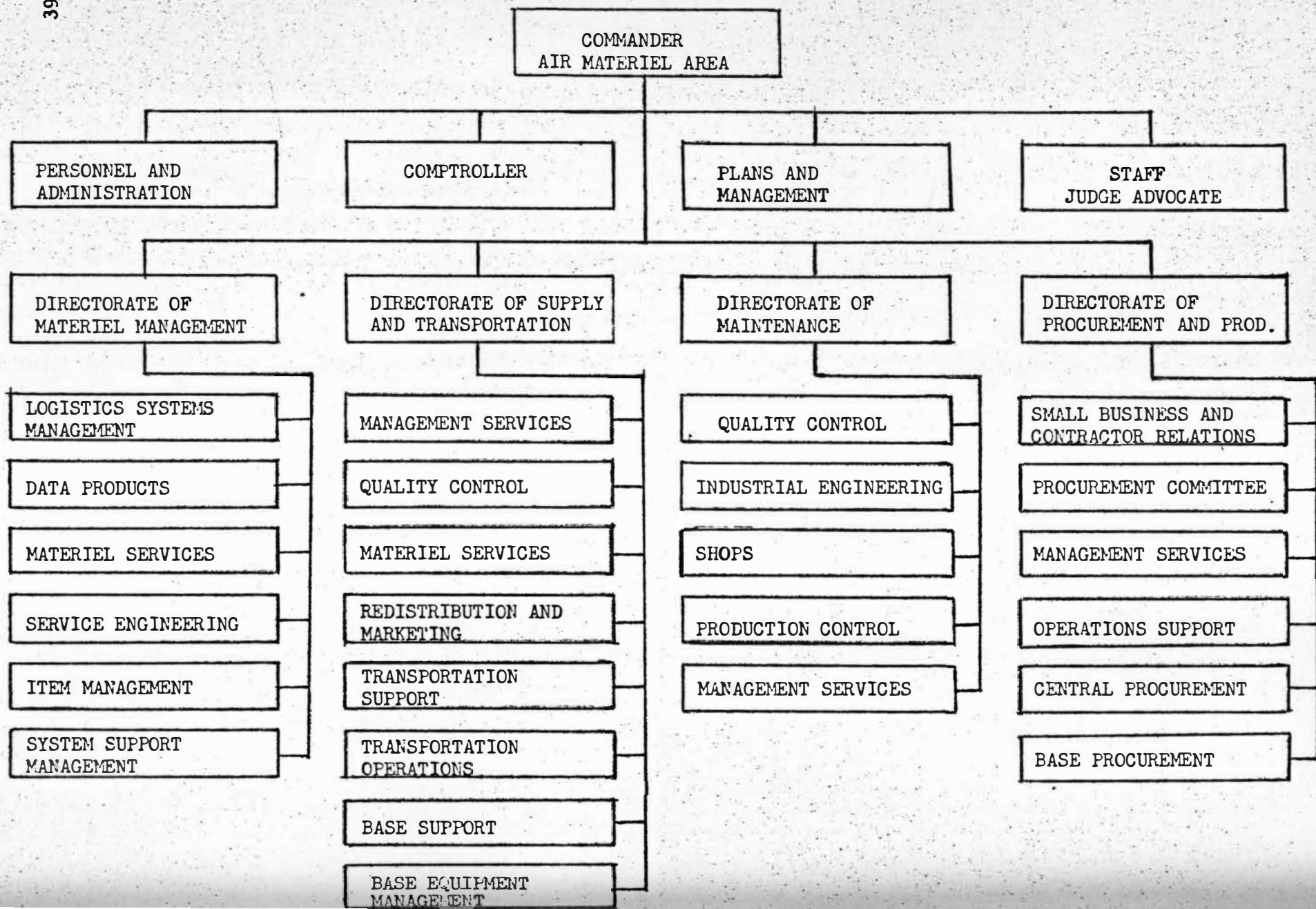
AFLOM 23-1A  
EFF: 1 May 1965HEADQUARTER  
AIR FORCE LOGISTICS COMMAND

CHART II: STANDARD AJR MATERIEL ORGANIZATION CHART

39





to develop procedures and furnish policy guidance to field activities. The command's main operating units are the Air Material Areas (AMA), Newark Air Force Station and the 2704th Air Force Aircraft Storage and Disposition Group. The AMA's perform the great bulk of the logistics functions while the other two units have narrow, specialized workloads.

The size of the command fluctuates but currently the "Authorized personnel totals around 144,000, with nearly ninety percent civilians".<sup>1</sup> The personnel distribution is currently in flux as ROAMA, MOAMA, SBAMA and MAAMA are being closed. The phase-outs are planned to be completed by 1 July 1969. At that time the command plans to have five AMA's of between 20,000 and 25,000 each and the Headquarters will have about 3,000 employees.

The Air Material Areas have the operational responsibilities for the four basic logistics functions. The Directorate of Materiel Management (D/MM) determines supply requirements and controls their distribution to Air Force bases. The requirements are for centrally procured materiel. That is, standard items managed at one site and available to all legitimate users. This is contrasted with locally procured materiel which is peculiar to one, or a few users and is bought from the local economy by the user. The Directorate of Maintenance (D/M) accomplishes the depot level repair programs. The

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<sup>1</sup>Kenneth B. Hobson, United States Air Force News Release, No. 66-250 (Wright-Patterson AFB, 1966), p. 2. General Hobson is the present AFLC Commander.

depot maintenance production schedule is determined jointly by the D/M and D/MM. It is based upon supply requirements and the ability to repair assets in lieu of procuring new equipment. The Directorate of Supply and Transportation (DS & T) is responsible for storage of the centrally procured materiel and for shipping it as D/MM personnel direct. The Directorate of Procurement (D/P) buys the equipment that the D/MM has computed as a requirement. The directorate functions revolve around the supply requirements and distribution responsibilities of the D/MM.

#### Supply and distribution function

The AMA Directorates of Materiel Management operate a wholesale supply system. The retail customers of the system are the individual air bases of all the major air commands. The task of the supply system is to provide spares to the bases in order to maintain Air Force missiles, aircraft and electronics systems in an operational status.

Each D/MM has several materiel management divisions and three administrative divisions. The three administrative divisions provide services across directorate organizational lines. Such services are keypunching, local policy determination, cataloging and automatic data processing. These divisions are staff offices to the operating supply divisions.

The materiel management divisions are divided into two categories depending upon the type of materiel being controlled. One



type is the Inventory Manager (IM). The IM manages a group of Federal Supply Classes which require similar technical and supply techniques to determine materiel requirements and distribution procedures. The division manages commodities such as radio sets, wheels, parachutes and flight instruments. Each of these commodities would be in a separate Federal Supply Class. For example, radio sets are in Class 5830, wheels in Class 1650, parachutes in Class 1670 and flight instruments in Class 6600. The IM may manage one class or several classes depending upon the number of items and activity in the class. The Inventory Manager division is the sole source of the equipment it manages. This equipment is potentially applicable to every weapon or support system in the Air Force. Every command and every base require the commodities. For example, each aircraft has a radio, all ground power equipment uses a generator and every missile uses a propellant fuel.

The second type of materiel management division is the System Support Manager (SSM). The SSM is responsible for controlling all systems. The size of the fleet and the management complexity involved determines whether an SSM is comprised of one or a few systems. The B-58 / F-102 SSM is combined because Convair manufactured both airplanes and the small number of B-58's in the inventory, about ninety, does not require a separate division. The C-5A SSM, and the F-111 SSM are examples of single system organizations because of the size of the aircraft in the case of the C-5A and the size of the proposed fleet in the F-111 instance. Also, as weapon systems age

they become easier to manage and often older systems are combined into one division. The old cargo planes such as the C-121, C-119, C-54 etc. are managed in one division. Any item or resource controlled by an SSM must be peculiar to the system(s) the division manages. This is the delineation. No commodity, however important it may be to the operation of an aircraft system, is managed by an SSM if the asset is common to other pieces of equipment.

The Inventory Manager (IM) and System Support Manager (SSM) perform the same management tasks. Their basic tasks are to compute spares requirements and to insure that proper asset distribution is made. The requirements computations fall into three groups depending upon the characteristics and annual issues of the equipment. The three supply groups are:

1. Replacement. This type of equipment never loses its identity by being placed in a higher assembly. It retains its identity such as a calibration test stand or a starter generator. Each Air Force unit is authorized a prescribed number of these items; the units have to account for them and cannot requisition more than the authorization unless an item is condemned or returned to a depot for repair. Otherwise, it is a one for one exchange, or replacement. The requirements computation, once the initial allocations to the bases have been built, is based on the reported condemnations. The item manager is allowed to request procurement on only that number which have to be replaced as a result of wear-out.
2. Recoverable. These items are consumed in a higher assembly such as a radio set becoming a part of an F-102. Once it is installed it no longer is identified as a radio but as a part of the F-102 aircraft. This type of equipment can be repaired either at base, field, or depot level maintenance shops. Hence it is not condemned when it fails but is recovered through maintenance actions. The requirements computations are basic-

ally determined according to the anticipated time between failure and the time required to repair the item. The item manager requests procurement quantities to support the repair pipeline cycle based upon anticipated failures.

3. Consumption. These items are generally low cost parts which are presumed to be consumed upon distribution. The user does not have to account for the items and disposes of them at time of replacement. The item manager bases the computation on a past period's consumption. The length of the period depends upon the price of the item. The cheap items can be bought in quantities to support a five year requirement, the expensive items with over \$10,000 of annual issues can be bought in quantities to support a one year requirement. This type of computation is the "economic order quantity" theory which is used in most large businesses. One thing must be remembered, an issue equals consumption and a justification for one additional procurement quantity.

Through these three basic computational methods, with minor special adjustments, the total Air Force supply requirements are determined. All centrally procured stock items are funded out of three appropriation accounts. Tables V, VI and VII provide the details on materiel management procurement in fiscal year 1966. (One fact again is emphasized; AFLC does not procure new aircraft or missiles and the totals in the tables do not reflect initial acquisition expenditures.) Besides depicting the size of AFLC annual procurement, the tables graphically show that no program element or weapon system identification is made. Each budget program represents a functional category; no category represents a breakout analogous to the program budget delineations. Whereas the program budget might be stated in terms of B-52 or Minuteman accounts, the functional budget structure represents such widespread areas as Replenishment Spares

and Electronic and Tele-Communications Equipment. This type of expenditure is related to every program element under Air Force management.

AFLC manages 1, 135, 430 separate line items through the IM/SSM divisions. Approximately 70,700 are replacement items, 150,700 are recoverable and 904,800 are consumption type items. The total inventory value is \$20.5 billion.

The second function of the IM/SSM division is to control the distribution of its items. The basic task is to fill a requisition in a timely manner. The primary objective is to insure that no firstline or expensive pieces of equipment are nonoperational as a result of asset nonavailability. This is a complex task due to the sheer magnitude of the operation. The size of the distribution function can be visualized by the fact that "Annually the IM/SSM process nearly 16,000,000 requisitions."<sup>1</sup>

The distribution system effectiveness is dependent upon the supply requirements determinations. When an item manager computes correct buy levels, assets can be delivered as requested; when requirements are incorrectly determined the distribution efforts fail.

#### Maintenance engineering function

AFLC maintenance activities, personnel-wise, are the largest

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<sup>1</sup>Hobson, News Release, No. 66-250, p. 2.

TABLE V

AIRCRAFT PROCUREMENT, APPROPRIATION ACCOUNT 57 X 3010, BY  
TYPE OF PROGRAM FOR FISCAL YEAR 1966 (DOLLARS IN MILLIONS)<sup>1</sup>

| PROGRAM   | EXPENDITURES |
|---|--------------|
| 11 - Modifications  | 601.8        |
| 12 - In-Service Direct Ground Support<br>Equipment - Common | 86.4         |
| 15 - Replenishment Spares and Repair Parts                  | 877.5        |
| 16 - Initial Spares   | 267.6        |
| 17 - War Consumables  | 46.7         |
| 18 - Procurement Other Than Air Force                       | 93.0         |
| 19 - Other Charges  | 43.9         |
| TOTAL   | 2,016.9      |

<sup>1</sup>Air Force Logistics Command, AFLC Financial Summary (Wright-Patterson AFB, 1966), pp. 3-6.

TABLE VI

MISSILE PROCUREMENT, APPROPRIATION ACCOUNT 57 X 3020, BY  
TYPE OF PROGRAM FOR FISCAL YEAR 1966 (DOLLARS IN MILLIONS)<sup>1</sup>

| PROGRAM  | EXPENDITURES |
|--|--------------|
| 20 - Weapon System Procurement                             | 2.1          |
| 21 - Modifications   | 55.5         |
| 22 - Replacement Equipment and Automatic<br>Test Equipment | 4.7          |
| 25 - Replenishment Spares and Repair Parts                 | 37.4         |
| 26 - Initial Spares and Repair Parts                       | 15.3         |
| 27 - Special Projects                                      | 41.4         |
| 28 - Procurement Other Than Air Force                      | .5           |
| 29 - Other Charges   | 74.9         |
| TOTAL  | 231.8        |

<sup>1</sup>Ibid., pp. 3, 14.

TABLE VII

OTHER PROCUREMENT, APPROPRIATION ACCOUNT 57 X 3080, BY  
TYPE OF PROGRAM FOR FISCAL YEAR 1966 (DOLLARS IN MILLIONS)<sup>1</sup>

| PROGRAM  | EXPENDITURES |
|--|--------------|
| 81 - Munitions and Associated Equipment              | 1,073.3      |
| 82 - Vehicular Equipment                             | 162.0        |
| 84 - Electronic and Tele-Communications<br>Equipment | 192.4        |
| 85 - Other Base Maintenance and Supply<br>Equipment  | 243.3        |
| 87 - Procurement Other Than Air Force                | 21.8         |
| 88 - Equipment Modifications                         | 41.2         |
| TOTAL  | 1,734.0      |

in the command. Approximately forty-two percent of the employees work in this area. Maintenance efforts begin with the initial provisioning stages of a new weapon system or piece of equipment. They end with the final disposition of the property when it becomes excess to Air Force requirements.

The separate maintenance functions are provisioning, reliability and maintainability, technical publications, modifications and

<sup>1</sup>Ibid., pp. 3, 20.

depot level repair. The first four functions can be described as technical tasks and the last as a production role. In the Air Materiel Area organization, all but depot level repair is performed by Directorate of Materiel Management (D/MM) personnel. It is accomplished by Directorate of Maintenance employees.

Provisioning is accomplished early in the production of a new system before the design is fully defined or stabilized. The manufacturer provides drawings and specifications on every component in the system. The AFLC technician must then determine whether each component should be bought and whether it can be repaired when removed from the complete piece of equipment.

Reliability and maintainability engineering is a continuous process. Every piece of equipment is coded and all failures and maintenance manhours spent on its repair are recorded. If a piece of equipment fails more often than anticipated (low reliability) or consumes more repair manhours than projected (low maintainability), a technician will initiate action to rectify the situation.

A host of possible solutions exist; they range from a repair manual clarification to major redesign or modification of the weapon system. Modifications are constantly occurring in attempts to improve effectiveness, safety and mission capability. Examples of each are:

1. Effectiveness. The coolant gas in heat seeking air-to-missiles was changed. The new gas is cooler thus making it more sensitive to heat. The increased sensitivity allows it to home in quicker so enemy aircraft have less time to go into diversionary



tactics. The result is 100% increased effectiveness in shooting down enemy aircraft.

2. Safety. The A-1E Crusader had no automatic pilot ejection capability. In order to abandon the airplane the pilot had to manually pull back the sliding cockpit door and jump. Experience revealed that in a steep dive the pilot could not open the door. The modified pilot seat has an ejection mechanism which can be activated by the flyer's touch. Pilot safety was increased.
3. Mission Capability. A B-52D,G aircraft could carry twenty-seven 750-pound bombs. By adding wing pylons and changing internal bomb racks, the planes now carry fifty-one bombs which doubles the former destructive capability.

Most of the major modifications are accomplished in the AFLC depots or civilian contractor sites. The minor changes are done at the individual bases. However, AFLC is responsible for designing, approving and funding all modifications. Necessary material and technical guidance is provided by AFLC and accounts relative to modification accomplishment are kept by the command. Tables V, VI and VII show the cost of parts required in the modification of Air Force equipment.

All Maintenance technical publications are written by AFLC personnel. The manuals provide instructions ranging from the pilot handbook and pre-flight visual inspection to entire teardown and overhaul of an aircraft. Any form of maintenance, calibration or repair is specifically described in the technical publications. Every change to these books requires command approval.

The largest AFLC maintenance responsibility, in terms of money and people, is the depot level repair program. The Air Force

recognizes three levels of maintenance; the levels are organizational, field and depot. The assignment is determined "principally by the investment in special tools, equipment and facilities and by the level of skills required to do the task. In general, the first two levels are a responsibility of the using commands TAC, SAC, ADC, etc. while depot level maintenance is the responsibility of the Air Force Logistics Command."<sup>1</sup> While AFLC supports the maintenance technical efforts of the entire Air Force, it only actually repairs those items coded for depot repair. As indicated in the quotation, depot level items are the complex pieces of equipment requiring extensive support items, facilities and skill levels.

The depot level maintenance program is divided into organic and contractual portions. The organic is performed by AFLC depots and the contractual is accomplished by private business. The work assignment is determined by Air Force policy. It dictates that mission-essential, first-line, weapon systems will be done organically and remaining workloads will be accomplished contractually. This policy exists only in theory because many first-line systems are contractually maintained and modified. The real effect of the policy is that organic shops do not maintain anything less than mission-essential systems. The B-52 is repaired by both contractor and AFLC depot, for example, but all C-119 aircraft, an old cargo plane of the Korean War period, are contractually maintained.

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<sup>1</sup>Air Force Logistics Command, Maintenance Engineering 1966 (Wright-Patterson AFB, 1966), p. 1.

The workload is evenly divided between the organic and contractual facilities. Approximately fifty percent is accomplished by each, private business and Air Force depots. The total cost is almost \$1.4 billion with \$900 million spent on contract repair and \$500 million funded for government repair sites. The disparity in costs for approximately equal workloads is caused by the fact that the Directorate of Materiel Management functions are not charged to organic production. Only labor, local purchase and utilities are costed to organic production. The technical aspects and centrally procured spares are not charged to organic repair. These overhead and material costs are charged to depot repair funds when a contractor performs the work. Obviously, the contractor must be paid for his entire effort.

The depot maintenance program is funded out of Appropriation 57 X 3400, Operation and Maintenance (O & M). The fiscal year 1966 breakout by manhours and personnel equivalents is contained in Table VIII. This table shows, as in the procurement budget accounts, that program elements are not defined. Functional accounts are maintained and subsequent program relationships are difficult to establish.

#### Storage and transportation

The AMA Directorate of Supply and Transportation (DS&T) is responsible for storing all centrally procured items. The storage site for parts is generally at the AMA which manages the assets.

TABLE VIII

DEPOT LEVEL MAINTENANCE PROGRAM MANHOUR AND PERSONNEL  
 REQUIREMENTS FOR FISCAL YEAR 1966 BY  
 COMMODITY/WEAPON SYSTEM CATEGORIES<sup>1</sup>

| <u>Commodity/System</u>         |          | <u>Manhours</u> | <u>Personnel</u> |
|---------------------------------|----------|-----------------|------------------|
| .1 Aircraft                     | Depot    | 19,642,437      | 13,259           |
|                                 | Contract | 29,857,170      | 20,154           |
|                                 | Total    | 49,499,607      | 33,413           |
| .2 Engines                      | Depot    | 4,963,359       | 3,467            |
|                                 | Contract | 4,531,570       | 3,165            |
|                                 | Total    | 9,494,929       | 6,632            |
| .3 Accessories                  | Depot    | 13,495,340      | 9,072            |
|                                 | Contract | 8,894,384       | 5,981            |
|                                 | Total    | 22,389,724      | 15,053           |
| .4 Communications & Electronics | Depot    | 2,690,875       | 1,850            |
|                                 | Contract | 2,463,014       | 1,696            |
|                                 | Total    | 5,153,889       | 3,546            |
| .5 Ground Powered Equipment     | Depot    | 1,525,908       | 1,004            |
|                                 | Contract | 2,378,643       | 1,570            |
|                                 | Total    | 3,904,551       | 2,574            |
| .6 Other Equipment              | Depot    | 3,697,051       | 2,474            |
|                                 | Contract | 1,827,325       | 1,225            |
|                                 | Total    | 5,524,377       | 3,699            |
| .7 A/C Storage                  | Depot    | 644,892         | 483              |
|                                 | Contract | -               | -                |
|                                 | Total    | 644,892         | 483              |
| .8 Other Storage                | Depot    | 7,131           | 5                |
|                                 | Contract | -               | -                |
|                                 | Total    | 7,131           | 5                |
| .12 Missiles                    | Depot    | 3,037,601       | 2,124            |
|                                 | Contract | 2,391,017       | 1,672            |
|                                 | Total    | 5,428,618       | 3,796            |

<sup>1</sup>AFLC Maintenance Engineering, Long Range Workload and Resources Plan (Wright Patterson AFB, 1966), pp. 23-26.

TABLE VIII - Continued

|         |          |             |        |
|---------|----------|-------------|--------|
| Summary | Depot    | 49,704,594  | 33,738 |
|         | Contract | 52,343,124  | 35,463 |
|         | Total    | 102,047,718 | 69,201 |

DS&T notifies the item manager of receipts from manufacturers and of shipments to using bases. These transactions are reported to computers which automatically update the IM/SSM account books and keep them current. DS&T performs periodic and special inventories to check the accuracy of the stock accounts and to assist in inventory adjustments. The outbound mode of transportation is generally determined by this directorate although in special cases the item manager will intercede to expedite a shipment.

#### Procurement function

The Directorate of Procurement (DP) performs the buying task. The IM/SSM divisions send purchase requests, based on their computations, to DP. The directorate is charged to buy the items listed on the requests. DP is told how many to procure, but they determine the contractor and the price of the required articles. In addition, the directorate decides on inbound modes of transportation and types of contract and also conducts price analysis studies.

## Stock Funds and Industrial Funds

A stock fund is a revolving fund where the supplier, AFLC, charges the purchaser, major air command, for the items that are consumed. In essence, a buyer-seller relationship is developed through stock funding as the consumer's funds are used to buy goods from the supplier. When a stock fund is set up, all the inventories of supplies and equipment in the categories to be covered by the funds are given a dollar valuation, or are capitalized. Additional cash for working capital is provided. The managers of the fund buy stocks with their working capital according to estimates of future needs. As these are sold to the customers, inventories are converted into cash which can be used to buy new supplies. One fact should be emphasized. Revolving funds are a direct contrast to the standard AFLC operation involving centrally procured assets. Payment is required for every part issued. This fact is stressed in the Department of Defense Supply Management Reference Book. "The buyer-seller relation in the revolving fund concept is designed to achieve . . . [the] elimination of "free issue" of supplies since using activities purchase stock fund items with allocated funds."<sup>1</sup>

An industrial fund is a revolving fund established to provide working capital for the operation of commercial-type or industrial-type installations. These activities manufacture goods for or

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<sup>1</sup>Department of Defense, Supply Management Reference Book, DA Pamphlet No. 700-1 (Washington, D.C., 1965), p. 125.

furnish service to DOD consumers. It is basically the same as the stock fund except it deals in production or services rather than supplies. The similarity and difference are clearly defined in the following comment:

Initially, each industrial fund is constituted of cash; accounts receivable; inventories of materials, supplies and work in process; and all other current assets except land, plant and equipment of the activity. The fund is used to finance the costs of goods produced or services rendered, being reimbursed for these goods or services from the appropriated funds available to the customer (consumer) who has ordered, and received, these goods or services.<sup>1</sup>

AFLC has four stock funds and three industrial funds. Each has the same objective; it is to break even at the end of every fiscal year. The sale of goods, services or production should equal the cost of "making" the various outputs. Table IX lists the separate funds and fiscal year 1965 performance. The table contains figures which show that the special fund managers, for all intents and purposes, achieved their goal of equality between expenses and sales.

The distinction between stock/industrial funds and centrally procured/depot repair programs, generally used in AFLC, is that the special funds directly charge the consumer. The customer is responsible for funding the resources. On the other hand, the regular supply and maintenance operations are funded by AFLC and the consumer receives the goods or services free of charge. AFLC has to justify procurement costs as well as consumption rates in order to be funded each year.

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<sup>1</sup>Ibid., pp. 129-130.

TABLE IX

AIR FORCE STOCK AND INDUSTRIAL FUNDS COSTS AND SALES FOR  
FISCAL YEAR 1965 (DOLLARS IN THOUSANDS)<sup>1</sup>

| STOCK FUNDS             | COSTS        | SALES <sup>a</sup><br>(APPROXIMATE) |
|-------------------------|--------------|-------------------------------------|
| Aviation Fuels          | 699,275      | 678,000                             |
| Sustenance - Commissary | 613,746      | 620,000                             |
| Clothing                | 38,275       | 46,000                              |
| Academy Cadet Store     | <u>1,728</u> | <u>2,000</u>                        |
| TOTAL                   | 1,343,298    | 1,345,831                           |
| Net Gain                | 2,533        |                                     |

| INDUSTRIAL FUNDS       | COSTS          | SALES          |
|------------------------|----------------|----------------|
| Printing - Duplicating | 10,531         | 10,539         |
| Laundry - Drycleaning  | 7,292          | 7,335          |
| Military Airlift       | <u>446,690</u> | <u>445,682</u> |
| TOTAL (Adjusted)       | 460,622        | 463,556        |
| Net Gain               | 2,934          |                |

<sup>a</sup>The sales were not listed in a detailed breakout but were rounded off to the nearest million dollar. However, the total figure is exact to the nearest thousand dollar.

<sup>1</sup>U.S. Government Printing Office, The Budget of the United States Government: Fiscal Year Ending June 30, 1967, (Washington D.C., 1966), pp. 337-339.



### AFLC Summary

The command manages \$8.2 billion dollars annually. Approximately \$4 billion is spent on procurement and \$1.4 billion on depot level maintenance. The total dollars managed represents about forty percent of the total Air Force budget and the procurement and maintenance expenditures amount to approximately twenty-seven percent of Air Force funds.

The command headquarters and the field installations are organized along functional lines. The traditional logistics tasks of supply, transportation, maintenance and procurement each have separate directorates. Little attention, organizationally, is given to total programs or weapon systems. The System Support Manager divisions are the only examples where systems are recognized through the organization structure.

AFLC manages resources which are used to support the missions of each major air command. In effect, logistics efforts are expended on every Air Force program element, except retired pay and research and development elements, contained in the major programs of the Five Year Force Structure and Financial Plan.

## CHAPTER III

### RESTRICTIONS TO PROGRAM MANAGEMENT

The Air Force Logistics Command cannot provide factual cost data to the program budget because the command seldom computes requirements by programs or accounts for expenditures by program. A large percent of AFLC funds are spent on common materiel and services which, due to present appropriation methods, cannot be realistically costed to the appropriate element consumer.

The "spillover" or common resources are in the Procurement and Operation and Maintenance (O & M) areas. The procurement accounts are listed on Tables V, VI and VII. The total O & M account, 57 X 3400, was funded for \$2.0 billion in fiscal year 1966, of which \$1.4 billion was funded to perform depot maintenance. Some of the depot maintenance money plus large portions of the procurement funds are expended on items that are considerably smaller than weapon systems and on items which are a part of more than one program element.

The materiel area, on which the 57 X 3010, 3020 and 3080 funds are spent, is divided into three types of items. They are replacement, recoverable and consumption type spares. (For detailed definitions check pages 41 and 42.) Approximately \$4.0 billion are annually spent to buy parts. This figure represents the total amount of Tables V, VI and VII. Approximately \$ .4 billion is spent on replacement

spares, \$2.8 billion on recoverable spares and \$ .8 billion on consumption parts. The recoverable and replacement items are sixty percent peculiar to one basic aircraft and forty percent common to many weapon systems. The consumption items are evenly divided between peculiar and common items.<sup>1</sup>

A peculiar item is one which is only a part of one basic airframe. It may be on several series of one aircraft, such as the B-52B, C and D configurations, but the airframe will always be, in this example, the B-52. The peculiar parts are identified by adding a two digit suffix code to the regular eleven digit Federal Stock Number. Generally, peculiar item costs are easily costed to a program element since most weapon systems are individual elements or the major portion of a program element. Some cases exist where an aircraft is part of more than one major program; the KC-135 is costed to Strategic Retaliatory Forces when it is used to refuel a long-range bomber and General Support Forces when it aerially refuels a tactical fighter. However, they are rare and are a small percent of the total Air Force Flying program. The "spillover" in the peculiar item area

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<sup>1</sup>The figures in this paragraph were researched by the author and Mr. Raymond Kristy, AFLC Supply Analyst. They represent dollar values and percentages. The figures were compiled from the Air Materiel Area reports titled Requirements Inventory Analysis Reports (RIAR). The research was accomplished as a result of DOD requesting that common items be identified to weapon systems when determining FY 67 requirements. At that time, Mr. Kristy determined that it was not possible under present appropriation procedures and asset distribution methods. AFLC has continued to identify only peculiar item costs to weapon systems. It was this study which led the author to seek a method whereby total program costs could be accurately computed.

does not create a large problem. The procurement categories, reflected on Tables V, VI and VII, that involve only peculiar assets are the Initial Spares, Modifications and Special Project Categories. Of course, each of the other budget programs include peculiar parts but the point is that only a few procurement categories, accounting for less than 30 percent of the total expenditures, can be analyzed to ascertain the program which consumes the resources.

Common items, in contrast to peculiar ones, are used on at least two different airframes. In many cases, flight instruments, for example, the common parts are a part of every aircraft in the Air Force. The problem of identifying these items to a program element has never been resolved. Arbitrary methods have been suggested such as prorating each of these parts against the flying hours of every aircraft on which they are consumed. For example, if the item is used on five aircraft and each has an identical total number of annual flying hours, then the procurement costs would be evenly divided between the five aircraft. However, the Department of Defense has not accepted this method because the reliability and maintainability figures of the same spare part varies for each aircraft application. Replacements and condemnations are not solely related to the number of flying hours but upon many other factors such as placement, vibrations, speed, weight, etc. Common items are reflected, with the exception of those categories listed above, in all the budget programs depicted on Tables V, VI and VII. The extent, in terms of dollars, is widespread and an analyst searching for program element relationship

cannot establish it through the appropriations system. The budget categories simply do not serve as a guide, in most instances, to determine where the resources are being consumed. The point, although reiterated many times, should be made that functional budget accounts cannot support the program element structure because the two systems make different money identifications.

The expenditures on common items annually amount to approximately \$1.7 billion or 8.5% of the total Air Force budget. These figures do not include the administrative costs incident to the computation and procurement of the parts nor to the transportation and storage costs involved in the distribution of assets. Most of the funds to support these activities are in the Operations and Maintenance account 57 X 3400. The major O & M categories are personnel services, travel, transportation, supplies, equipment and maintenance.

The O & M costs are the most difficult to identify and apportion to program elements. Many defense officials, including Mr. Hitch, have voiced concern over this fact:

There is . . . the unsatisfactory state of operating costs in many areas. Our appropriation accounting systems do not directly yield operating costs by program element - e.g., by aircraft type. Many of the alleged "actual" operating costs of elements in the Five-Year Program are obtained by an allocation of budget categories. Since these "actuals" constitute the base for projecting future operating costs, some parts of the financial program are not too meaningful. For example we do not really know whether the . . . present cost projections accurately reflect the growing operation and maintenance requirements of its expanding fleet of aircraft. Improvements in the Department's cost estimating system in the operation and maintenance area must definitely be placed high on our

future agenda.<sup>1</sup>

Robert N. Anthony, the present DOD Comptroller, shares his predecessor's opinion concerning O & M costing methods:

When someone is asked to authorize money for an operating activity, the natural question he asks is: what do you propose to do, and how much is it going to cost? We can't match costs against the work to be done today since the present budget structure is slanted towards inputs -- military personnel, fuel, TDY, and the like; it does not provide a matching of inputs with outputs. We therefore can't give a good answer to the question I have stated, and without such an answer, it is difficult to make a convincing case as to why we really need the money we seek.<sup>2</sup>

As with the centrally procured materiel items, there are some costs which can easily be identified to a program element. Personnel in a Systems Support Manager division total aircraft depot overhaul and contractor furnished transportation of peculiar items can be apportioned to the particular weapon system involved. However, many costs are again common or shared. Communication systems, warehousing, medical support, utilities and portions of depot maintenance cannot be neatly separated into program elements. These services receive an aggregate appropriation and are measured against the aggregate total rather than weapon systems.

The depot maintenance program is the most significant portion, in dollar terms, of the O & M account. Of the \$1.4 billion annually

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<sup>1</sup>Charles J. Hitch, Decision-Making for Defense (Berkeley and Los Angeles: University of California Press, 1965), p. 65.

<sup>2</sup>Robert N. Anthony, "The What and Why of Defense Management," Address before the Defense Management Systems Course, Naval Postgraduate School, Monterey, California, August 5, 1966.

expended, approximately thirty percent of the funds are spent on common services. This \$420 million added to the common materiel costs of \$1.7 billion amounts to over \$2.1 billion in expenditures that cannot be accurately costed to a program element. The thirty percent represents material and labor costs consumed in the repair of common engines, accessories, electronics and ground equipment.<sup>1</sup> The thirty percent figure is based upon whether the item being repaired is managed by a System Support Manager (SSM) or an Inventory Manager (IM). If an IM manages an end item and determines its repair schedule, it is considered common and conversely if an SSM controls the asset, it is peculiar.

To determine the breakout in the remaining \$ .6 billion of O & M funds is not easy. The personnel alignments in procurement, supply and storage, etc., are not neatly arranged around a commodity or an end item. As shown in Charts I and II, the support directorates are organized along functional lines and not according to programs. The warehouse space is not costed and the only values carried on the books are the original construction plus any additional construction costs. While the inventory of peculiar and common items is known both in dollar and line item totals, the

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<sup>1</sup>AFLC Maintenance Engineering, Long Range Workload and Resources Plan (Wright-Patterson AFB, 1966), pp. 5-301. The author researched the entire publication to separate the common and peculiar costs. The summarized totals appear in Table VIII. It is believed a system by system, subsystem by subsystem breakout is not required because such a listing, plus an additional identification the author had to make concerning peculiar and common workloads, would be too voluminous to use.

weight and cube needed to apportion storage and transportation costs could not be determined. Also, modes of transportation varied upon the priority of the requisition and while the number of such shipments could be found, it was not possible to ascertain the characteristics of the shipped items. Because of these unresolved contingencies, the author resisted the temptation to prorate the costs and is not including such arbitrary costs in presenting his thesis. Nevertheless it is accurate to say that portions of these support expenditures are in the common areas.

Assigning common item costs to a program element is only half of the problem. The other half is determining where consumption occurs. Have the resources been expended on the intended program elements? Without an audit mechanism, there can be no real measurement as to the validity of planned resource usage. The projected costs remain an initial plan but do not become a year-end standard against which to measure expenditures because total spending is unknown. As an example from the author's experience, the F-5 is a Mutual Assistance Program (MAP) weapon and is thus totally funded from and costed to Program 9, Military Assistance. The aircraft is a modified T--38, which is the basic jet trainer in the Air Force. The F-5 and T--38 have approximately fifty percent common parts. The first two production contracts called for 200 F-5's and a full range of initial and replenishment spare parts. The parts were delivered concurrently with the aircraft, but since the replenishment parts were not immediately consumed, they were placed in storage sites.



The T--38, with an inventory approaching 1,000 aircraft, had a large flying hour program and required extensive spares support. Since the parts were available, and the T--38 had valid requirements while the F-5 was barely being flown, the SSM filled all possible requisitions with the F-5 spares. This was obviously unplanned consumption and would never be recorded properly.<sup>1</sup> While this example may be unusual, it points out the fact that no one can truly account for the consumption of common items or services.

AFLC has little control over the distribution or consumption of common resources. Any authorized base can requisition, in almost any amount, the common parts. It is normally a "first come - first served" basis. The command is expected to justify consumption in their requirements computations based upon reliability figures. A computed number of items is bought to support each aircraft on which the part is used. Theoretically consumption is known and costs can be apportioned to the various airplanes or program elements. In reality consumption does not result from reliability figures but solely from the number of items the separate air bases requisition. These parts are requisitioned by base supply organizations that support the entire base aircraft inventory. The inventory can include any number of different types and models. Even when the computed amounts are correct and are used for planning purposes, there is no assurance that consumption occurred in the planned manner and therefore projected costs

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<sup>1</sup>The author was a Logistician in the T-38/F-5 SSM for eight months.

are not synonymous to real costs. Unless actual consumption is recorded, planned resource usage cannot be measured against actual usage.

Functional thinking, as a result of managing common resources and services, permeates AFLC Headquarters management philosophy. This thinking further aggravates the problem because the operating agencies are generally given goals that reflect separate actions rather than programs or systems. The Air Materiel Areas (AMA) are rated by the number of backorders, timeliness of publication, procurement administrative time and the like. See Chart III for AFLC Do-List Objectives. The activity criterion can reveal misleading information and certainly detracts from a program management philosophy. The following statement supports this belief:

A further pursuit of this line of reasoning leads us to reexamine some of our criteria of goodness. For example, we have each seen reports of studies where different stockage policies for fixed dollar inventories have been compared solely on the basis of fill-rates. Now if each of the stockage policies being compared had incorporated all the necessary constraints as integral to the policy, then the resulting comparison should have valid meaning. The danger, if there be one, results if one uses a criterion such as fill-rate outside its proper context. For example, without adequate practical constraints such as stratification by essentiality if such be indicated, the maximization of fill-rate within a fixed dollar constraint can in an inadequately delineated policy, lead to the conclusion that the available dollars should be spent for more protection in the low cost items with few or no expensive but critical items being ordered. The rejoinder one may well receive to this statement is: Well, of course, it is expected you will use common sense in the application of the model, and I agree, one should. However, if one is utilizing products from an automated data system, he had better make sure that some of this "common sense" is incorporated into the articulation of these products.<sup>1</sup>

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<sup>1</sup>Dr. Landis S. Gephart, "Potential Problems in measuring and

## CHART III

AFLC OBJECTIVES FOR 1966<sup>2</sup>

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1. Publish the policies of AFLC in one volume.
  2. Accomplish 100% stockage at all bases for J-57/J-75 engines.
  3. Develop a standard routing guide for movements to overseas destinations.
  4. Provide 30 mechanized materials handling systems for SEA.
  5. Convert contractor technical services manpower to competitive status.
  6. Develop and apply clerical standard time data.
  7. Maintain minimum number of active inventory items.
  8. Improve manpower management techniques in D/MM and D/S & T functions.
  9. Plan for procurement inspection of petroleum/oil/lubricants (POL) in limited war areas.
  10. Emphasize the use of cost effectiveness models.
  11. Design optimum cataloging system.
  12. Implement USAF equipment data bank.
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Evaluating Logistics Activities," Logistics Research Conference (2 Vols., Washington: Department of Defense, 1965), Volume II, No. 8, pp. 26, 27.

<sup>2</sup>Air Force Logistics Command, "AFLC Do-List Objectives," AFLC Management Systems, AFLCM 171-5 (Wright-Patterson AFB, 1966), pp. 15-19.

Most of the objectives are not stated in mission terms and the AMA's are, in essence, compelled to concentrate their management efforts in areas less than program element size.

These criticisms are not meant to conclude that AFLC is not concerned with program management. The command has long recognized its value and has been a forerunner in advocating its establishment. Advocation and accomplishment are, needless to say, separate activities and it is in the accomplishment area that AFLC has had limited success. The SSM concept was the beginning of program management and in 1959 the Logistic Programs Management System (LPMS) was initiated by AFLC. This system, which preceded Secretary McNamara's new budget methodology, encompassed the basic philosophy and objectives of the DOD planning-programming-budgeting procedures.

The system has had many titles and operational revisions since its inception but the objective of collecting cost data by programs has remained constant. The primary purpose of the system is briefly summarized in the following statement:

The basic premise underlying LPMS is that a significantly large portion of the workload of an Air Materiel Area (AMA) can be determined by reference to Air Force Programs (or interpretation of these programs through such processes as requirements computations), and that it is possible to relate the required resources (manpower, material, equipment and facilities) to these expressions of workload. As a step by step process, Air Force Programs are converted to AMA Programs; AMA Programs are converted into workload projections by organizations, resources are allocated back against AMA Programs, and the consumption of resources is related to workload accomplishment. The program orientation of this concept is in line with the greater emphasis being placed on system program management in terms of identifying capability and costs to system programs.<sup>1</sup>

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<sup>1</sup>AFLC Mission Statement, Air Force Logistics Command, Logistic

In essence, LPMS attempts to match the workload accomplished to the resources consumed in a weapon system arrangement. For peculiar workloads such as the B-52 overhaul shop the LPMS system works very well. Again it is the common item and support areas where the system breaks down.

The first three phases of the LPMS have been installed at the AMA's. A cursory glance at these phases reveals that certain costs cannot be identified to a weapon system or program element. The following quote concedes this point:

The first phase identifies the kind of responsibilities charged to an AMA Commander and lists them in quantitative expressions of systems, commodity groupings, or support. The second phase converts the foregoing logistic program into personnel equivalents by kinds of work by organization to division level. The third phase converts the foregoing personnel equivalents into the required manpower spaces . . . The remaining phases of LPMS are being developed. They will provide for the inclusion of the additional resources required to support the above logistics programs; i.e., supplies, equipment, real property, and funds for travel, transportation.<sup>2</sup>

The LPMS cannot compute total costs because commodity (common material) and support (management and administrative) are recognized as separate entities and not as integral parts of larger elements. They are accorded the same status as a weapon system. That is, costs are accrued to them as if they were a B-52 or a Minuteman. Commodity and support are termed programs in the LPMS but under the DOD concept this is not the case. While the objective of LPMS was to

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Programs Management System (Wright-Patterson AFB, 1966), pp. 1, 2.

<sup>2</sup>Ibid., p. 2.

compute total system costs, it does not in areas of common usage because no accurate accounting method has been discovered. The original belief was that these areas could be apportioned to the actual consumer systems but now it is conceded as impossible. It was also formerly thought, by those who manage the system, that LMSM "Supports DOD objective of program management control (Hitch concept)".<sup>1</sup>

However, "program" has a different meaning under each management system and therefore they are not compatible.<sup>2</sup>

The examination of LPMS is not intended as a criticism of AFLC or its system designers. It is simply used as an example of an extensive effort to manage resources, by program elements, which is unsuccessful because of "spillover" costs. During the seven years of service test and operation LPMS analysts found no accurate method to trace common resources. As long as AFLC is funded through the appropriation account method and accounting for consumption remains their responsibility, there is no way to account for over \$2.1 billion worth of expenditures.

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<sup>1</sup>AFLC Brochure, Logistic Programs Management System - LPMS, used as a handout to accompany early briefings on the system, p. 3.

<sup>2</sup>In an interview with Mr. B. Herbert, LPMS System Manager, he conceded that the common usage resources presented a dilemma. He conceded that the system probably would be used only internal to AFLC and had limited potential to support the DOD program budget.

## CHAPTER IV

### AFLC UNDER COMPLETE INDUSTRIAL AND STOCK FUND OPERATIONS

#### The Need for Revision

The Department of Defense planning-programming-budgeting system was designed to free the defense establishment from some of the undesirable qualities of the appropriations type budget. The new system is to provide the decision-makers with the information necessary to determine rational choices. The program budget has created, for the most part, the resource input-output measurement apparatus for the mission forces. The support forces are still faced with the problem of relating inputs to outputs. They have no output or mission; their role is to assist other organizations fulfill a mission. However, while the support units have no direct output, they are responsible for managing large inputs and for identifying the program elements that consume the resources.

It is the thesis of this paper that support organizations, using the Air Force Logistics Command as the example, cannot provide meaningful financial data to top defense management. The extensive commonality of services and materiel cause support units to input inaccurate information to the program budget. Complete participation and reporting from all defense organizations require a new attitude towards support units. They must be recognized as non-

mission groups and must not be expected to make determinations concerning costs which are out of their control.

The organizations which directly create an output (mission) should also account for all the inputs. The only way true consumption can be recorded is at the time it actually occurs. Any other method is hypothetical. To do this, all the appropriation funds must be given to mission organizations, and then the input-output measurement would emanate in all cases from the one creator and consumer.

The author proposes that all annual appropriations be given to the defense commands which perform a direct military mission. Only output producers would have money to buy inputs. All support organizations, excepting the research and development area, should operate from the funds they receive for their services, production or material. In essence, the support units should be stock or industrial funded. These organizations would no longer operate under the functional appropriations budget.

Stock and industrial funds are not new to the DOD. The revolving fund concept has existed in the Navy since 1893. They had never been widely used until Mr. McNamara became the Secretary of Defense. Since that time the Defense Supply Agency (DSA) has been established. The agency manages items and services which are common to more than one military department. Such items as medical supplies and common clothing and services such as central cataloging and traffic management are under DSA control. The entire DSA is stock or industrially funded. It has eleven divisions which manage almost \$4.0 billion



worth of resources and annually sell \$2.0 billion worth of material and services to DOD customers.<sup>1</sup>

The Air Force transacted approximately \$1.8 billion worth of business in fiscal year 1966 under the special funding techniques. AFLC manages four out of the seven Air Force divisions using stock or industrial fund operation; they are Aviation, Fuels, Commissary, Clothing and Laundry/Drycleaning. Each of the divisions are now in a transition phase leading to integration with DSA but the last year all were in AFLC, FY 1965, they totaled about \$1.3 billion worth of sales. The purpose for listing these facts is to point out that the command has experience in the use of stock and industrial funds. The implementation of the author's proposal would not present a technique that AFLC has not already handled.

#### Proposed AFLC Stock and Industrial Fund

The basic purpose of this proposal is to insure that the responsibility center, or the mission producer, is aware of all inputs. More specifically, as Comptroller Anthony states, that "he is charged with the . . . costs that he incurs in accomplishing his task - both the labor and material costs incurred directly in the responsibility center and also the value of the services furnished him by other . . . centers."<sup>2</sup>

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<sup>1</sup>Department of Defense, Supply Management Reference Book, DA Pamphlet No. 700-1 (Washington D.C., 1965) pp. 52-63.

<sup>2</sup>Robert N. Anthony, "New Frontiers in Defense Financial Management," The Federal Accountant Vol. XI (June 1962), p. 22.

The Air Force responsibility centers are the individual air bases under the present definition since base organizations deal directly with the external support units. The base commander provides services to all organizations on his post regardless of command. For example, Olmsted AFB was an AFLC installation and was commanded by logistics personnel. However, an Air Defense Command squadron was also in place at Olmsted. It was a "tenant" organization. The base commander supported the tenant in the same manner as he serviced his own group. Supplies, spares, maintenance, equipment, etc., were obtained by the tenant through the base commander's organization.<sup>1</sup> The installation commander is the resource manager for the entire base and collectively, are the real managers of almost all Air Force resources because their units consume the assets.

The responsibility center, under the author's proposed system, must be the one level below the base commander. The individual tenant units, and there are no bases without tenants, become the mission producing center. This is done to break the major air commands into totally separate accounting units. If this is not done, then resources consumed by, hypothetically, an Air Defense Command (ADC) squadron located on a Air Training Command (ATC) base would erroneously be charged to ATC. Each command is in a separate force structure and therefore costs would not be properly apportioned.

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<sup>1</sup>The past tense is used in reference to Olmsted AFB since it is now being closed. This phased-out base is used as an example because no breach of security is possible in this instance.

Generally the tenant units are broken into the following organizations:

1. Wing - A bomber wing usually is made up of 45 aircraft and a fighter wing of 72 aircraft.
2. Squadron - Usually three 15 aircraft squadrons comprise a bomber wing and four 18 plane squadrons make up a fighter wing.
3. Detachment - One-third of a bomber or fighter squadron.

Even the detachment size unit represents sizeable annual consumption as the cost of aircraft spares equals 28.6% of aircraft acquisition price. The average aircraft price is \$1,859,000 and the average spares costs per airplane is \$532,000. Each plane is not fitted each year with its total spare part inventory but approximately seventy percent of the spares have yearly transaction experience.<sup>1</sup>

Prior to stock and industrial funding AFLC, each major air command is to be given an account number. Within the separate commands each subordinate organization such as wing or squadron is to be given a sub-account number which is related to the command number. The intra-command identifications will depend upon the deployment of its units. In some instances a wing will be assigned a sub-account and in other cases a detachment will require a separate account. Whatever the breakdown is, each account unit will have to be given O & M money in order to individually purchase goods or services from the central revolving funds. The amount of money that the commands,

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<sup>1</sup>The figures are part of the research project described in footnote 1 on page 60.

and their sub-units, will initially receive should be based upon the Inventory Manager (IM)/System Support Manager (SSM) reliability and maintainability computations. The weakness of these hypothetical figures has been discussed but the author believes that they are valid enough on which to base the first year's operation. Also, the computations are the only figures available to support projected usage. After the first year, adjustments to command funding will occur as true consumption becomes the basis for financial apportionments.

Currently there are Department of Defense and Air Force restrictions on the use and scope of stock and industrial funds. Stock funds only include the procurement price, first destination transportation costs and surcharges for losses, deterioration, etc., of the stock items. The personnel, administrative and warehousing costs incident to materiel management are not included in the fund and the consumer price does not include these costs; they are still funded through the regular appropriations channels. Also, many items are excluded from stock fund coverage due to special characteristics. The primary exclusion is recoverable items coded for depot level repair.<sup>1</sup> The primary limitation on industrial funds is that they do not include support costs such as transportation, non-depot administration and non-organizational storage. The only costs

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<sup>1</sup>Department of Defense Directive, Regulations Governing Stock Fund Operations, Number 7420.1, August 20, 1965, pp. 11-13. The entire list of excluded items appears on these pages but most of the items were not relevant to this paper.

that are included must occur in the Directorate of Maintenance, all others are excluded.<sup>1</sup> These restrictions will have to be lifted before the entire AFLC can be specially funded. This is not a wild expectation on the author's part because both DOD directives mentioned in footnotes appearing on this page and page 75 have been revised twice in the past two years. In each case the purpose and scope of stock and industrial funds have been extended. The ensuing proposals are based on the assumption that the above mentioned prohibitions will be eliminated in the interest of improved management.

The first action required to establish a stock fund is to apply for charter approval from the Assistant Secretary of Defense (Comptroller). The charter includes information on the size of the operation and the characteristics of the items to be placed in the fund. This first step should be fairly simple since AFLC would not be assuming a new workload but would merely be describing their existing functions and their size.

The second step is to capitalize the assets. This would entail a complete capitalization of items, services and facilities. Each Air Materiel Area (AMA) would have to segregate its entire expenditures and apportion them to the appropriate materiel management division, excluding those costs which support depot maintenance

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<sup>1</sup>Department of Defense Directive, Regulations Governing Industrial Fund Operations, Number 7410.4, July 7, 1965, pp. 6-8. For a refined breakout peculiar to Air Force requirements see Department of Air Force, Air Force Industrial Fund, Charter for Depot Maintenance, an undated brochure distributed in 1966.

programs. This would mean the Directorate of Procurement, the Directorate of Supply and Transportation and the staff offices would divide their support expenditures between the various Inventory Management (IM) and System Support Manager (SSM) divisions. Also, the facilities such as warehouses and office space would have to be capitalized. All due-in assets, which already have obligated funds attached to them, also have to be capitalized as well as any construction in progress.

The various resource segments will have to be gathered from many sources and converted into one total. This will not be a simple procedure but it is possible. The item inventory value plus due-in assets is mechanically maintained and updated. This cost is the easiest to ascertain. The facility costs are kept in the real property accounts. While the costs represent acquisition rather than replacement prices, they are adequate because facility capitalization is done to draw a line between existing ones and future buildings. That is, the value of present facilities will not be part of a consumer item price but subsequent building costs must be integrated into the commodity costs. Personnel services will be the most difficult to determine. They will have to be negotiated between the materiel management division and all the units which support it. The author suggests that IM/SSM teams be established to go into the support directorates to determine the personnel resources that each materiel management division requires. Periodically, in the past, manpower surveys have been conducted on an AMA-wide scale by high

ranking AMA personnel. These teams would investigate manpower needs and allocations in outside directorates. Upon their reports, personnel reallocation and organizational revisions occurred which reflected current and projected workloads.<sup>1</sup> These same type of teams could be used to determine the people who support a particular commodity management division. The sum total of inventory, facilities and personnel services will represent the capitalized value of the fund. Each materiel management division, either IM or SSM, will be a separate stock fund.

Besides a capitalized value, the stock funds require working capital. Such capital is necessary to procure items on which little or no sales have been recorded. For example an item may have a procurement lead-time of nine months. Between the time the contract is awarded and item delivery is made, there is a nine month time lapse. Obviously the item manager cannot wait until sufficient sales or orders are made before a new contract is awarded because nine months will go by before the assets are again on hand. The item manager must anticipate consumption and order nine months prior to a requisition. This will require money from which there is no immediate reimbursement so an operating capital account is needed. The amount should be based on the average item lead-time minus the due-in from production assets.

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<sup>1</sup>The author worked on the final phases of the Middletown AMA manpower survey. Titled, Project Shrimp Boat, the survey caused over 800 personnel reassignments out of a total manpower strength of 10,000 and over 100 organizational changes.

The major air command would be appropriated money, in their normal categories such as 57 X 3010 and 57 X 3400, according to the IM/SSM requirements computations. However, the stock fund operating capital will have to be subtracted from this figure for the first year to avoid a large increase in logistics appropriations. After the first year, few items have a lead-time of more than one year; the operating account will be self sustaining and money equal to its total amount would be added to the annual major air command appropriations. AFLC would no longer receive Congressional functional appropriations. Only the mission units would receive money through the traditional account procedures.

Stock item prices would reflect all resources currently being input to support the item. This not only includes administrative, personnel, transportation, acquisition and storage costs but also charges to compensate for losses, deterioration and damage. In other words the stock fund, once established, has to completely sustain itself through its annual sales. Except in emergencies such as the Cuban crisis, and grants to non-paying customers such as a foreign country, no Congressional appropriation should be required after the first year's operation.

The goal of all stock funds is, and should continue, to break even. Total expenditures should equal total sales. Stock fund managers are responsible for maintaining business-type accounts to show their position relative to the break-even point. Basically the requirements for bookkeeping are parallel to private business



accounts. The requirements, listed in AFR 177-25C, are:

XIII. REQUIREMENTS FOR ACCOUNTING

- A. The establishment of a satisfactory system of financial and quantity accounting for property is a prerequisite for the complete establishment of stock fund operations.
- B. The following minimum requirements shall be observed in accounting for materials, supplies, and equipment under stock funds:
  1. Summary (or control) accounts for transactions and stock balances shall be maintained in financial terms by the stock classifications adopted for supply management purposes.
  2. Stock transactions shall be summarized in financial terms not less frequently than monthly, for recording in the aforementioned summary (or control) accounts. Such summarization may utilize manual, mechanical, electrical, or EDP methods, and shall be susceptible of reference to the supporting documents.
  3. A standard pro forma chart of financial control accounts is prescribed under separate DOD Instruction (reference (k)). These financial accounts are designed to facilitate the preparation of financial reports.
  4. Detailed stock records (by items) shall be maintained in support of the financial summary (control) accounts referred to in subparagraph 1. above, but it will not be required that the detailed item records show prices or the amounts of the transactions in financial terms. Such transactions may be priced solely on the documents or the summary listings referred to in subparagraph 2. above. This requirement is not applicable to certain retail activities, such as sales stores using simplified procedures for accounting for low-value items and where transactions and inventory balances are recorded in financial terms only without the maintenance of quantity data. Other procedures for simplified inventory accounting are authorized for low-value materiel in accordance with criteria

established in reference (1) for application at bases and depot maintenance facilities.

5. All identifiable losses of materiel or disposals for any cause, as well as normal issues, shall be recorded promptly and documented with authorized completed forms, except that sales stores issues may be recorded by cash registers or other appropriate mechanisms for control.
6. Except when otherwise provided to meet the requirements of the General Accounting Office, the original documents supporting stock transactions shall be retained at the site where the basic financial or stock records of the stock fund are maintained.
7. Periodic or continuous, rotating physical checks of stock items shall be made, and the stock records and summary (control) accounts shall be adjusted in accordance therewith. As a general rule, physical inventories of stock funds shall be taken not less frequently than once each year. However, exceptions to this general rule will be permitted to allow for less frequent physical inventorying of certain types of items, i.e., relative slow-moving, nonpilferable, low monetary value, and other types of items where storage conditions and lack of movement insure adequate physical protection and accuracy of the records. In addition, statistical sampling methods are authorized to measure the results of the entire inventory (or portion thereof) from the sample of items examined on a scientific basis. At least annually, all detailed item records shall be price-extended, and the total compared with the respective summary (control) accounts; this check necessarily must be independent of physical inventory-taking where continuous rotating physical checks of items are made; but in the case of complete, periodic physical checks, this check must be an integral part of the physical inventory procedure. Any significant differences should be investigated and explained; errors disclosed by investigation should be corrected, and any unlocated differences should be adjusted in the summary (control) accounts.

8. Adjustments of book inventories (stock-recorded item balances) to agree with physical checks shall be made currently as physical inventories are taken (item by item if on a rotating basis). Bookkeeping adjustments shall represent generally only such adjustment of the summary (control) accounts as are required to maintain agreement thereof with the supporting detailed stock records (whether or not such adjustments are determined in connection with taking physical inventories). These adjustments shall be classified in the accounts by stock reporting classifications.<sup>1</sup>

These requirements only include asset accountability but extending them to cover other expenditures does not appear to be difficult. Accounts for expenditures, revenues, inventories, etc., are kept but only relative to inventories. Adding the other costs of personnel and administration to the existing accounts should not create serious problems. The complete account structure is listed in DOD Directive 7420.1 and AFR 177-25C but the same system can be found in any general accounting textbook.

AFLC depot maintenance operations are almost ideally set up for industrial funding. The depot repair facilities have used an industrial cost accounting system for almost fourteen years. The system relates all input costs to output production. Every labor, material, facility upkeep, etc., charge is computed and identified to a unit of production. Each line item produced in the shops has a total, separate price attached to it. The only drawback is that non-directorate costs are not included. Such expenses as storage and trans-

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<sup>1</sup>Department of Air Force, Air Force Stock Fund, Air Force Regulation 177-25C (Washington, 19 November 1965), pp. 30-32.

portation of maintenance material, which are accrued outside the directorate, are not costed against production. Survey teams, similar to those proposed to determine total costs in the materiel area, can be used for the industrial funds also.

Each maintenance depot, there will be one at each of the five permanent AMA's, will constitute a separate industrial fund. The breakout into distinct industrial fund operations should not be difficult. Each depot now has a separate accounting system and generally a unique workload so they are practically individual entities under the present organization structure.

The details presented relative to establishing and operating a stock fund equally apply to an industrial fund. The fund must be capitalized, operating capital must be provided, sales prices should equal total input cost and future construction must be built into the new production prices.

The major air commands, their bases and sub-units will be the focal point in the logistics transactions between them and the stock/industrial funded AFLC organizations. The stock and industrial funded groups will have some dealings with each other but these will be incident to supporting the bases and will be charged to the using commands. Ultimately, the non-AFLC units will have to pay the total bill for all logistics services and goods. An example of a current industrial fund situation will probably assist in understanding the proposed system operation. The Military Airlift Command (MAC) is presently an industrial funded command. MAC charges its users for

its air transportation services but it also must reimburse any organization that provides MAC with support. AFLC has the only maintenance depots in the Air Force and MAC requires periodic overhaul of its aircraft, engines and accessory parts. Each year the command negotiates a schedule with AFLC for its total depot maintenance repair. AFLC then allocates or budgets separately for that amount of workload. It insures that the negotiated MAC schedule will be supported. Prices are determined at the start of each year but they can be renegotiated quarterly. MAC generates items which need repair into the depot as close to the schedule as possible. This is the only way to insure that resources to support the workload will be available. If the schedule cannot be followed or is unrealistic it must be renegotiated. The depots will not allow production idleness and the resources will be shifted to another workload and MAC loses support. After repair production is costed and recorded the items are returned to MAC with a bill. AFLC is then reimbursed for its services. In the event that prices vary from the negotiated price schedule, either up or down, they are reviewed and adjusted to reflect current costs. Maintenance only receives a portion of the reimbursement since centrally procured spares are not bought out of its money. The appropriate IM/SSM divisions are reimbursed, from maintenance, for parts consumption occurring during depot repair. Each directorate receives the payment equal to resource expenditures on MAC. During fiscal year 1966, AFLC received \$45,527,000 worth of reimbursements for overhaul maintenance. This was within \$100,000

of the original negotiated schedule. This example tends to bear out two facts; the commands can operate in a business-like manner between themselves and, in this case at least, do it very successfully.<sup>1</sup>

The author's proposal to entirely stock/industrial fund AFLC requires no organization changes. The present structure is left intact. The only change is in funding. Currently, AFLC receives appropriations to logistically support the Air Force; under the proposed concept the mission commands, only, would receive appropriations. These would be in the same categories that Congress annually uses to distribute defense dollars. The support organizations would be indirectly funded through the using commands. The revision has no structural importance but it has great managerial significance.

#### Benefits of the Stock/Industrial Fund

The primary benefit, in the author's opinion is that top defense management will be more able to make correct decisions if AFLC is stock/industrial funded. The planning-programming-budgeting technique now used to plan defense requirements must be supported by accurate cost data. Current information from support organizations cannot be accurate because of common usage and undetermined consumption. These causes would be eliminated under the proposed funding procedures. Charging each command, through its bases and sub-units,

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<sup>1</sup>Figures in the above example were received in an interview with Mr. Frank Thomas, AFLC Monitor for MAC depot funds. The author verified the figures in the AFLC Maintenance Engineering Resources Plan and the AFLC K-262 Report.

for all resource consumption will permit pure cost data to evolve.

The mission or output producing organizations will be appropriated all the Air Force dollars and ultimately will have to account for all expenditures. As previously stated, each command and its weapon systems fit neatly into the program and program element structure of the FYFS & FP. Therefore a direct and total cost relationship between plans and operations will evolve. Projected resource usage and real expenditures can be compared. Alternatives, for the first time correctly costed, can be weighed and chosen with more accuracy. Cost-effectiveness studies and simulations will have more validity than former efforts. The entire area of military planning will have a more solid base as a result of the improved cost data.

Supporting military planning is the primary purpose and benefit of the proposed funding revision. However, there are numerous other benefits.

The system should motivate "responsibility center" managers to become more concerned about the use of resources than they are at present. Lt. General Merrell, Air Force Comptroller, supported this position when he said:

Historically, a commander has been concerned mainly with the items and services he bought from his allotted funds. These amount to about 20 to 30 percent of the resources consumed at base level. The remaining percent includes military pay, centrally procured materiel and depot maintenance which are furnished as "free" resources.<sup>1</sup>

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<sup>1</sup>Lt. General J. G. Merrell, "How Air Force Project FIRM Could Help Wing/Base Level Commanders," Armed Forces Management, Vol. 12 - No. 7 (April, 1966), p. 78. General Merrell is the Air Force Comptroller.



Without the "free" resources the commander will be forced to review consumption areas that previously caused him little concern. Another benefit directly related to management motivation would be requisitioning integrity. The author believes that some of the current excessive requisitions, so-called extras for unexpected contingencies, would be eliminated if the money were coming out of the commander's budget.

One of the original goals of the program budget was to have success determined by output, not by being able to spend within an appropriation limit. The industrial/stock funding system will at least eliminate this tendency within AFLC. In previous years the criterion for success, reflecting the author's attitude, has been to match appropriations with expenditures. Proponents of the stock/industrial fund technique argue:

The utilization of annual appropriations (i.e., one-year funds) as a funding device presents obstacles to economical supply management. The supply manager may, for a variety of reasons, find himself confronted with unexpected (or unobligated) funds, as the expiration date for the utilization of these funds nears. This creates a pressure on the manager to spend (or obligate) these unused fund balances. If the funds are permitted to expire, the indication is that in all probability certain planned activities were not accomplished. Furthermore, to permit the funds to expire would violate one of the oldest budget support axioms in existence; i.e., full utilization of current funds is prima-facie justification for at least an equal amount for the subsequent year.

Because of this pressure, the supply manager may make hasty and possibly uneconomical procurements. These procurements may have compounding effects by contributing to an inventory build-up if such items are not actively demanded. Conversely, the supply manager may find himself confronted with low inventory levels and a shortage of funds near the close of the fiscal year. It may be advisable to buy stocks but, because of fund



limitation, he may have to buy material in small quantities, even though it would otherwise be desirable to combine the small procurement with more economical quantities to be bought with funds from the succeeding year's appropriation.<sup>1</sup>

Another benefit might be a check on the resources expended in the support organizations. The amount of resources consumed will be directly reflected in the prices charged for goods and services. Currently there is no real mechanism which places a cost on the services and goods provided by AFLC. When prices are attached comparison cost studies could be made with the private sectors of the economy providing similar products. The author realizes that military requirements, especially those needing expeditious processing, differ from commercial needs. Nevertheless, one can suspect that too many wasteful excesses are hidden behind the "differences" between the two sectors of the economy. Also, the using commands would tend to reduce waste because high prices are bound to arouse anguish and probably Inspector General visits.

### Conclusion

The Department of Defense has instituted a new system which relates military planning to budgeting. The programming document lists present and projected resource allocations. A rather complete resource input and output relationship has been prepared. The author believes that the program budget has definitely improved defense man-

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<sup>1</sup>Lt. Colonel Jack W. Coleman, "Efficiency and Working-Capital Funds," The Federal Accountant, Vol. X - No. 3 (March, 1961), p. 9.

agement decision-making abilities. Total costs, alternatives and program evaluations are provided by the system. All are prerequisites to making good decisions.

The program budget, although it has been an assist to management, contains some inaccurate data. Inputs are measured in terms of resource expenditures and outputs in terms of missions and capability to perform the missions. Resources are allocated to mission and non-mission, support organizations. A direct input - output ratio is possible when examining mission assigned resources. This is not the case when auditing support expenditures. Due to commonality and indirect consumption, many costs are pro-rated and inaccuracies are recorded in the program budget. These inaccuracies distort the decision-maker's view and subsequent choices.

The author contends that such distortions are serious because they involve billions of dollars. Further, a basic cause for the inaccurate data is the use of the functional account appropriations system. As long as functions remain the basis for fund and expenditure accounts in those organizations which do not have a direct output, the true resource input-output relationship can never be determined. Actual cost data can be input to the program budget only when all appropriations are made to the output producing, or mission units. In order to accomplish this financial arrangement, support organizations such as the Air Force Logistics Command should be stock and industrial funded. Only mission commands should be directly funded by Congress. This would place all the resource

inputs and outputs in the mission units. One source would provide all the data to the programming document and it would be complete and reliable.

Without complete stock and industrial funding the Department of Defense must continue to base military planning on inadequate data. Without placing responsibility for consumption on the consumer the data will continue to be inadequate.

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