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By the early 1980's, the Navy will have changed over to a multimission carrier concept for 12 of its 13 authorized aircraft carriers. In the past, aircraft carriers were classified as being either attack carriers or antisubmarine carriers, and each type had its own respective airwing configuration which was specialized to meet the needs of that particular type of carrier. Findings/Conclusions: With a general reduction in the size of the carrier fleet (now down to 13), the Navy has developed the multimission carrier concept to combine the attack and antisubmarine missions on each carrier so that each carrier will be flexible enough to meet any emergency. This will be expensive. The basic policy and cost-effectiveness consideration is how much flexibility, when all Navy assets are considered, is necessary to meet the potential threat. Each carrier does not need a self-sufficient airwing with sufficient flexibility aircraft to optimize deckloads for power projection. The following alternatives could collectively provide this flexibility: exchanging aircraft between operating carriers, using the aircraft of carriers undergoing extensive overhaul, using Marine Corps aircraft, using Navy and Marine reserve airwings in emergencies, establishing a pool of reserve aircraft serving the flexibility needs of all carriers, and using highly capable training resources in emergencies. Recommendations: The Secretary of the Navy should reassess the total aircraft requirements for multimission aircraft carriers and determine how to best satisfy the mission with the least resources. (DS)

REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

The Navy's Multimission Carrier Airwing -- Can The Mission Be Accomplished With Fewer Resources?

This is an unclassified version of GAO's Secret report LCD-77-409, dated September 12, 1977. It discusses how the Navy might reduce the size and composition of its multimission carrier airwings by relying on its total aircraft resources and still accomplish its primary mission of sea control and the collateral mission of power projection ashore.

The Navy has 12 carrier airwings equipped for the dual missions. Each of the airwings has enough aircraft to make them self-sufficient to accomplish either mission by adjusting the deckload carried. GAO points out that alternatives are available to the Navy which provide the flexibility to adjust carrier deckloads to accomplish the mission objectives at significant savings in annual operating costs and potential future procurements.

LCD-77-451

NOVEMBER 16, 1977

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-133118

To the President of the Senate and the
Speaker of the House of Representatives

This is an unclassified version of our secret report of September 12, 1977, on the Navy's multimission carrier airwing. The report points out how the Navy might reduce the size and composition of its carrier airwings and still accomplish its missions by relying on its total aircraft resources for flexibility rather than assigning a separate flexibility component to each airwing.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget, and the Secretaries of Defense and the Navy.

Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

THE NAVY'S MULTIMISSION CARRIER AIRWING--CAN THE MISSION BE ACCOMPLISHED WITH FEWER RESOURCES?

D I G E S T

In response to budget constraints, the Navy reduced the number of aircraft carriers from 24 in the mid-1960s to 13 today. While the carriers today are fewer in number, it should be recognized that they have more sophisticated weapon systems and other technological advances which partly offset the numerical difference. This technology upgrading is a continuous process and can be illustrated by the introduction of F-14 aircraft, which replaced the F-4s.

Flexibility components and alternatives

To cope with the reduction in carriers and to satisfy their mission requirements, the Navy combined the formerly separate attack and antisubmarine capabilities onto single carrier decks, thereby making carrier airwings multimission in nature. Of the Navy's 13 carriers, the Congress has approved 12 for the multimission airwings to provide the flexibility to adjust the carrier deckload from one required for sea control including power projection ashore to one optimized for power projection. GAO believes that the flexibility components making each carrier self-sufficient for either mission may not be necessary because the Navy has options available to provide the flexibility to optimize carrier deckloads for power projection ashore without furnishing flexibility components for each multimission carrier. (See pp. 5, 9, 13, 16, 18, and 19.)

GAO believes the Navy should have an adequate number of aircraft to enable it to accomplish either sea control or power projection. However, it may not be necessary for each multimission carrier airwing to have shore-based reserve aircraft to provide the flexibility for adjusting the carrier aircraft

mix. Other aircraft source options are available to the Navy to provide the desired flexibility, such as:

--Aircraft could be exchanged between two or more deployed carriers. (See pp. 10, 30, 38, and 39.)

--Aircraft assigned to carriers undergoing extensive overhaul could be used to provide the flexibility to adjust the deckload of deployed carriers. (See pp. 11, 31, 38, and 39.)

--Carrier deployable aircraft operated by the Marine Corps could be used to adjust the deckload of deployed carriers. (See pp. 11, 31 to 33, 38, and 39.)

--The Navy and Marine Corps Reserve airwings could provide the needed flexibility during emergencies. (See pp. 11, 33, 34, 38, and 39.)

--The Navy could establish a pool of aircraft specifically for adjusting carrier deckloads. Such a pool would require less aircraft than providing each carrier with its own flexibility component. (See pp. 11, 34, 38, and 39.)

--Highly capable training aircraft could be used to provide flexibility to adjust carrier deckloads in emergencies. (See pp. 12, 35, 38, and 39.)

Extent and cost of flexibility components

GAO estimates that the flexibility components for the 12 multimission carrier airwings will be over 70 aircraft. Another 30 or more aircraft will operate in support of training and overhaul replacement associated with the 70 aircraft contained in the flexibility components. (See pp. 13, 27, and 28.)

GAO recognizes the importance of mission requirements. Costs alone should not be the overriding criteria in evaluating the extent to which military hardware should be procured and operated. However, the cost to provide and operate more aircraft than absolutely necessary

is expensive. For example, an A-7E light attack aircraft, one of the more economical planes of the multimission airwing, costs about $7 million to procure. The same plane costs about $874,000 a year to operate. (See pp. 36 to 37.)

In view of the various alternatives available to the Navy which may provide an adequate number of aircraft needed to furnish the flexibility to adjust the multimission carrier deckloads, GAO believes that the Navy's practice of assigning land-based flexibility components to each of the multimission carrier airwings should be reevaluated. (See pp. 12, 37, and 38.)

The Navy's mission and related carrier operations

The Navy's current role of providing sea control and power projection ashore remains the same as it was a decade ago. It is generally recognized that the United States depends on the sea lanes for trade, including the import of raw materials, and the resupply of any potential war effort in overseas areas. (See pp. 5, 16 to 17.)

Formerly the Navy operated two distinct kinds of carriers--one configured for the attack role and the other configured for antisubmarine warfare. Due to the smaller number of carriers operated, this is no longer possible, and the carriers and airwings were integrated for 12 of the 13 carriers containing both capabilities. (See pp. 1 to 3.) In fusing the two capabilities into single airwings, the Navy encountered a problem--how to meet the various threat situations and mission objectives with the limited platform space available.

The basic difference between an airwing configured for sea control and one optimized for power projection is the number of antisubmarine and fighter and attack aircraft carried. If there is a submarine threat, most or all of the antisubmarine aircraft assigned to an airwing are loaded and generally some attack and fighter aircraft are left behind. The airwing configured for sea control retains most of its fighter and attack capability and can project substantial power ashore or against other targets.

However, when sea control is not seriously challenged, as was the case in Vietnam, and the carrier deckload is optimized for power projection ashore, then the antisubmarine aircraft are exchanged for the attack and fighter aircraft previously left behind. (See pp. 6 to 10, 18, and 19.)

In essence, each of the multimission carrier airwings is provided several attack aircraft as a land-based reserve to provide the flexibility to adjust the deckload of deployed carriers from sea control to the mode optimized for projecting power ashore. (See pp. 6 to 10, 18, and 19.)

Sea control is the Navy's primary mission and is required in the worst case scenario: a NATO war involving the Soviet Union. The Navy has identified the airwing size required to conduct continuous operations for the sea control mission. For conflicts of lesser intensity not involving the Soviet Union when power projection ashore is expected to be the carriers' primary function, it is unlikely that all carriers will be deployed simultaneously and various alternatives appear to exist to optimize the deployed carrier deckloads for this power projection ashore mode of operation. GAO believes that airwing resource requirements should be determined for the worst case situation, because the carrier airwing configured for sea control can fulfill the collateral mission of power projection. (See pp. 5, 7, 8, 17 to 18.)

Navy's comments and our analysis

The Department of the Navy contends that the GAO analysis presents a fair assessment of the structure of Navy airwings embarked on carriers in a peacetime situation. For various reasons the Navy does not agree that the options suggested could serve the flexibility requirements in a war involving the Soviet Union because all carriers would be deployed. However, based on GAO's analysis of available information, the carrier airwing flexibility could be provided by the alternatives suggested and GAO does not consider the Navy's answer responsive to the alternatives. Not all carriers could be deployed immediately nor would it necessarily be prudent to have all assets on board in such a

conflict. In conflicts of lesser intensity, GAO believes that the options presented are viable alternatives for carrier airwing adjustments and the Navy should reevaluate the size and composition of its multimission carrier airwings in view of the sizeable savings available in operating costs and future procurements. Such savings could be applied to other areas to improve the Navy's readiness position. (See pp. 12, 40 to 44.)

RECOMMENDATIONS TO THE CONGRESS AND THE SECRETARY OF DEFENSE

GAO believes that the following two issues warrant consideration by the Congress. First, in view of the alternatives available to the Navy to provide the flexibility to adjust the carrier deckload, should the additional aircraft comprising the flexibility component be procured? Secondly, should the Congress decide that notwithstanding the alternatives, each of the multimission aircraft carriers should have its own unique airwing including the flexibility component, then the Congress should defer appropriating funds for aircraft in excess of the basic sea control airwing requirements until the Navy demonstrates to its own and Congress' satisfaction that it can efficiently and effectively operate the entire multimission airwing from the carriers under simulated combat conditions.

GAO is recommending to the Congress and the Secretary of Defense that they have the Secretary of the Navy reassess the total aircraft requirements for multimission aircraft carriers and determine the minimum number of aircraft required for each carrier and how to best satisfy the mission with the least resources.

Contents

ABBREVIATIONS

GAO	General Accounting Office
NATO	North Atlantic Treaty Organization

CHAPTER 1

INTRODUCTION

The Navy uses the aircraft carrier, the principal ship in its surface fleet, to control the sea and to destroy enemy targets ashore (referred to as power projection). The carrier and its assigned airwing represent a multibillion dollar investment and cost millions of dollars to operate and maintain each year. Over 5,000 persons operate today's large aircraft carriers; the ship's crew requires about 3,000 persons, and an additional 2,000 persons man the associated airwing.

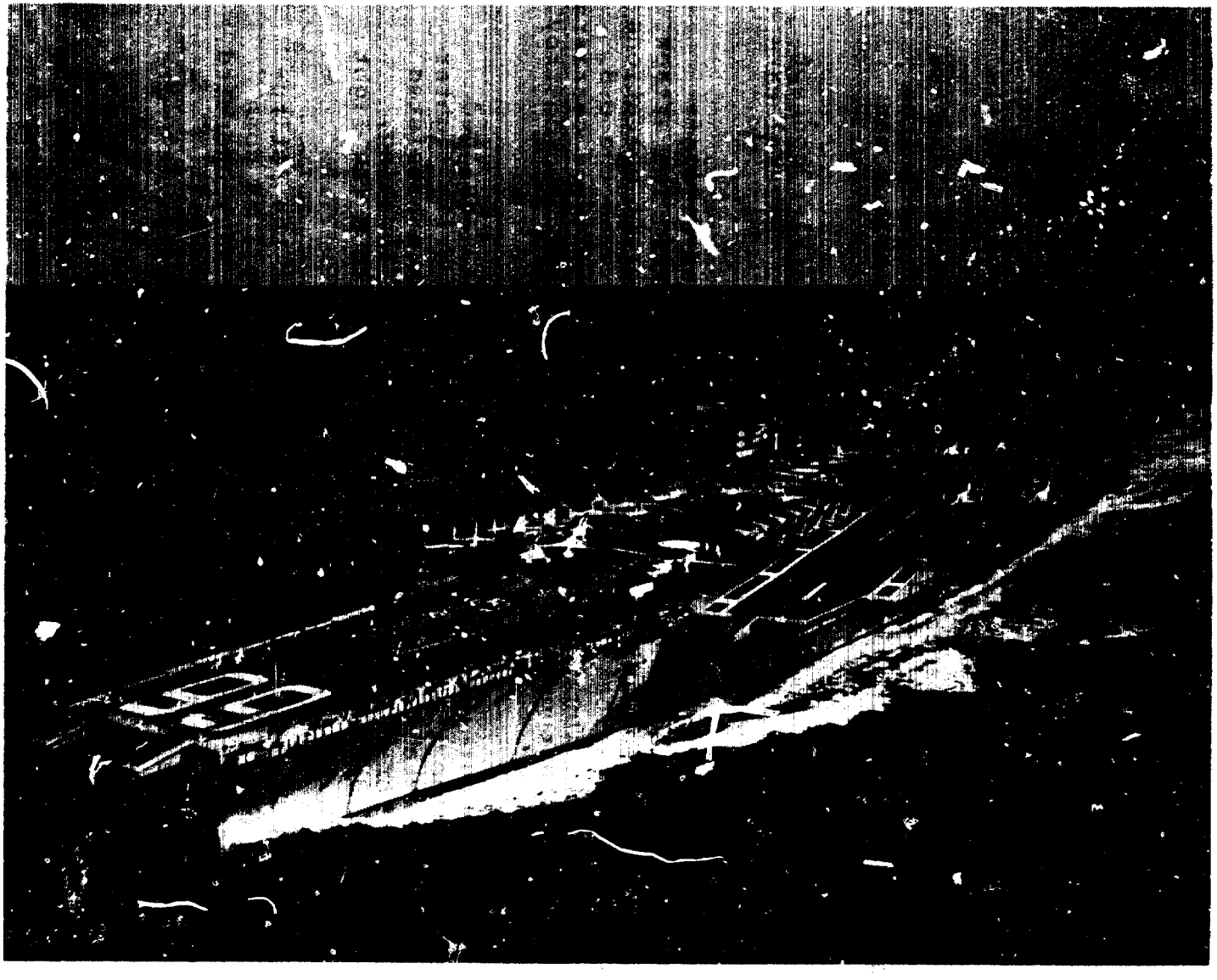
The Navy is changing to a multimission carrier concept for 12 of its 13 authorized aircraft carriers. Several carrier deployments have been made in this mode.

In the past the Navy operated two types of aircraft carriers, the attack and antisubmarine carriers. The attack mission (power projection) mode supported aircraft operations against targets afloat and ashore which threatened the U.S. use of the sea. The antisubmarine mission configured carriers supported aircraft operations to seek out, track, and destroy enemy submarines.

To carry out its mission, each carrier was assigned an airwing. The attack airwings included primarily fighter and attack aircraft. The antisubmarine airwings consisted of fixed and rotary wing aircraft, capable of locating, tracking, and destroying submarines, along with a few light attack planes.

Age and funding constraints brought about the retirement of the older antisubmarine carriers as well as some of the attack carriers. In the mid-1960s the Navy operated 16 attack carriers and 8 antisubmarine carriers with their respective airwings. Today, the Navy operates only 13 carriers. However, the declining number of carriers operated has partly been offset by technological advances.

With the retirement of the antisubmarine carriers, the Navy faced serious constraints in its antisubmarine capability. As a result, the multimission carrier concept was adopted which will combine the attack and antisubmarine missions on 12 of the 13 carriers after the change-over is fully implemented in the early 1980s. The 13th carrier will be the contingency carrier and may not have an airwing assigned beyond 1977.



AIRCRAFT OPERATIONS ON A CARRIER—— the U.S.S. AMERICA
showing two planes cn forward catapults

SOURCE: U.S. NAVY PHOTOGRAPH

It is Navy practice to assign a complete airwing to each operating carrier. The attack configured airwing consisted of 79 aircraft, while the antisubmarine airwing had 47 aircraft. When the multimission airwing was established, the Navy wanted each airwing to have a sufficient number and mix of aircraft to allow the fleet commanders the flexibility to meet either of the expected threats. As a result, the multimission airwing was established at either 87 or 90 aircraft, depending on the specific carrier size.

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However, two of these carriers will be replaced with larger ones under construction so that the Navy will have 12 multimission carriers by the early 1980s.

ISSUES AND APPROACH

This report deals with the Navy's practice of determining aircraft needs for its carrier airwings to have every carrier deployed at the same time--with the same mission. We addressed the following areas.

--The number of aircraft assigned to an airwing and the reason for that number.

--The procedure employed by the Navy in carrier operation, including loading and offloading of aircraft.

--The amount of flexibility needed to accomplish the carriers' missions of sea control and power projection ashore in time of conflict.

--The alternatives available to the Navy for achieving flexibility in addition to carrier assigned aircraft.

--The cost to achieve flexibility, both in terms of operational and new procurement cost.

SCOPE OF REVIEW

To obtain information on the above areas, we obtained data from

--Chief of Naval Operations, Washington, D.C.;

--Naval Air Systems Command, Washington, D.C.;

--Headquarters, U.S. Marine Corps, Washington, D.C.;

--Commander in Chief, U.S. Atlantic Fleet, Norfolk, Virginia;

--Fleet Marine Forces, U.S. Atlantic Fleet, Norfolk, Virginia;

--Commander, U.S. Naval Air Forces, Pacific, San Diego, California; and

--Officials on the carrier U.S.S. Forrestal (CV-59).

We also obtained operating data from personnel assigned to the following six aircraft squadrons in the Atlantic and Pacific Fleet.

Oceana Naval Air Station, Virginia Beach, Virginia

CVW3	Fighter Detachment
VF101	Fighter Squadron

Miramar Naval Air Station, San Diego, California

VF1	Fighter Squadron
VF2	Fighter Squadron
VA116	Early Warning Squadron
VA195	Attack Squadron

CHAPTER 2

QUESTIONS ON THE EXTENT OF FLEXIBILITY OF THE MULTIMISSION CARRIER AIRWING

Having adopted the multimission carrier concept, the Navy designed each of its multimission carrier airwings to be self-sufficient in performing all pertinent mission objectives. For example, each of the 12 carriers will have significant fighter and attack aircraft to accomplish its own full power projection mission. However, we believe that the possibility of every carrier having a power projection mission at the same time is unlikely. The Navy has alternative resources available which could provide flexibility to particular carriers without each carrier airwing being self-sufficient in the full power projection mode.

It is important that, in determining the best configuration of the multimission airwing for its carriers to accomplish mission objectives, the Navy consider the impact on wartime capability, fleet readiness, investment in aircraft resources, and operating costs. All resources which will be available in a worst case situation should be considered when determining the make-up of the multimission carrier airwings including the extent of support to be furnished by other U.S. services. We believe that the Navy has the opportunity to reduce its requirements for carrier aircraft by giving more consideration to all naval resources available to support its total mission.

The primary mission of the U.S. Navy is to gain and maintain continued control of the seas and the air over the seas, as required in support of national objectives. The multimission aircraft carrier with its assigned airwing is considered the most capable and effective ship in support of the Navy's mission. Once sea control is established to the degree necessary in a given area, carrier aircraft can be used for other purposes, such as providing air cover for amphibious operations and destroying other targets as was done in Korea and Vietnam.

To accomplish these objectives, the Navy is authorized 12 multimission carriers and airwings by the Congress. A 13th carrier and airwing are authorized through fiscal year 1977. Thereafter, the carrier force will consist of 13 carriers with 12 multimission airwings. The 13th carrier is

authorized for carrier aircraft qualification training, reserve airwing active duty training, deployment of a reserve airwing at mobilization, and emergency replacement in the event of material damage to another carrier.

Each of the 12 planned multimission aircraft carriers will have its own airwing containing the full range and number of planes able to participate in the primary function of sea control and to allow the carrier deckload to be rearranged for the collateral power projection role, if necessary. The embarked airwing configuration is transformed from the carrier deckload needed to meet the sea control mission to one for power projection by exchanging antisubmarine aircraft for additional fighter and/or attack aircraft from shore bases. Based on the carrier's operating constraints, each of the multimission carrier airwings will contain at least four to seven aircraft to adjust the carrier deckloads for various mission objectives. These aircraft remain at shore bases when their assigned carriers are deployed overseas, such as the Mediterranean.

In addition to configuring the multimission carrier deckload to the extremes of sea control and power projection, the airwing has sufficient resources to allow aircraft arrangements to accomplish varying degrees of either mission. For example, several antisubmarine aircraft may remain at shore bases so that more fighter and/or attack aircraft can be incorporated into the carrier deckload.

The Navy considers it necessary to have sufficient aircraft in each of the multimission carrier airwings to allow for adjustment of the deckloads. In testimony before the Congress, the Navy stated:

> "When the carrier is expected to operate in its control-of-the-sea role against submarine, surface, and air threats, its airwing can be adjusted to provide the types and numbers of aircraft needed to defeat these hostile weapons. This flexible carrier airwing can be adjusted from one tailored for sea control missions with a high concentration of antisubmarine and fighter aircraft, through intermediate stages of moderate antisubmarine and increased attack strength to one optimized for projection of tactical airpower ashore. At the antisubmarine end of the capability spectrum is an airwing of S-3 ASW fixed-wing aircraft and SH-3 ASW helicopters (to detect and to attack submarines), F-14 fighter aircraft

(defense against air reconnaissance and air attack), and a moderate number of A-6 or A-7 attack aircraft (to defeat surface combatant ships). At the opposite end of this spectrum is the tactical airwing, strong in attack aircraft, developed and proven over the past several years of attack carrier operations."

The Navy should have an adequate number of carrier-based aircraft to enable it to accomplish sea control and power projection, when necessary. An important matter which should be considered, however, is the necessity for equipping each multimission carrier airwing for self-sufficiency by providing it with the full range of aircraft needed for sea control and power projection. Does each airwing have to be self-sufficient or are other resources available to the Navy to provide the required flexibility in meeting mission changes? Is it necessary to equip each of the multimission carriers with enough aircraft to provide maximum power projection ashore?

While the carrier deckload for either mission varies in the number of antisubmarine, attack, and fighter aircraft, a large core of aircraft is needed for either situation. Attack, fighter, and support aircraft are needed for either mission mode. The extent of attack, fighter, and sometimes support aircraft varies with the specific mission. The deckload designed for sea control against an enemy who has surface, subsurface, and air capability would require antisubmarine, attack, fighter, and support aircraft. A deckload optimized for power projection ashore requires a heavy concentration of attack and fighter aircraft with little or no emphasis on antisubmarine aircraft. To convert from a sea control carrier deckload to one designed for power projection ashore generally is a trade-off between antisubmarine and fighter and attack airplanes.

A carrier with a deckload configured for sea control has substantial power projection capability. The multimission carrier airwing has 60 fighter and attack aircraft. A carrier configured for sea control would still have more than 50 of these fighter and attack aircraft aboard, if the antisubmarine component displaced fighter and attack aircraft only.

The primary consideration, however, is what will be the most likely threat in a worst case situation. Under all circumstances, the Navy has identified the worst threat scenario as a direct confrontation with the Soviet Union in a NATO war. The scenario requires sea control, which is the Navy's primary mission, and demands carrier decks able

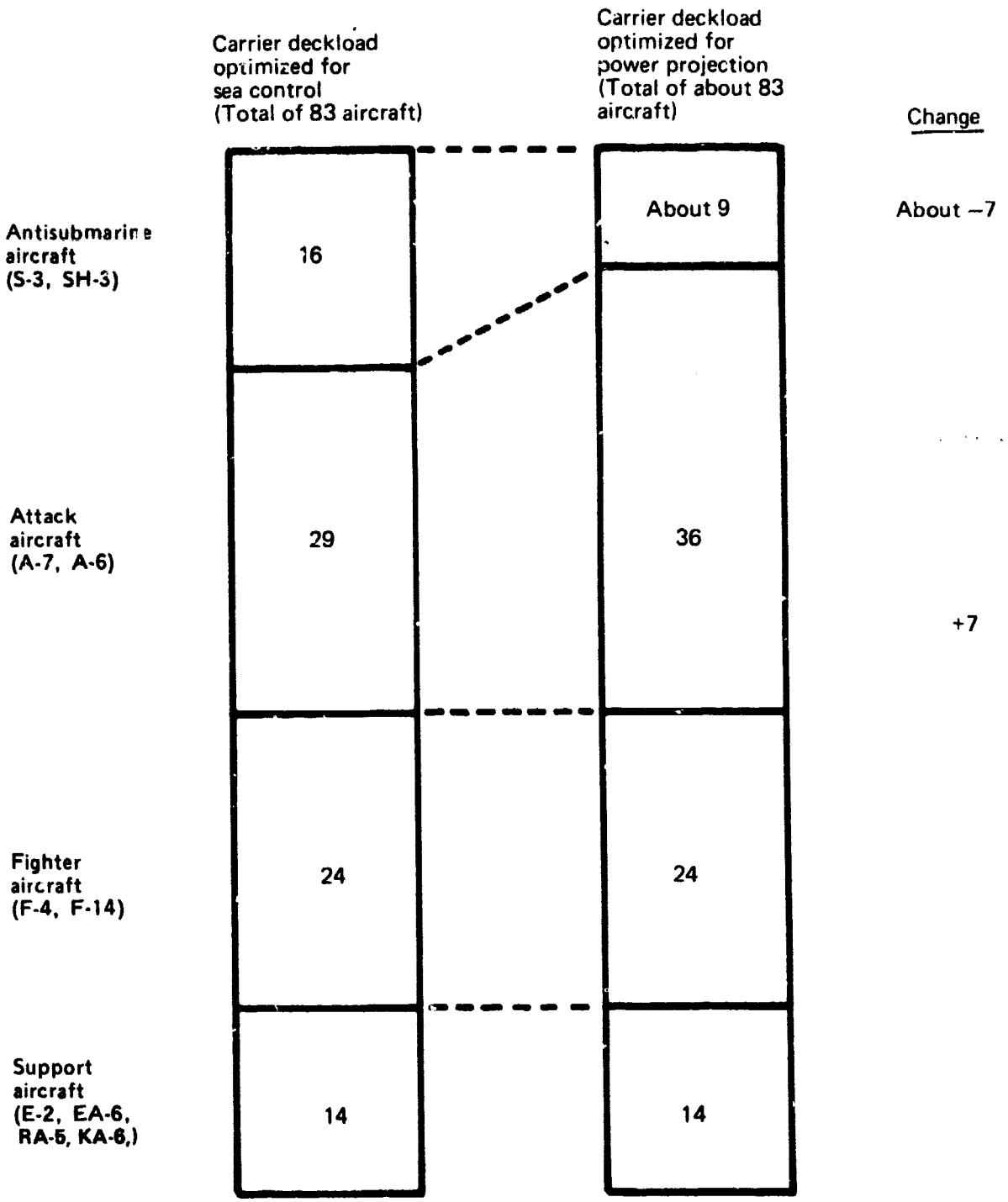
to deal with a heavy submarine threat due to the Soviet's large number of attack submarines. It is unlikely that the Navy would dispatch its carriers without a full complement of antisubmarine aircraft in favor of additonal fighter and attack sorties faced with such a threat. In addition to the Navy's own large attack and fighter capability in the NATO scenario, the Air Force and allied countries have fighter and attack aircraft in the theater to generate this type of mission for power projection purposes.

Indeed we perceive that the Navy, at least obliquely, agrees with this opinion. In our draft report we had stated that the possibility that every carrier will have the same mission is unlikely. The Navy challanged this generalization (see page 50 of the Navy response, app. I) and stated that in the worst case situation - NATO vs. Warsaw Pact - "The very real possibility, even likelihood, is that every carrier will have the same mission, selective control of the seas, against heavy opposition from Soviet surface combatants, submarines, and naval aviation." Thus, in the worst case scenario, all carriers could deploy with a mix of fighter, attack, and antisubmarine aircraft necessary for sea control.

Furthermore, the Navy stated that a prerequisite for power projection ashore is at least temporary sea control in the specific area. The Navy finds it difficult to visualize a situation in any major conflict involving the Soviet Union where control of the sea would not be required, at least during the early stages of the war.

Power projection ashore from aircraft carriers is considered the prime mission in scenarios such as the Middle East, Korea, and conflicts of lesser intensity, when control of the sea, is either established or not seriously threatened. Such were the conditions in Vietnam. If more intense power projection than is available from the deckload configured for sea control is needed, then aviation assets capable of power projection must be exchanged for antisubmarine aircraft on the carrier. We believe these assets do not necessarily have to belong to the particular carrier in question. Any carrier deployable attack and/or fighter aircraft available would seem to be adequate. Any of the options described in chapter 4 could serve as a source of such aircraft. The Navy disagrees with the position and we discuss aircraft source options and the Navy position in greater detail in chapters 4 and 6.

ILLUSTRATION OF THE EFFECT ON THE DEPLOYED AIRWING RESULTING FROM ADJUSTMENT OF THE CARRIER DECKLOAD FROM ONE MISSION OBJECTIVE TO ANOTHER



In conflicts of lesser intensity than a war involving the Soviet Union, it is doubtful that all carriers would be employed simultaneously for power projection. For example, from mid-1965 through 1967 when air strikes were being conducted against North Vietnam on an almost continuous basis, an average of less than five carriers were deployed to the Seventh Fleet.

The problem becomes one of how much in terms of attack and fighter assets does each carrier need to accomplish its missions. Does each multimission carrier need its own additional power projection element to adjust the airwing from one optimized for sea control to one with more power projection assets? We think not. There are adequate alternatives available to the Navy which, in the aggregate, provide the margin of flexibility needed to adjust carrier deckloads without providing a shore-based flexibility component for each carrier.

The carrier airwing optimized for sea control contains an aircraft mix of formidable strike capability which is used for either sea control or power projection. The sea control deckload has the assets needed for a show of force as well as for power projection. It may be desirable to increase the power projection capability, as in Vietnam. But does each carrier need its own capability if available alternatives can provide the needed margin of flexibility? The chart on page 9 illustrates the aircraft mix for the two modes of operation.

A change in operating philosophy and full consideration of alternative sources of aircraft within the Navy could provide the flexibility to adjust carrier deckloads responsive to mission requirements, but the number of aircraft needed for shore-based flexibility components would be reduced. The following are some of the options for aircraft sources for carrier deckload adjustments without providing each multimission airwing its own flexibility component.

--Aircraft could be exchanged between two or more deployed carriers. It appears unlikely that all carriers in either the Atlantic or Pacific would be deployed in the collateral power projection ashore mode of operation. If a carrier requires a higher concentration of a specific aircraft for a particular mission, aircraft could be exchanged with another carrier requiring aircraft for a different mission objective. For example, if a carrier in a forward area in a Vietnam type conflict

requires more attack aircraft to support more concentrated power projection, some of its anti-submarine aircraft could be exchanged for attack aircraft of carriers remaining in rear areas.

--The aircraft of carriers undergoing extensive overhaul could be used to provide the flexibility to adjust the deckload of deployed carriers. Generally, two of the Navy's 12 multimission carrier fleet are in extensive overhaul for about a year. During this time the assigned airwings are not charged with specific mission requirements. These aircraft could provide the flexibility to adjust the deckload of carriers deployed in forward areas until their carriers complete overhaul.

--The Marine Corps operates three airwings containing carrier deployable aircraft. Many of the Marine Corps aircraft are of the same general type as those contained in the multimission carrier airwings. The pilots are carrier qualified which enables them to fly off carriers during potential amphibious operations, providing air superiority and close air support to assure successful troop landings. To fly off carriers, the Marine Corps would have to displace normally assigned Navy aircraft. It would appear, then, that Marine Corps carrier deployable aircraft could help provide the flexibility to adjust carrier deckloads when necessary.

--The Navy and Marine Corps Reserve airwings provide a further source of flexibility during emergencies. The Navy has two reserve carrier airwings, one of which is carrier qualified at all times. Currently, only one of the two airwings is to be deployed on the 13th carrier during emergencies and there are no other contingency carriers available. The Marine Corps has one reserve airwing containing carrier deployable aircraft. While these airwings are not available at a moment's notice, they would seem to be available to provide carrier deckload adjustments during emergencies after they are activated.

--The Navy could establish a pool of aircraft for the sole purpose of having the flexibility to optimize carrier deckloads for power projection ashore. Such a pool would require fewer aircraft than assigning each carrier enough aircraft to adjust its deckload

independent of the existence of other resources, particularly since not all carriers are expected to be employed in the power projection mode simultaneously.

--The Navy and Marine Corps operate training aircraft for advanced pilot training for each specific aircraft type. The planes and instructor pilots are looked upon as combat attrition replacement and they are ready for instant deployment. If they are ready for deployment as combat attrition replacement, it would appear that they could also be used to adjust the deckload of deployed carriers when necessary.

Costs alone certainly should not be the overriding criteria in evaluation if military hardward should be procured and operated. The best estimate of the potential threat and the total resources available to counter the threat should play dominant roles in determining requirements for the hardware needed to provide the best chance for national survival. In designing the multimission carrier airwing, all aircraft resources in the Navy's arsenals should be considered and total aircraft assets should be molded into a single integrated plan. Each organizational element should be evaluated in terms of its own particular mission and how it relates to other relevant units. Resource requirements should then be based on mutual support and overlap considerations rather than viewing each organizational element independently. With regard to multimission carrier airwings, can the United States still afford to keep them large enough to have undeployed, shore-based reserve aircraft for deckload adjustments if alternative resources are adequate to provide the needed margin of flexibility?

Because of budget constraints, the Navy has deferred needed scheduled overhaul for many of its ships and aircraft. In view of the extreme pressures on the Federal budget and the many unsatisfied civil and military requirements, this may be an appropriate time to assess the total resources available to the Navy to see if they can be used to provide the required flexibility to meet the various threat situations and mission objectives. Providing carrier aircraft flexibility under the current concept of self-sufficient airwings requires millions of dollars in annual operating expenses and procurement funds, which could be avoided to some extent, if the available options were considered in determining the size of the carrier airwing required to fulfill the Navy's mission and proven to be adequate.

CHAPTER 3

AIRCRAFT NEEDS AND RESOURCES FOR THE MULTIMISSION CARRIER AIRWING

To provide the flexibility to adjust the carrier deck-load, the multimission carrier airwings contain aircraft not normally deployed. We estimate that the flexibility components for the Navy's planned 12 multimission carrier airwings and their associated support aircraft will contain at least 104 aircraft for providing a shore-based reserve.

MAKEUP OF TYPICAL MULTIMISSION CARRIER AIRWINGS AND THEIR ROLES

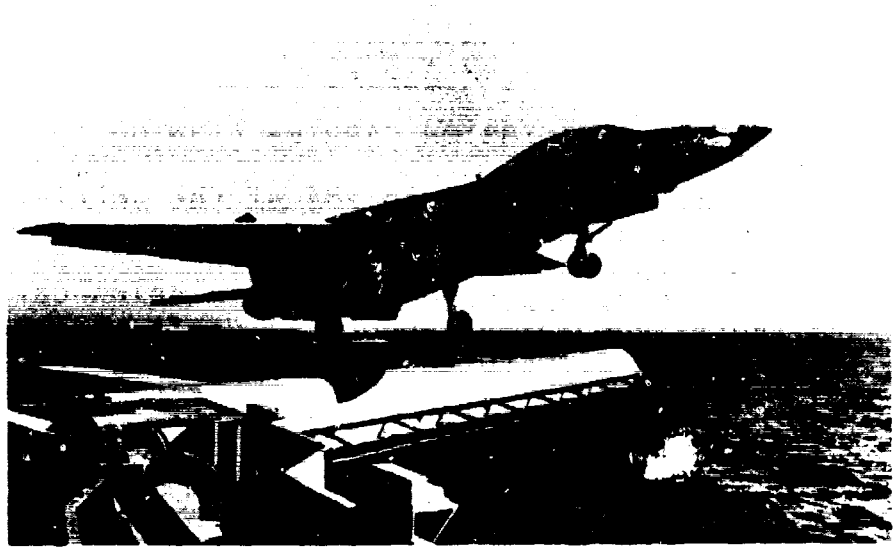
The typical multimission carrier airwing consists of 90 aircraft for the eight large carriers and 87 aircraft for the four slightly smaller carriers. Most of the aircraft could be used for both the sea control and power projection roles. The typical airwing contains the following number of specific aircraft.

Type of aircraft	Model (note a)	Number of squadrons	Total number assigned
Fighter	F-4/F-14	2	24
Light attack	A-7	2	24
Medium attack	A-6	1	b/9/12
Fixed wing anti-submarine	S-3	1	10
Rotary wing anti-submarine	SH-3	1	c/6
Reconnaissance	RA-5/RF-8	1	3
Electronic warfare	EA-6	1	3
Early warning	E-2	1	4
Tanker	KA-6	1	4
Total			c/87/90

a/Some of the aircraft and their missions are shown on the following pages.

b/Four carriers will have 9 aircraft; 8 carriers will have 12 of these aircraft.

c/Fiscal year 1978 carrier airwing configuration. The Navy contends that it needs eight antisubmarine helicopters to maintain [deleted] all times. However, because of budget constraints the Department of Defense has reduced the number to six for each multimission carrier without substituting other aircraft. For this reason the basic sea control airwing has been reduced to 83 aircraft.

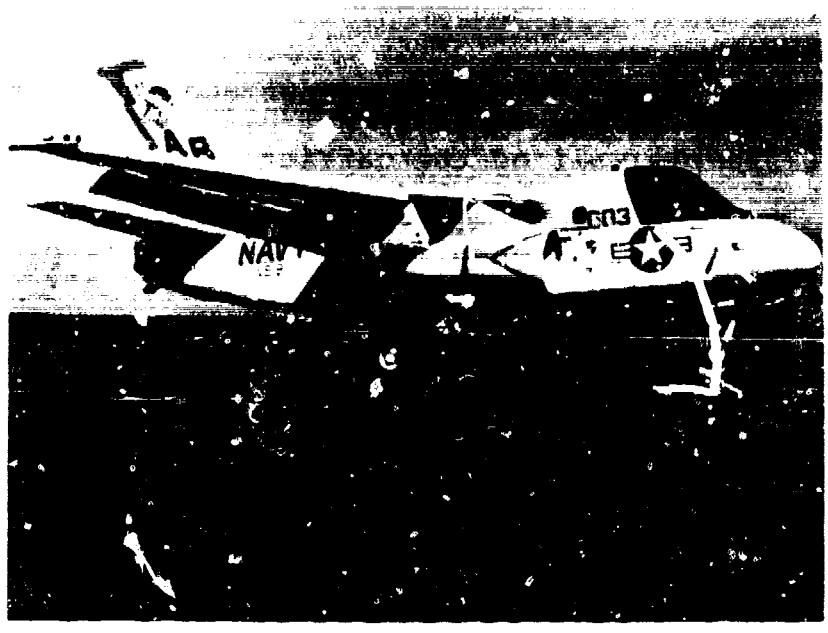


THE F–14 TOMCAT––the fighter is designed for the air superiority, fleet air intercept, and air-to-ground attack roles

SOURCE: U.S. NAVY PHOTOGRAPH

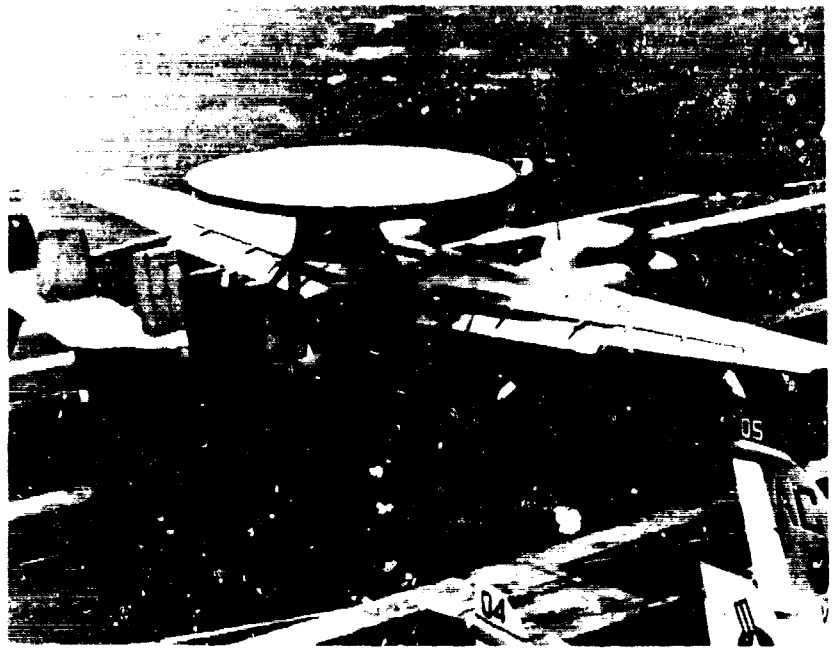
THE A–7E CORSAIR II––a general purpose light attack aircraft optimized for visual attack in strike and interdiction missions

SOURCE: U.S. NAVY PHOTOGRAPH



THE S–3A VIKING ---a carrier based antisubmarine aircraft designed to counter the quiet nuclear submarine during the 1975/85 time period

SOURCE: U.S. NAVY PHOTOGRAPH



THE E–2C HAWKEYE --- an airb... early warning and command and control aircraft

SOURCE: U.S. NAVY PHOTOGRAPH

This airwing composition provides adequate flexibility for each carrier to meet its various missions during deployment. For example, all of the carriers could be deployed with

--all of their assigned fighter and attack planes aboard, leaving behind some antisubmarine aircraft or other aircraft types;

--all of their assigned antisubmarine aircraft aboard, leaving behind some of their fighter, attack, and/or other aircraft types; or

--any mix of aircraft at the discretion of the fleet commanders generally leaving behind any specific aircraft designated.

Sea control

Sea control is the ability to insure the use of the high seas essential to our national interests by denying our adversaries the use of the seas for hostile purposes. Sea control is the prerequisite for all other naval tasks and for most sustained overseas operations by the other services. An effective sea control capability provides secure areas for amphibious and carrier strike operations, enhances the survivability of the strategic deterrent, allows other deployed naval forces to operate as required, and protects commercial shipping necessary for the country's economic well being.

Sea control is essential for the U.S. economy in peace as well as during time of conflict. Almost all of our overseas trade moves by ship, including more than one-third of our current oil consumption. The United States imports about 100 minerals and metals--about one half are essential. The Navy estimates that 90 percent of the logistic support for a major war would have to move by ship.

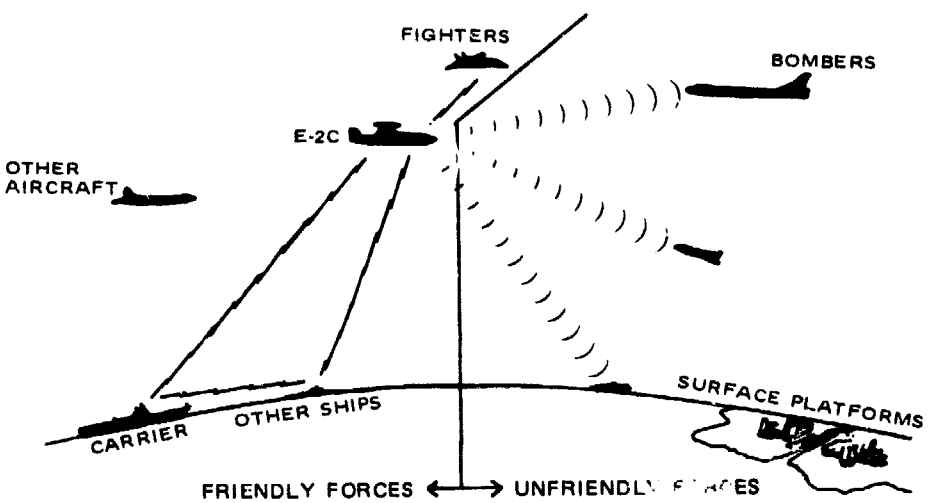
Carriers, surface combatants, attack submarines, and patrol aircraft, normally operating together in integrated task forces for mutual support, accomplish sea control by destroying hostile air, surface, and submarine targets which threaten the survival or operations of our forces and those of our allies.

To accomplish the sea control mission, the carrier airwing must be able to locate and destroy hostile air, surface, and submarine targets. This requires the full range of aircraft types available in the multimission carrier airwing. The antisubmarine aircraft, consisting of 10 S-3As and six SH-3s, are needed to counter prospective enemy submarines.

Fighter aircraft are needed for sea control to provide antiair capability. In addition, they are used to establish air superiority and escort attack, reconnaissance, and electronic warfare aircraft against enemy fighter attack. The attack aircraft are used to deliver ordnance against opposing surface targets, such as ships and naval shore installations.

The remaining aircraft aboard the carrier are support aircraft providing special functions necessary for all carrier missions. For example, as the chart below shows, the E-2C provides early threat warning and communication coordination. The EA-6B provides the electronic warfare capability necessary to degrade enemy radar and communications. Tanker aircraft refuel other aircraft to extend their reach and endurance. Reconnaissance aircraft provide the information needed for decisionmaking and strike planning.

AIRBORNE EARLY WARNING



Illustation of the interrelationship between carrier fig[illegible] E-2C aircraft.

Power projection

Power projection is the act of destroying enemy targets ashore with naval forces and depends on sea control to allow the necessary freedom of movement. Power projection is accomplished by missile carrying submarines, tactical aircraft operated from aircraft carriers, amphibious landings by the Marines, and naval gunfire.

Although the carrier's primary mission is to maintain general superiority at sea, the principal use of aircraft carriers since World War II has been in the power projection role. For example, carrier-based aircraft were used extensively as bases against land targets in Vietnam. In the power projection mode, carrier-based aircraft destroy targets in enemy territory, support amphibious assault, provide bombing and strafing in support of ground troops, and maintain air superiority.

To accomplish the power projection role, fighter and attack aircraft and the necessary support aircraft are needed. Antisubmarine aircraft needs are minimized or nonexistent because sea control has been established or only residual enemy sea-based platforms remain.

Number of aircraft needed

The Navy has configured a basic sea control airwing to consist of 83 1/ aircraft. All but 4 light attack and 3 medium attack aircraft of the 90 plane multimission airwings are included in this configuration. When carrier forces deploy, task force commanders choose the aircraft deckload desirable for a specific cruise rather than loading the basic sea control airwing. The seven attack aircraft not part of the basic sea control airwing comprise the flexibility element to adjust a carrier deckload optimized for sea control to one optimized for power projection.

The number of aircraft by type is determined largely by the operational objectives of the carriers. The Navy's mode of operation requires that deleted combat air patrols be maintained at all times. Based on maintenance turn-around times, expected sortie generation rates, and the like, this requires 24 fighter aircraft.

The carrier must also be able to generate surveillance coverage on an around-the-clock basis. To accomplish this,

1/See note c on p. 13.

20 light attack, 9 medium attack, and 3 reconnaissance aircraft are needed. The remaining 4 light attack and 3 medium attack aircraft are needed to generate a higher, more desirable level of attack sorties for the power projection ashore mission.

In the antisubmarine area, the carrier must be able to continually maintain [deleted] forward stations. A squadron of 10 S-3A aircraft is required to accomplish this.

The antisubmarine helicopters provide close-in protection against submarines. To maintain [deleted] helicopters on station at all times, six 1/ of them are needed.

To operate effectively around-the-clock [deleted] [deleted] of the support aircraft must be on station at all times. To accomplish this, four airborne early warning, three electronic warfare, and four tanker aircraft should be available.

The above describes the carriers' aircraft deckload tailored for the extremes of either sea control or power projection ashore. Carriers deployed to an operational theater do not necessarily conform to either of these deckloads as described on pages 7, 25, and 26.

We recognize that the above tabulation does not allow for wartime attrition losses of aircraft. However, Department of Defense policy precludes the services from procuring potential wartime attrition in advance. As a result, the services' requirement computations for aircraft and other weapon systems do not normally contain wartime attrition allowances.

We understand that force and equipment levels are based on threat assessments coupled with budget constraints. The number of aircraft required by type is determined based on outfitting a specific force level objective and adding factors for training, overhaul replacement, and peacetime attrition.

1/See note c on p. 13.

LIMITATIONS ON CARRIER DECK CAPACITY

It is doubtful that the entire multimission airwings can be embarked on their assigned carriers and operate effectively and safely. The Navy has recognized the safe and effective operating limitations of its carriers by instituting the "swing-wing" concept, which recognizes that "swing" components are necessary to adjust the carrier deckload from one mission mode to another, due to space limitations. Navy commanders have acknowledged the safe operating limitations of their carriers during the past multimission deployments. During these deployments, the number of aircraft aboard the carriers was tailored to accomplish specific missions, leaving behind a portion of the airwing. In addition, a Navy study of wartime carrier operations recognizes the limited carrier deck capacity. Despite the almost overwhelming evidence to the contrary, the Navy contends that the entire multimission airwings would be embarked on their assigned carriers in wartime.

Carrier deck limitations represent only a minor facet of the issue addressed in this report. The issue is whether or not the Navy can accomplish its mission without making each carrier self-sufficient for power projection ashore by providing flexibility components to each carrier airwing when viable alternatives are available which would require fewer overall resources.

In view of the considerable evidence presented, we question whether the Navy can operate effectively in wartime with the entire multimission airwings on their carriers despite the Navy's contention to the contrary.

We also question if it would be prudent to embark the entire airwing on carriers in wartime when a lesser number of aircraft is required to counter the specific mission objective. Aircraft carriers will presumably be subject to attack by enemy air, surface, and/or subsurface forces and they could incur substantial battle damage or be lost altogether. In case of such a loss, having less than the entire airwing aboard would minimize losses. It follows then that carriers should be dispatched with the optimum number of planes needed for their mission. The more aircraft left at shore bases or in reserve, out of ready enemy reach, the fewer the potential losses and the greater the flexibility will be.

The Navy's position that the entire airwing could be squeezed onto the carrier, if the need arose, appears to be inconsistent with the principle of dispersion of military materiel recognized by the Department of Defense and the services. For example, to lessen the vulnerability and improve the survivability of U.S. augmentation aircraft in Europe, the United States and our NATO partners have spent considerable funds for dispersal programs and simultaneous reinforcing of positions, such as aircraft shelters. Currently the Department of Defense is actively pursuing agreements with NATO countries to collocate such aircraft on bases operated by allies. The main purpose is to further disperse U.S. augmentation aircraft over and above desirable loading factors of U.S. operated bases and lessen vulnerability to preemptive strikes.

Capacity constraints and computations

The number of aircraft which can be safely and effectively operated from a carrier is limited by the flight deck and hanger deck capacities. Enough space must be left on the hanger deck to allow maneuvering of aircraft to and from the elevators to the flight deck. Adequate space must be left on the flight deck to (1) allow simultaneous aircraft launching and recovering and (2) move aircraft to and from the flight lines and the elevators to the hanger deck.

Given the physical constraints of the carrier's size, substantial evidence shows that the entire typical multimission airwing cannot be deployed and operated without adequate space for simultaneous launch and recovery operations. The Navy uses the maximum number of A-7s which can fit on an aircraft carrier as their standard measure for carrier deck capacities. The standard measure is referred to as a carrier's A-7 multiple. While the maximum capacity in A-7 multiples has been identified for each carrier, maximum operating capacity has not been determined, in that aisle space and other operating room necessary to carry out continuous flight operations have not been allowed for. The template on page 24 demonstrates aircraft density when the maximum number of A-7s are loaded, making it obvious that effective flight operations cannot be undertaken for lack of maneuvering space. Naval Material Command publication P-4000.2 identifies maximum wartime density as [deleted] percent of maximum capacity. However, during the multimission airwing evaluations maximum operating capacity was identified as [deleted] percent of maximum capacity. Also, the Navy's "CVX Airwing Effectiveness" study uses the lower percentage.

THE FLIGHT DECK OF THE U.S.S. NIMITZ— at the time this photograph was taken no launch and recovery operations were possible

SOUCE: U.S. NAVY PHOTOGRAPH

The Saratoga's maximum A-7 capacity multiple is [deleted]. The Navy's report on the multimission airwing evaluation aboard the Saratoga in 1971 stated that any multiple above [deleted] locks the deck, whereas a multiple of [deleted] is the maximum which can be handled efficiently during cyclic operations. Based on the Navy report, the stated maximum operating capacity is about [deleted] percent of maximum capacity.

The Saratoga's multimission airwing consists of [deleted] aircraft--about [deleted] A-7 multiples. Comparing the airwing multiple of [deleted] to the maximum operating capacity multiple of [deleted] it is obvious that effective and safe flight operations could not be conducted with the entire multimission airwing aboard.

The four carrier deployments to the Mediterranean from July 1975 to April 1976 demonstrate the deck capacity limitations. In each case the aircraft multiple aboard the carriers was slightly below [deleted] percent of the maximum capacity. The aircraft deployed was considered to represent the carrier's maximum operating capacity.

We found that carrier maximum capacity multiple determinations conflict with conditions in the operational environment. In the early 1970s the Navy determined the maximum operating capacity in A-7 multiples by using mock-up models of the carrier decks and A-7 aircraft. Subsequently, the Navy used the mock-up models to reevaluate the capacity of the Nimitz and the maximum capacity increased by [deleted] A-7 spots, from [deleted] to [deleted]. Based on this reevaluation, the Navy computed the ratio of total deck space to occupied deck space and increased the maximum capacity of all carriers accordingly, considering certain known peculiarities of each carrier. The validity of this process appears to be questionable. For example, the capacity of the Forrestal shown on p. 24 was increased by [deleted] A-7 spots from [deleted] to [deleted]. Forrestal officials said that even the [deleted] capacity was not attainable because 15 spots were not available due to physical obstructions. They could not understand how [deleted] spots would be available. The experience of the Saratoga described earlier demonstrates that maximum density is not related to maximum operating capacity. A much lower multiple was found to be the maximum to efficiently handle cyclic operations.

EXAMPLE OF AIRCRAFT DENSITY FOR A CARRIER LOADED
WITH THE MAXIMUM NUMBER OF A–7s

deleted

Note: The circled spaces are not available for operational purposes due to physical obstructions, according to FORRESTAL officials.

The confusion concerning carrier operational capacity multiples was heightened by the Navy's study to determine the carrier size and the airwing combination preferred for the 1980s to 2000 and beyond timeframe. The Naval Air Systems Command, in its May 1975 study, "CVX Airwing Effectiveness" used [deleted] percent of the maximum A-7 capacity multiple as the criterion for operational carrier deck capacity. The study simulated the various naval scenarios under wartime conditions. It is again noteworthy that maximum operating capacity under wartime conditions used in the study is contrary to a Navy Material Command publication which identifies sustained combat capacity as [deleted] percent of maximum density.

Aircraft left ashore during carrier deployments and how they are used

When the Navy instituted multimission aircraft carriers, it emphasized the concept of operation called "swinging the wing." This concept clearly recognizes that (1) the carriers are unable to deploy with their entire assigned airwing and (2) the aircraft mix deployed on the multimission carrier will be tailored to counter the threat as it is perceived by the fleet commander. As the threat changes, the aircraft mix aboard the carrier will be adjusted to meet the new threat by exchanging aircraft between the carrier and those left ashore. The following schedule shows the number of aircraft operated and left ashore during deployments of the stated carriers.

Carrier	Aircraft operated	Aircraft left ashore	Total aircraft assigned
Atlantic Fleet:			
Saratoga	76	15	91
Kennedy	82	12	94
Independence	77	4	a/81
America	85	6	91
Average	80		
Pacific Fleet:			
Kitty Hawk	70	25	95
Ranger	69	14	a/83
Midway	60	16	a/76
Average	66		

a/These carriers did not have a full typical multimission airwing assigned at the time of these deployments.

Atlantic Fleet

The Atlantic Fleet carriers have been deployed to the Mediterranean. Aircraft not aboard their assigned carriers during the deployment remained at their U.S. shore bases. These aircraft are attached to training squadrons where they fly training missions which simulated flights normally undertaken by the carrier-based aircraft.

On four occasions, certain planes were flown across the Atlantic to join the carrier airwing. These flights were to determine the feasibility of the "swing-wing" concept. The first flight occurred during the multimission airwing concept feasibility trials in 1971. In two further instances, [deleted] [deleted] planes were flown from the United States to the carrier. In one of these two instances, no aircraft had to be flown off because the carrier deployed with only [deleted] of its 91 assigned aircraft. In the fourth instance fighter and attack aircraft were flown to the carrier, displacing planes which were flown to shore bases in the Mediterranean area.

The following schedule shows the number of aircraft left at shore bases during four Atlantic Fleet deployments.

Number and type of aircraft shore-based

	Fighter	Light attack	Medium attack	Reconnaissance	Anti-submarine (note a)	Total
Saratoga	6	4	-	3	2	15
Kennedy	-	6	3	3	·	12
Independence	2	2	-	-	-	b/4
America	-	4	-	-	2	6

a/Intentionally left behind to demonstrate [deleted]

b/The Independence did not have a full multimission airwing.

Pacific Fleet

Navy officials said that Pacific Fleet operations differ because shore bases in areas to which the carriers deploy are readily accessible. Since shore bases are available, the entire airwing is loaded aboard the carrier and transported

to overseas areas.

deleted

To allow for normal operations, some of the aircraft are off-loaded at shore installations. The land-based aircraft are subsequently exchanged for other aircraft on the carrier or they may supplement those deployed within operational limits at the discretion of the respective commanders.

Carriers operate in areas where shore bases are generally accessible in the Pacific and the aircraft are exchanged frequently between the assigned carrier and bases. Shore bases do much of the normal aircraft maintenance which differs from Atlantic Fleet operations. However, large portions of the carrier airwings are generally left ashore as shown on page 25. The aircraft left ashore consisted of various fighter, attack, reconnaissance, and antisubmarine planes.

NUMBER OF AIRCRAFT COMPRISING THE FLEXIBILITY COMPONENT OF THE MULTIMISSION CARRIER AIRWING

The Navy has not determined the optimum size and composition of a multimission carrier airwing which could be fully deployed and operated safely and effectively on the assigned carriers. However, the Navy determined that the basic multimission airwing for sea control consisted of 83 planes, as described on page 18. The flexibility component to adjust the carrier deckload from sea control to power projection basically consists of seven attack aircraft. Allowing for smaller airwing sizes on the smaller carriers, the flexibility components of the 12 multimission carrier airwings and their associated training and depot overhaul replacement aircraft, comprise over 100 aircraft. Our calculations follow.

Number of aircraft in the airwing of large carriers	90		
Number of aircraft needed for cyclic operations	83		
Number of land-based aircraft for flexibility per carrier	7		
Number of large carriers planned	8		
		56	
Number of aircraft in smaller carrier airwing	87		
Number of aircraft needed for cyclic operations	83		
Number of land-based aircraft for flexibility per carrier	4		
Number of smaller carriers planned	4		
		16	
Number of aircraft assigned to airwings for flexibility		72	
Add:			
Training aircraft associated with the above--25 percent		18	
			90
Overhaul replacement aircraft associated with above--15 percent			14
Total aircraft operated to provide flexible multimission airwings for the 12 carriers			104

Some of the Navy's 12 multimission carriers do not yet have their complete multimission airwings nor the planned number of required aircraft type. The transition to multimission carriers is expected to continue through the early 1980s. Aircraft modernization and replacement is a continuous process as new types succeed old. We recognize that the aircraft identified in the flexibility component are not necessarily available in the inventory. However, adjusting the composition of the multimission airwing by deleting flexibility components provides the Navy an opportunity to reduce planned aircraft procurements and operating costs to generate funds for more pressing needs.

There are other carrier deployable aircraft available in the Navy's inventory. For example, a number of A-4s are used for research and development and for decoys in training. In addition, there are carrier deployable aircraft in desert storage. While these aircraft are not of the same type as those in the multimission carrier airwing, they could be used on carriers for emergencies if outfitted with the proper support kits.

CHAPTER 4

SOURCES OF AIRCRAFT FOR MULTIMISSION CARRIER AIRWING FLEXIBILITY

The Navy has several options available for obtaining the fighter and attack aircraft, as well as a limited number of other aircraft needed to adjust the carrier deckload. The aircraft, needed to provide the flexibility for changing threat situations and mission requirements may be available from

--airwings of other operating carriers,

--airwings of carriers in extensive overhaul,

--airwings of the Marine Corps,

--the Navy and Marine Corps Reserves,

--a pool of aircraft established for carrier deckload adjustment, and

--Navy and Marine Corps training aircraft.

The alternatives should be viewed as satisfying the flexibility requirement in the aggregate rather than separately. We are not suggesting that the first option be depleted before the next alternative is considered. Instead, we are suggesting that all available assets be considered simultaneously in determining how each particular flexibility requirement is to be met.

EXTENT OF AIRCRAFT AVAILABLE FOR FLEXIBILITY

Without considering aircraft which could be exchanged between operating carriers to adjust the airwings for specific threat situations, a large inventory of carrier deployable aircraft is operated which could provide the needed flexibility. The depth of flexibility available from those sources is large, consisting of 852 planes, compared to about 100 aircraft associated with the multimission airwings for flexibility.

Sources of Alternative Aircraft
at December 31, 1975

Aircraft type	Carriers in overhaul	Marine Corps	Reserves	Training squadrons	Total
Fighters	deleted				-
Light attack					758
Medium attack					-
Reconnaissance					16
Antisubmarine					38
Other					40
Total					852

a/n.o. = not obtained.

b/Based on an airwing containing 90 aircraft.

EXCHANGING AIRCRAFT BETWEEN OPERATING CARRIERS TO GAIN FLEXIBILITY

It is unlikely that all of the deployed carriers or those available for immediate deployment, would face the collateral power projection mission. Consequently, the carrier airwings can complement each other. As one carrier needs suitable aircraft to project power ashore when it does not have enough aboard, attack and fighter aircraft may be obtained from a carrier whose threat of this kind is less or which is to meet a sea control requirement by exchanging aircraft between them to tailor each particular airwing to the specific threat situation anticipated.

Exchanging aircraft between carriers does not appear to be substantially different from the current concept of exchanging aircraft between U.S. shore stations and carriers deployed thousands of miles away. The Navy will have sufficient numbers of like planes available in each of the multimission airwings so that an exchange between carriers should not present insurmountable support problems. It may not be necessary to provide enough aircraft for each carrier to make it self-sufficient in meeting all threat situations when portions of the airwings must be left behind since the carriers can collectively meet the various threats.

Exchanging aircraft between carriers to meet changing threat situations is well recognized within the Department of Defense. The Secretary of Defense told the Congress in 1976, in reference to the S-3A:

> "One squadron (10 aircraft) is being bought for each of the multipurpose carriers expected to be in the fleet in the early 1980s. During a major conflict, carriers operating in a high submarine threat area could be provided with two squadrons of S-3s by drawing down on the S-3 complements of other carriers."

The concept of exchanging aircraft between carriers addressed by the Secretary certainly would apply to other carrier-based aircraft.

AIRWINGS OF CARRIERS IN EXTENSIVE OVERHAUL

Aircraft carriers operate on a cycle of approximately 5 years. At the end of each cycle, the carriers normally undergo scheduled overhauls for about 1 year. Navy officials said they plan to have two carriers in overhaul and alteration at all times.

While these carriers are in overhaul, the assigned airwings are training and preparing for deployment. Navy officials said that these airwings are needed to train the pilots and crew and to phase new aircraft into the airwing.

The multimission airwings of carriers in overhaul have about 90 aircraft each. We believe these airwings are a source of aircraft to meet changing threat situations for carriers in deployed status. In case of an emergency the Navy would make the carriers in overhaul available as soon as practicable and Navy officials said it could take as long as deleted to ready the carrier depending on the stage of overhaul.

USE OF MARINE CORPS AIRCRAFT TO PROVIDE CARRIER AIRWING FLEXIBILITY

The Marine Corps is an excellent source for aircraft needed to adjust multimission carrier airwings. Not only does the Marine Corps operate carrier compatible aircraft found in the multimission carrier airwing, but its pilots are carrier qualified.

The Marine Corps is administratively under the Department of the Navy. As such, the Chief of Naval Operations has controlling custody of all naval aircraft, including Marine aircraft. If needed, aircraft can be exchanged between the Marine Corps and the Navy.

Marine aircraft are an integral part of the Navy tactical air resources. The Secretary of Defense said that Marine Corps airwings are justified largely on the basis of amphibious operations, but they are also important in the overall tactical air force structure. Since they are capable of both land-and-sea-based operations, Marine tactical aircraft are available as a backup force. If not needed to support committed Marine Corps forces and if the amount of dedicated sea-based aircraft needed in a time of crisis is underestimated, Marine air resources could be made available to correct the deficiency. Likewise, Marine tactical air assets can augment dedicated land-based assets as needed and available, just as land-based aircraft can support amphibious operations.

The Navy recognizes that the Marine Corps aviation is part of naval aviation, and that the major elements of the two services tactical aircraft must be integrated to achieve maximum combat utility from these resources. Yet, Marine Corps aircraft were not considered when the size of the multimission airwing was determined. Each capability was considered independent of the other when requirement computations were made.

At the heart of the existence of the Marine Corps is the perceived requirement for amphibious landing forces in areas where the United States and its allies do not have a foothold when required. To accomplish the amphibious landing, the Marine Corps depends largely on carriers for its airwings before land bases can be established. For this reason, much of the Marine Corps tactical aircraft is configured to operate from carriers and its pilots are carrier qualified. Also the Marines do not have an aircraft carrier assigned to them, but must displace Navy aircraft for the duration of their operations from the carrier.

The Marine Corps tactical aircraft and its pilots are able to perform the same mission as naval aircraft and pilots, and with comparable proficiency. The Navy has not hesitated to use Marine Corps aircraft in carrier operations. During the Vietnam conflict Marine squadrons were assigned to carriers and flew combat missions against enemy targets as did Navy aircraft.

The Marine Corps has three airwings, each having carrier deployable aircraft such as F-4s and A-6s. The Marine Corps' aviation mission is to support Marine Corps forces in the seizure and defense of advance naval bases and for land operations which may be essential in a naval campaign. The primary mission of Marine fixed-wing fighter and attack aircraft is to conduct offensive air support and antiair warfare from advance bases and aircraft carriers.

deleted

The Department of Defense objective is to have such ships sufficient to

deleted

such as an alternative source for carrier deployable aircraft to provide the flexibility to adjust multimission carrier airwings when required. The deleted airwings operate at least deleted fighter and attack aircraft which are the same types as those left behind during carrier deployments, which could be used to augment the Navy aircraft resources.

NAVY AND MARINE CORPS RESERVE AIRWINGS COULD BE USED TO ADJUST MULTIMISSION CARRIER AIRWINGS

While they are not available at a moment's notice, the Navy and Marine Corps reserve airwings represent resources which can be used to adjust multimission carrier airwings in emergencies. If active Navy and Marine Corps assets are not available for multimission carrier airwing adjustments during emergencies, the reserves could fill this role. Only one of the three reserve airwings can be assigned to the 13th airwing carrier.

The Navy has two reserve airwings and the Marines have one. The primary mission of the reserves is to provide trained units and individuals in time of war or national emergency. The reserves' secondary function is to assist the active forces in accomplishing their peacetime mission.

The Navy and Marine Corps reserve airwings consist of the same general types of aircraft as their active counterparts. All of the reserve aircraft are carrier deployable, and the reserve pilots have the necessary qualifications to

operate from aircraft carriers. However, only one carrier is available for the reserve airwings.

Even in emergencies, other carriers are not available for the reserve airwings. Carriers in the mothball fleet take too long to activate to be used by the reserve airwings for immediate deployment. The naval reserve is required to deploy one of its airwings within deleted and the other within deleted even though carriers are not available. The Marine Corps reserve airwing could deploy in about deleted depending on the availability of carrier space to requalify the pilots.

Granted, the Navy will have to manage the aircraft configuration problem. Not all carrier deployable aircraft can be supported by every carrier. Each carrier has the equipment and spares to support only the aircraft assigned to its multimission airwing. However, the reserves have assembled spare kits to allow them to operate for up to deleted

The Navy also plans to upgrade the reserve airwings during the next decade. For example, the reserves are scheduled to receive the undeveloped F-18 in the 1980s. Supportability of reserve aircraft would be a lesser problem in the future, particularly if Navy planning integrates reserve resources into overall requirements determinations.

ESTABLISHING AN AIRCRAFT POOL TO PROVIDE FLEXIBILITY FOR THE MULTIMISSION CARRIER AIRWING

Each of the 12 multimission carrier airwings will have enough aircraft to adjust from the sea control to the power projection mode of carrier operations, even though the entire airwing does not fully fit on the assigned carrier without constraining flight operations. The Navy could establish a pool of aircraft to provide the flexibility to adjust the deckload of deployed carriers rather than furnish each airwing a flexibility component.

Apparently, not all of the carriers will be deployed with the deckload optimized to meet the power projection ashore mission objective at the same time. Instead of providing each carrier airwing with reserve aircraft for flexibility to adjust to the collateral mission of power projection ashore, the extra aircraft could be assigned to a pool for multimission airwing adjustment purposes. It appears

that establishing a pool of aircraft for flexibility to optimize the carrier deckload for power projection ashore would require fewer aircraft than assigning a flexibility component to each airwing since not all carriers are expected to operate in this mode simultaneously. As aircraft are exchanged, the displaced aircraft would join the pool for potential assignment to another carrier.

USE OF TRAINING AIRCRAFT TO PROVIDE CARRIER FLEXIBILITY

The Navy generally procures 25 percent of their operational aircraft requirements as training aircraft. In addition to training commitments these aircraft are scheduled to fill in for wartime attrition.

In early 1976, training squadrons contained 176 fighter and attack aircraft. We did not obtain the number of aircraft in training squadrons for other types of aircraft. However, the aircraft in training squadrons represents a considerable margin for carrier deckload adjustment, since the flexibility components of all 12 carriers require just over 70 aircraft, excluding training and depot overhaul replacement requirements. Also, the other options described could possibly provide most, if not all, of the flexibility needs.

CHAPTER 5

COST OF PROVIDING FLEXIBILITY FOR EACH MULTIMISSION CARRIER AIRWING

To provide and operate aircraft for flexibility components for each airwing when sufficient resources may be available from other Navy assets is expensive. Not only must these aircraft be acquired at a cost of several million dollars each, but they require personnel, fuel, and spare parts to operate and maintain. In addition, training and other costs not directly identifiable to each aircraft are incurred as well.

Based on the Navy's aircraft operating data, we estimate that it will cost between $90 million and $124 million annually to operate 104 aircraft for the flexibility for multimission carrier airwings to adjust to differing threat situations, without considering other available resources. In addition, millions of dollars will be required over the next decade to replace and buy the flexibility aircraft even though the necessary resources appear to exist within the Navy.

ANNUAL OPERATING COSTS FOR FLEXIBILITY AIRCRAFT

Each specific aircraft type has its own operating costs associated with it. For example, the make-up of flight crew/ and fuel consumption are not the same for each plane. Since the flexibility component has been identified to consist of attack aircraft, A-7E and A-6E operating cost data is applicable. Based on the Navy's program factors manual which reflects 1975 costs, we estimate that the yearly cost for operating the 104 aircraft provided for carrier deckload flexibility will be between $90 million and $124 million. The following table shows the annual operating cost in 1975 dollars if all 104 planes were of the same type.

Aircraft type	Annual operating cost per aircraft	Number of aircraft	Total
Fighter (F-4)	$ 966,000	104	$100,464,000
Light attack (A-7)	874,000	104	90,896,000
Medium attack (A-6)	1,191,000	104	123,864,000

ACQUISITION COSTS FOR FLEXIBILITY AIRCRAFT

During the next decade the Navy may spend about $1 billion to acquire and/or replace the estimated 104 aircraft to provide flexibility for the 12 multimission carrier airwings. The Navy is in the process of replacing or expanding most of its aircraft in the multimission carrier airwings by the mid-1980s. The F-14 and F-18 will replace the F-4 fighters. The A-7E is still being procured, but it is planned to eventually be replaced by the attack version of the F-18. E-2Cs and A-6Es are being bought. The following chart shows some of the aircraft being procured or planned to be procured and the cost for each type.

Aircraft type	Fiscal year of procurement termination	Number of aircraft planned for fiscal year 1977 and beyond	Unit cost in millions (note a)	Total cost for 104 planes in billions
F-14 fighter	Early 1980s	124	$15.86	$1.649
F-18 fighter/ attack	Late 1980s	800	6.14	.639
A-7E attack	Early 1980s	150	7.08	.736

a/Fiscal year 1977 unit procurement cost.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Navy, along with the other military departments, has been under budget constraints for several years. Many of its ships and aircraft did not undergo scheduled overhaul on time for lack of funds. On the other hand, the Navy maintains aircraft for flexibility for each multimission carrier airwing, while the necessary flexibility aircraft might be obtained from other organizational elements. We believe this area provides an opportunity to free funds for other higher priority categories.

The services are responsible for planning the military hardware needed to meet potential threats. To do this planning properly, each service should consider the resources available from the other services and the extent of assistance reasonably to be expected from them in countering a particular threat. All alternatives should be considered before the most cost-effective approach is chosen.

We believe that the Navy did not follow this precept when it designed the multimission carrier airwing. The Navy provided land-based reserve components for each of its multimission carrier airwings to adjust the carrier deckload for various mission objectives when other alternatives appear to be available to provide the flexibility. In our opinion, the Navy should determine the optimal size for the multimission carrier airwings which can be deployed recognizing the constraints imposed by carrier size and the availability of alternative sources of aircraft to adjust carrier airwings when necessary.

It is generally recognized that the United States needs a strong and prepared Navy and that the multimission carrier airwing requires flexibility in its aircraft to meet the various types of missions. But the basic policy and cost effectiveness consideration is how much flexibility, when all Navy assets are considered, is necessary to meet the potential threat? Does each multimission airwing require its own flexibility component or can other Navy aviation assets provide the aircraft needed for flexibility without a diminution of mission effectiveness? Will all carriers need to be deployed with the same aircraft deckload at the same time? We believe that the resolution of these and related

questions could cause the Navy to use its resources more effectively.

Each of the multimission carrier airwings will have land-based reserve aircraft to make them flexible for carrier deckload adjustments optimized for sea control or power projection or various intermediate stages. Some aircraft are left on shore bases when multimission carriers deploy and can be exchanged with deployed aircraft if necessary.

We believe that the Navy has a number of options, other than maintaining oversized airwings, available to provide the flexibility needed to accomplish sea control and power projection. We believe the following alternatives, (see ch. 4), could collectively provide the flexibility to adjust the carrier aircraft deckload from sea control to power projection.

--Exchanging aircraft between operating carriers.

--Using the aircraft of carriers undergoing extensive overhaul.

--Using the Marine Corps aircraft.

--Using the Navy and Marine Corps reserve airwings in emergencies.

--Establishing a pool of reserve aircraft serving the flexibility needs of all carriers.

--Using highly capable training resources in emergencies.

Since sea control is the Navy's primary mission and is required in the worst case scenario--a NATO war involving the Soviet Union--we believe that maximum resource requirements should be determined by this mission objective. Not only can the carrier whose airwing is configured for sea control protect the sea lanes of communication, but it can project power ashore and accomplish the other collateral Navy missions. The carrier airwing configured for sea control in itself is a multimission airwing without the flexibility component.

In a scenario of lesser intensity, when control of the sea is not a major concern, it may be desirable to strengthen the attack and fighter components of the carrier airwing for more effective power projection ashore. However, we do not believe that such adjustment requires separate flexibility components consisting of aircraft dedicated to each carrier as is now the case. We believe that the alternatives delineated are adequate to provide this flexibility.

To procure and operate reserve flexibility aircraft for each of the multimission carriers is expensive. We estimate that $1 billion may be needed during the next decade to procure the 104 aircraft for the flexibility to adjust the deckloads of the 12 planned multimission carriers. Annual operating costs associated with these land-based aircraft for potential carrier deckload adjustments amount to about $100 million or more.

The Navy should have enough carrier-based aircraft to enable it to accomplish its mission objectives of sea control and power projection. But we do not believe that each carrier needs a self-sufficient airwing with sufficient flexibility aircraft to optimize deckloads for power projection.

PRELIMINARY SUGGESTION TO THE SECRETARY OF DEFENSE

In our draft report to the Secretary of Defense we suggested that the Secretary of the Navy (1) reassess the total aircraft requirements for multimission aircraft carriers and (2) determine the minimum number of aircraft required for each carrier and how to best satisfy the mission with the least resources.

AGENCY COMMENTS AND OUR EVALUATION

The Department of the Navy states that our report presents a fair assessment of the structure of the multimission carrier airwings in a peacetime situation, but that the total Navy/Marine aviation force structure requirements for combat contingencies have not been adequately considered. We do not agree with this assessment. The point is that the Navy had identified the airwing required to accomplish the sea control function and project power ashore as consisting of 83 aircraft of various types. In addition, each of the 12 multimission carriers is assigned a flexibility component consisting of attack aircraft whose function is to adjust the deckload to optimize power projection ashore

by displacing antisubmarine or support aircraft from the carrier decks.

We believe it should not be necessary to provide each carrier with the separate and individual capability to optimize the Navy's collateral power projection ashore function by providing land-based reserve components. We point out that the Navy has a number of other options available which collectively could satisfy the carrier deckload adjustment without providing flexibility components for each carrier.

In testimony before congressional committees, the Department of Defense identified a NATO war involving the Soviet Union as the worst case scenario. In such a scenario, the Department of Defense as well as the Navy expects the deployed carriers to be operating in the Navy's primary mission of sea control requiring their full antisubmarine capability due to the Soviet Union's heavy subsurface threat. Power projection ashore, except in conjunction with sea control, is considered highly unlikely. As the Navy has indicated in their comments to our draft report, such an intense conflict could require all Navy operated carriers in the sea control role.

In less intense conflicts, when power projection ashore is primary, as was the case in Vietnam, when the United States control of the seas was not seriously challenged, not all Navy carriers would be expected to participate and the alternatives we pointed out would be valid sources for carrier deckload adjustments. In our opinion, we have adequately considered wartime carrier contingencies.

The Navy stated that all carriers could possibly be deployed simultaneously in a war with the Soviet Union to oppose submarines, surface combatants, and long-range "bomber" type aircraft. We agree that this is a distinct possibility, but as the Navy states, the carriers will require sea control airwings to counter the subsurface, surface, and air threats. The Navy does not disagree that aircraft can be exchanged between carriers to adjust deckloads to meet specific threat situations.

Concerning the specific options we identified, the Navy contends that they would not be available for carrier deckload adjustments in the worst case scenario for a number of reasons. Following are the Navy's views and our response.

Aircraft of carriers in overhaul

The Navy contends that carriers could be out of overhaul in less than the timeframe we specified. This is possible depending on the state of the overhaul of the particular carriers.

The Navy also states that it is a poor investment in a carrier if there is no airwing for it when needed in a NATO war involving the Soviet Union. We believe that the comments are not warranted in this instance because the specific scenario to which the Navy refers would require the sea control airwing, which does not necessarily require the flexibility component to adjust a carrier deckload to optimal power projection. Every carrier could be deployed in the optimized sea control configuration. The airwings of carriers in overhaul would be available for deckload adjustments in lesser scenarios, such as Korea and Vietnam, when power projection is the objective and fewer than the total number of carriers is deployed.

Marine Corps aircraft

The Navy addresses only the worst case scenario, pointing out that the Marine airwings would be needed in direct support of the Marine divisions. As stated previously, in the worst case scenario it is unlikely that aircraft carriers would be used in the collateral power projection mode because the Department of Defense itself has stated that sea control is considered the primary concern. Each of the multimission airwings would contain the aircraft necessary to perform the primary mission of sea control. In lesser conflicts the Marines could be one of the several sources for providing the attack and/or fighter aircraft necessary to change the airwing from one optimized for sea control to one optimized for power projection, provided the Navy manages aircraft configuration and pilot qualifications accordingly.

While the Navy contends that the Marines cannot be relied upon for carrier deckload adjustment because of differences in aircraft and pilot currency in carrier proficiency, the Marines are used to fill existing aircraft shortages. For example, in a recent deployment to the Mediterranean, the U.S.S. Roosevelt embarked with a number of Marine Corps Harriers, the only vertical short take-off and landing aircraft in the U.S. inventory. Similarly, the Marine Corps is filling aircraft requirements for the Midway.

Naval and Marine Corps Reserve airwings

The Navy contends that the Naval Reserve Air Wing for which there is no carrier available represents attrition replacements and the Marine Reserve Airwing is dedicated to support the Marine Reserve division. If these resources are available as combat attrition replacements, they would certainly be available to adjust carrier airwings in the interim. As in the case of the other alternatives, the Navy did not consider when the deckload adjustments are required. In the worst case situation, a war involving the Soviet Union, it is generally agreed that all deployed carriers would be engaged in sea control activities. Every carrier has an airwing which is capable of performing sea control and power projection missions. The flexibility component serves the purpose of optimizing the airwing for power projection. In a conflict of lesser intensity, when the collateral power projection role could be the most prevalent, it would appear that the reserves could function as flexibility components if necessary. The Navy chose not to address this particular aspect and did not specifically disagree.

A pool of aircraft to provide flexibility

The Navy contends that a pool of aircraft to provide the flexibility to adjust carrier deckloads optimized for sea control to power projection ignores the requirement of deploying all carriers in a worldwide conflict. As we have pointed out, in such a conflict, even if all carriers were deployed they would most likely have to maintain sea control, the Navy's primary mission. Some carriers might be optimized for power projection ashore, but this would not require that each carrier be self-sufficient for this eventuality because (1) more than half of the assets contained in a multimission airwing are capable of power projection, (2) the resources of previously delineated alternatives could be used to adjust the deckloads for optimum power projection on at least some of, if not all, the carriers, or (3) a pool of aircraft for flexibility consisting of a smaller number of aircraft than the composite of the 12 flexibility components planned could satisfy the deckload adjustments. In lesser conflicts, not all carriers would be expected to be deployed (see p. 10 concerning Vietnam deployments), and a pool of flexibility aircraft would be adequate, if needed at all, in view of the other options available to the Navy.

The Navy states that it is preferable that the entire airwing train as a unit rather than provide flexible pilots and aircraft from other organizations. Nevertheless, the Navy concurs that pilots and aircraft lost in combat are replaced with resources not trained with the specific airwing. While we agree that it is desirable to train as units, this is obviously not essential and appears to be unrealistic in wartime conditions when combat losses are inevitable.

Navy and Marine Corps training aircraft

The Navy states that short of a losing situation in NATO war, training squadrons must continue to function in their primary role while the Navy is engaged in conflicts of lesser intensity.

We agree with this position and do not advocate complete depletion of training assets. Nevertheless, this report points out that the Navy does not need a complete flexibility aircraft mix for every carrier and that flexibility can be achieved with fewer back-up assets. The sources for these aircraft are many including, if necessary, a few training aircraft because the 176 fighter and attack training aircraft represent a considerable margin of flexibility when only just over 70 aircraft are needed to adjust the deckload of all 12 carriers from sea control to one optimized for power projection ashore.

Carrier deck limitations

The Navy contends that the entire multimission airwings can be embarked on the carriers and that they would be in wartime condition, if only to have backups for combat losses. According to the Navy, a reduction in carrier deckload improves flight and hangar deck flexibility and provides the necessary margin of safety for peacetime operating conditions to minimize accidents, handling "crunches," and personal injuries. Under wartime conditions these risks would become acceptable in order to embark the highest number of aircraft possible to insure maximum combat capability. The Navy also states that in wartime the liberty boats and cargo aircraft would be removed from carriers. The deckspace made available and the space made available by deleting the two antisubmarine helicopters in fiscal year 1978 will provide sufficient deck space to embark the aircraft left behind as adjustment component.

Even in peacetime, according tc the Navy, carriers sometimes operate with a deckload of more than [deleted] percent of maximum capacity multiple. Cited as a typical case, the Navy deplcyed the U.S.S. Enterprise to the Indian Ocean in early 1977 with 78 aircraft and support equipment comprising a deck multiple of over 119 A-7 equivalents or about [deleted] percent of the carrier's maximum deck multiple. However, during the deployment, the carrier left 14 aircraft of the multimission airwing at shore bases. While carriers may sometimes operate with a deck multiple of more than [deleted] percent of their maximum capacity multiple, we note that they are more likely to operate with a reduced complement to meet a perceived threat.

In February 1977, during the Indian Ocean deployment, the Enterprise did not carry all of the aircraft required for sea control nor did she carry the attack aircraft supposedly necessary for optimum power projection ashore. Apparently, the Enterprise was configured to meet a special threat situation and unnecessary aircraft were left ashore. In other words, the Enterprise deployment, does not illustrate the use of a full carrier airwing with its complement in operation.

As far as we were able to determine, the Navy has not as yet validated the optimum aircraft mix of its multimission airwings under simulated or actual wartime conditions nor demonstrated the feasibility of operating off a carrier deck with a full airwing complement.

During the multimission airwing evaluation aboard the Saratoga in 1971 the Navy determined that the maximum deck multiple was about [deleted] percent for maximum operating capacity in the multimission environment. Similarly, the Navy is using the [deleted] percent load factor in its simulations of the multimission airwing effectiveness in the various naval scenarios under wartime conditions. On the other hand, we found a naval publication which identified the sustained combat capacity as [deleted] percent of maximum density. So, it is not clear from Navy publications what the maximum wartime carrier capacity is.

The issue addressed in our report, however, is not whether the Navy can fit the multimission airwing on the carrier decks. The issue is whether or not the Navy can accomplish its mission with multimission airwings containing fewer resources by relying on viable alternatives to provide carrier deckload flexibility without assigning a flexibility component to every multimission carrier.

RECOMMENDATIONS TO THE CONGRESS AND THE SECRETARY OF DEFENSE

As we have pointed out on pages 20 through 25, there is persuasive evidence that the multimission carrier airwing cannot operate safely and effectively if the whole airwing is embarked on the carrier. This conclusion is based on the Navy's own studies and determinations regarding the aircraft mix needed for the multimission aircraft carriers. In our opinion, the "swing-wing" concept itself demonstrates the Navy's concern in this regard. Why would the Navy develop a carrier deployment concept with shore-based flexibility components if the entire airwing could be operated from the carrier at all times?

We believe that, at a minimum, the Navy should determine the optimum size of the multimission airwing which can operate effectively and efficiently from the aircraft carriers under simulated combat conditions, before acquiring all the aircraft needed or replacing the planes comprising the multimission airwing.

We believe that the following two issues warrant consideration by the Congress. First, in view of the alternatives available to the Navy to provide the flexibility to adjust the carrier deckload, should the additional aircraft comprising the flexibility component be procured? Secondly, should the Congress decide that notwithstanding the alternatives, each of the multimission aircraft carriers should have its own unique airwing including the flexibility component, then the Congress should defer appropriating funds for aircraft in excess of the basic sea control airwing requirements until the Navy demonstrates to its own and Congress' satisfaction that it can efficiently and effectively operate the entire multimission airwing from the carriers under simulated combat conditions.

We recommend that the Congress and the Secretary of Defense have the Secretary of the Navy reassess the total aircraft requirements for multimission aircraft carriers and determine the minimum number of aircraft required for each carrier and how to best satisfy the mission with the least resources.

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20350

21 APR 1977

Mr. Fred J. Shafer
Director, Logistics and Communications Division
U. S. General Accounting Office
441 G Street, N. W.
Washington, D. C. 20548

Dear Mr. Shafer:

This is in reply to your letter of 2 February 1977 to Secretary Brown regarding the GAO Draft Report on alternatives for flexibility on the Navy's multimission Carrier Air Wings (GAO Code 947232).

While the Draft GAO report presents a fair assessment of the structure of Navy Air Wings embarked in carriers in a peacetime situation, we believe the total Navy/Marine aviation force structure requirements for the several levels of combat contingencies have not been adequately considered.

This aviation force structure is constantly under close examination both within the Department of the Navy, and within the Office of the Secretary of Defense. Force level changes are made when necessary to achieve economies while retaining the most capable and credible deterrent force possible. Carrier Air Wings are no exception to this continuing process.

You may be assured that we will continue to examine this subject with a view toward maximum combat efficiency at the lowest possible cost.

Sincerely,

John J. Bennett
Assistant Secretary of the Navy
(Installations & Logistics)

Enclosure

APPENDIX I

Department of the Navy Reply

to

GAO Draft Report of 2 February 1977

on

"The Navy's Multimission Carrier Air Wing --
Can the mission be accomplished with fewer resources?"
(OSD Case No. 4539)

Summary of GAO Findings and Recommendations

(U) The GAO states: "The Navy's multimission carrier airwings have enough aircraft to accomplish the sea control and power projection roles. To achieve the specific mission objective the Navy exchanges suitable aircraft between the carrier and shore bases. Each time multimission carriers have been deployed, some of the aircraft have been left on shore bases. GAO points out alternatives available to the Navy which may provide the flexibility to adjust carrier deckloads to accomplish the mission objectives without self-sufficiency of each multimission airwing."

(U) The GAO alternatives proposed are:

-- airwings of other operating carriers;
-- airwings of carriers in extensive overhaul;
-- airwings of the Marine Corps
-- The Navy and Marine Corps Reserves; and
-- a pool of aircraft established for the purpose of carrier deckload adjustment.

(U) GAO recommends that the Secretary of Defense direct the Secretary of the Navy to reassess the total aircraft requirements for multimission aircraft carriers and determine the minimum number of aircraft required for each carrier and how to best satisfy the mission with the least resources.

Summary of the Department of the Navy Position

(U) The GAO examined the CV concept and the carrier air wing as it functions in peacetime. Wartime operation of our CVs was not addressed. From a limited data base, the GAO calculated that 150 aircraft, (including pipeline and Fleet Replacement Squadron assets), were being maintained by the Navy in excess of requirements for twelve active carrier air wings.

(U) Emphasis was placed on the potential Case I NATO war with the Warsaw Pact scenario without full appreciation of the utility of carriers and carrier air wings in less-than-worldwide conflicts. Even in the Case I situation, there appears to be lack of full understanding of the demands which would be placed on CVs or the difference between wartime loadout of CVs as opposed to the more safety-oriented deck load utilized in the minimum risk peacetime operation.

(U) There was little consideration given to the value of training a carrier air wing as an integral unit. Carrier Task Force operations are very complex, and a great deal of reliance is placed on teamwork in order to avoid fatal errors in combat.

[See GAO note 1, p. 63.]

(U) Statistics presented for three Pacific Fleet Carrier Air Wings were not very typical of current CV operations.

(U) Of the alternative sources of aircraft and aircrews offered as substitutes for the present "swing-wing" practice, all have major flaws: all carriers will be needed in a Case I war, all with a full deckload of aircraft; any carrier coming out of overhaul would be an unused national asset if it had no air wing to embark; U. S. Marine Corps air assets, active and reserve, are dedicated to fight in support of their counterparts in the ground forces; one Navy Reserve Carrier Air Wing will embark in USS CORAL SEA upon mobilization, the other provides for combat attrition; the Fleet Replacement Squadrons should be utilized as combat replacements only in the most extreme circumstances; a central pool of aircraft dedicated to the "swing-wing" concept would be as large as current assets if it were to meet the requirements of a Case I scenario.

(U) The draft report does not examine total force requirements in a comprehensive consideration of the several wartime Case scenarios. An investigation of limited scope can lead to erroneous conclusions.

(U) The GAO provides no indication that it has examined the total force structure decision process within the Department of Defense.

Statement

(U) In order to be responsive to the recommendation of the report, as contained in Chapter 6, it is necessary to examine the bases for that recommendation as established in Chapters 1 through 5.

Chapter 1

(U) Essentially, this chapter is correct in tracing the historical aspects of the Navy's transition from the FY-62 carrier force of 16 CVAs and 8 CVSs with their associated air wings to the FY-78 carrier force which will consist of thirteen CVs and twelve active air wings. To update some of the data on page 3, the following is submitted: 11 of the 12 active Carrier Air Wings will be equipped with S-3A and SH-3 aircraft for the multimission capability in FY-78; the thirteenth carrier (USS CORAL SEA) will be outfitted to support the specific requirements of the aircraft inventory of the two Reserve Carrier Air Wings.

Chapter 2

(U) "Having adopted the multimission carrier concept, the Navy designed each of its multimission carrier airwings to be self-sufficient to combat the entire spectrum of mission objectives." [See GAO note 2, p. 63.]

(U) It should be pointed out that the CV concept was adopted only after extensive study of its feasibility. The "CV Concept Study Report" was forwarded to the Secretary of the Navy by the Chief of Naval Operations on 15 September 1971. In that report, CNO recommended that the study "be forwarded to the Secretary of Defense with the reservation that final determination of the viability of the concept must await completion of the ongoing evaluation at sea." That initial evaluation took place aboard USS SARATOGA from 18 March 1[illegible] to 28 October 1971 and was favorably reported by Commander, Carrier Division SIX on 23 November 1971. As recently as 14 January 1977, the Secretary of Defense affirmed his support for the CV concept and the multi-purpose air wing in his FY-1978 Defense Report to the Congress. (See pages 240-241).

(U) "However, the possibility that every carrier will have the same mission is unlikely and there are alternative resources available within the Navy to provide flexibility to particular carriers without the need for each carrier airwing to be self-sufficient." (GAO p.6, emphasis added). "The primary consideration [in Carrier Air Wing configuration], however, is what will be the most likely threat in a worst case situation. Under all circumstances, the Navy has identified the worst threat scenario as a direct confrontation with the Soviet Union in a NATO war. This scenario requires sea control, which is the Navy's primary mission." [See GAO note 3, p. 63.]

CLASSIFIED BY

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(U)In a Case I situation (NATO war with the Warsaw Pact), the conflict between the United States and the Soviet Union would be worldwide. The very real possibility, even likelihood, is that every carrier will have the same mission, selective control of the seas, against heavy opposition from Soviet surface combatants, submarines and naval aviation. Toward this end, the Navy is striving to outfit all its twelve active carriers with the full spectrum of capability now possessed by our most modern CVs. We would gratuitously agree that "The multimission Aircraft Carrier with its assigned airwing is considered to be the most capable and effective ship in support of the Navy's mission."

[See GAO note 2, p. 63.]

(U) "Based on the operating constraints of the carrier, each of the multimission Carrier Air Wings will contain from at least eight to ten aircraft for the purpose of adjusting the carrier deckloads to various mission objectives. These aircraft remain at shore bases when their assigned carriers are deployed to overseas areas, such as the Mediterranean"

[See GAO note 2, p. 63.]

"The four carrier deployments to the Mediterranean from July 1975 to April 1976 bear out the deck capacity limitations. In each case, the aircraft multiple aboard the carriers was slightly below [deleted] the maximum capacity multiple".

[See GAO note 2, p. 63.]

(U) While the above statements appear valid on the surface, they overlook several significant factors which require closer examination. During routine peacetime operations, carrier deck multiples are intentionally maintained at levels lower than the sustained combat operating capacity. Such peacetime operations are characterized by frequent inport periods and by reduced flight operating hours when at sea. Both restrictions -- days at sea and total flight hours -- are budgetary constraints. A reduction in deck multiple improves flight and hangar deck flexibility and provides the necessary margin of safety to overcome these adverse peacetime operating conditions. The savings accrue in fewer flight deck landing and takeoff accidents, fewer aircraft handling "crunches", lives saved and fewer personal injuries to handling and maintenance personnel. In a worldwide conflict with the Soviet Union, these would become acceptable risks as we embarked the highest number of aircraft possible to ensure maximum combat capability.

While [deleted] density is a fair assessment of the four Mediterranean cruises cited, it should be noted some of that [ ] of deck multiple includes Ground Support Equipment, and ships boats for peacetime liberty requirements. The Ground Support Equipment is essential to flight operations and maintenance, but in combat the liberty boats would be

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removed; other life rafts are provided for crew survival in the event of a requirement to abandon ship. Carriers in the Mediterranean normally carry ten 40 and 50 foot libert, boats with a deck multiple value of [ ]points. Additionally, the ship's short-range logistic support aircraft, the C-1A, would be off-loaded. In FY-1978, the Unit Equipment of the Helicopter Anti-Submarine Squadron of each Carrier Air Wing will be reduced from 8 to 6 SH-3 aircraft. The deck multiple thus modified is summarized as follows:

10 Liberty Boats 1 C-1A aircraft 2 SH-3 aircraft	deleted

(U) This deck multiple reduction is the equivalent of nearly eight A-7E aircraft. All ships at sea in a Case war would take advantage of this additional deck space available -- all at the same time.

It should also be pointed out that carriers sometimes operate with higher deck multiples than the limited sample offered in the GAO report. For example, in the case of USS ENTERPRISE' current Indian Ocean deployment,

deleted

(U) In a related matter, while referring to the NATO War scenario, the report states: "It is inconceivable that carriers would be dispatched without their full complement of anti-submarine aircraft in favor of additional fighter and attack sorties. After all, the Air Force and allied countries have fighter and attack aircraft in the theatre to generate this type of mission." [See GAO note 3, p. 63.

deleted

(U) "If more intense power projection than is available from the deckload configured for sea control is needed, then aviation assets capable of power projection must be exchanged for anti-submarine aircraft on the carrier. These assets do not necessarily have to belong to the particular carrier in question. Any carrier deployable attack and/or fighter aircraft would seem to be adequate."

(U) There is some truth to the above comments. Thus it would seem to those not experienced in coordinated carrier operations that any squadron could fill the breach. In the Vietnam war, new aircrews did join deployed fighter and attack squadrons as ready replacements for aircrewmen lost in combat. But these crews were handpicked for their superior abilities and/or experience. Even then they were assigned the less demanding missions until they could be fully integrated into the team already in existence on board. The squadrons they joined were already a part of the Carrier Air Wing organization which had trained together with their ship for months prior to deployment. The other aircrews and maintenance personnel were already functioning at maximum efficiency. [See GAO note 2, p. 63.]

With the current day "swing-wing" concept in the Atlantic Fleet, that fraction of the Carrier Air Wing which is left ashore at the time of the carrier's deployment to the Mediterranean has already been exercised for months within their squadrons and the specific Carrier Air Wing. They are currently qualified members of the team. During each carrier's workup in the Second Fleet, prior to deployment to the Sixth Fleet, the "swing-wing" option is exercised several times, as the character of each exercise changes its emphasis from strictly sea control to sea control with power projection ashore. Thus, in the Atlantic Fleet, the aircrews remaining stateside upon the deployment of the ship to Sixth Fleet are fully trained and integrated members of the team who know all the "plays" and can professionally execute them aboard that ship [deleted]. The same training environment exists for Pacific Fleet units in their "workup" in the Third Fleet. The major difference is that all aircrews and aircraft deploy to Seventh Fleet with their ship/air wing and frequent changes are made in the lineup as the emphasis of WestPac exercises changes from strictly sea control to sea control with power projection ashore.

(U) The GAO paper suggests active duty Marine Corps squadrons or Marine Corps Reserve squadrons could provide the "swing-wing" element just as easily, since many Marine squadrons operate the same aircraft as Navy fighter and attack squadrons, "and they are considered to be ready for instant deployment". [See GAO note 4, p. 63.]

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(U) While it is true that Marine squadrons do operate F-4 and A-6 aircraft common to the Navy, they do not operate nor are they scheduled to acquire F-14 or A-7 aircraft. Until the mid-1990s, the majority of Navy fighter squadrons will be operating F-14 fighters. Navy light attack squadrons operate A-7 aircraft exclusively and will continue to do so until the introduction of the A-18, programmed for 1984.

(U) It is also true that some Marine squadrons are currently qualified for carrier operations. In fact, in each year since 1970 at least one Marine squadron and usually two additional Marine detachments have been deployed aboard Navy carriers. This has been required to facilitate the transition of Navy squadrons to new aircraft, e.g. the F-14A, or to fill in for shortfalls in the Navy inventory, e.g. reconnaissance assets and EA-6 aircraft. While all Marine fixed-wing aviators do qualify for day carrier landings prior to graduation from flight training and receiving their wings, it is impossible to keep large numbers of other active duty Marine aviators currently qualified in shipboard fixed wing operations. There are presently insufficient opportunities to do so with the carrier decks now in the fleet.

(U) Another consideration in the use of Marine aviators as ready replacement pilots, as proposed by the GAO paper, is the specialization of training of Navy versus Marine aircrews. The value of emphasis on certain warfare skills was demonstrated in Vietnam where Navy fighter and attack pilots specialized in air-to-air or air-to-ground tactics. Other services did not so differentiate but labeled all F-4 drivers as "fighter pilots". Navy VF pilots, the air-to-air specialists, scored the highest MIG kill ratio of all the services. Likewise, Marine tactical aviation concentrates on support of ground troops and the land battle, while Navy attack squadrons' primary training emphasis is in war-at-sea tactics. Although we can claim that both Marine and Navy pilots can do well in either environment, it should be obvious that both services' emphasis, and therefore greatest efficiency, is properly placed. It would not appear prudent to plan on USMC replacement pilot assets in a wartime situation since odds dictate full involvement by all USMC wings.

Chapter 3

(U) "The multimission carrier airwings contain aircraft not normally deployed to provide the flexibility to adjust the carrier deckload. We estimate that the flexibility components for the Navy's planned twelve multimission carrier airwings and their associated support aircraft will contain about 150 aircraft for the purpose of providing a shore-based reserve to allow adjustment of the aircraft on deployed carriers."

[See GAO note 3, p. 64.]

(U) The supporting documentation for this statement appears on pages 35 and 36 of the GAO report. It is mathematically correct as presented; however, there are some elements of that presentation which require clarification.

[See GAO note 1, p. 63.]

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The GAO author uses carrier deployments to the Mediterranean in the last several years for his model. But we have already shown that in wartime, removal of liberty boats, the reduction of 2 SH-3 per squadron commencing in FY-1978, and the off-loading of the ship's C-1A aircraft will provide the equivalent of almost deleted on our Sixth Fleet carriers while operating at deleted We have also pointed out that can and has been exceeded even in peacetime (e.g. USS ENTERPRISE Indian Ocean deployment at deleted February-March 1977). In fact, the Naval Air Engineering Center, Lakehurst, which is responsible to the Chief of Naval Material for the computation of "maximum density" for each aircraft carrier in active service, defines the "sustained combat" capacity as "operational condition for wartime with full efficiency and speed for moving aircraft to various areas and flight operations." "Sustained combat" capacity is further defined in NAVMAT publication 4000-2 as percent maximum density" or a full percent higher than the model used, by the GAO investigator, for peacetime operations. In summary, eight A-7 aircraft equivalents normally left ashore during peacetime operations could be loaded in wartime, deleted fourteen more A-7 equivalents could be loaded at deleted, or the "sustained combat" wartime level. In fact, one study in the office of the Chief of Naval Operations in 1975 concluded that deleted maximum density, there would be insufficient aircraft assigned to each carrier Air Wing to fill the decks of the twelve carriers in service from 1977 and beyond.

[See GAO note 1, p. 63.]

[See GAO note 1, p. 63.]

"We were told that on two occasions, certain planes were flown across the Atlantic to join the carrier airwing. The flights were made to determine the feasibility of the "swing-wing" concept. In one instance, two anti-submarine planes were flown from the U.S. to the carrier and none had to be flown off because the carrier deployed with only 76 of its 91 assigned aircraft. In the other instance, fighter and attack aircraft were flown to the carrier. The planes displaced were flown to shore bases in the Mediterranean area."

(U) Actually two S-3s were flown over on two occasions as previously stated. Also, fighter and attack aircraft have exercised the swing-wing concept to the Mediterranean twice: once to USS SARATOGA in 1971 and once to USS INDEPENDENCE in 1974.

In addition to the actual flights to the Mediterranean, drills have been conducted with the [deleted] aircraft remaining in the United States. These have been full scale alerts terminated only when the aircraft have reached the end of the runway at their home bases ready for take-off to commence their transit. This has been a procedure utilized to reduce operating expenses incurred in the actual transit. The complete transit evolution costs over $125,000 for the average fighter and attack "swing" component, one-way from Conus to a Med deployed CV.

(U) "The following schedule shows the number of aircraft operated and left ashore during deployments of the stated carriers.

APPENDIX I

Name of Carrier	Number of Aircraft Operated	Number of Aircraft Left Ashore	Total Aircraft assigned
KITTY HAWK	64	30	94
RANGER	63	20	a/ 83
MIDWAY	51	42	a/ 93

a/ These carriers did not have a full complement of multimission aircraft assigned at the time of these deployments." (GAO p. 32) The numbers listed in this chart should be corrected as follows (utilizing the same headings as above):

KITTY HAWK	70	25	95
RANGER	69	14	83
MIDWAY	60	16	76 note 1
	199	55	254

Note 1:

Since USS MIDWAY is homeported overseas at Yokosuka, Japan, her carrier air wing has [redacted] additional aircraft assigned in-country as "pipeline" aircraft; that is, they are assigned to permit depot level maint[illegible]ce to be performed in Japan.

(U) In the case of [illegible]TTY HAWK, the deployment in question was not typical of the [illegible]ndard CV operation. It was the first such CV deploy[illegible] in the Pacific Fleet, made with two full fixed-wing anti-submarine (VS) squadrons assigned to the carrier air wing, instead of the customary one. KITTY HAWK sailed with 20 propeller-driven S-2 aircraft prior to the availability of the 10 S-3A jet aircraft which are now assigned to her Carrier Air Wing.

Chapter 4

(U) "When needed to adjust the carrier airwing the Navy has several options to draw upon to provide fighter and attack as well as a more limited number of other aircraft. The aircraft needed to provide the flexibility to meet changing threat situations and mission requirements may be available from the resources of

-- airwings of other operating carriers;
-- airwings of carriers in extensive overhaul;
-- airwings of the Marine Corps;
-- the Navy and Marine Corps Reserves; and
-- a pool of aircraft established for the purpose of carrier deckload adjustment." [See GAO note 2, p. 63.]

(U) While each of the above sources of "swing-wing" aircraft may appear feasible, there are substantial difficulties entailed with each of them.

(U) "It is unlikely that all of the deployed carriers or those available for immediate deployment will be facing the same threat situation or mission/objective. Consequently, the airwings of the carriers can complement each other. As one carrier needs suitable aircraft to counter the antisubmarine threat when it does not have enough aboard, antisubmarine aircraft may be obtained from a carrier whose threat of this kind is less or which is to meet a power projection requirement by exchanging aircraft between them to tailor each particular airwing to the specific threat situation anticipated."

(U) This thesis has already been addressed under comments on Chapter 2. (Please see p.3 above). In a war with the Soviet Union--the situation which the GAO investigator postulates as being of "primary consideration" -- we must fully anticipate that every carrier in the Fleet will be opposed by submarines, surface combatants and long-range "bomber" type aircraft. All three of these different types of platforms have an anti-ship missile capability; all three can reach our most vital sea lines of communication. [See GAO note 2, p. 63.]

(U) Such a conflict will put our fighter, attack and anti-submarine aircraft to the full test simultaneously. The heaviest aircraft losses we will sustain in such a conflict will be among the attack and fighter aircraft opposing the very formidable anti-aircraft defenses of the Soviet surface combatants. We will need and will embark the maximum "sustained combat" deck multiple, as previously discussed.

In conflicts of lesser intensity, wherever they may occur in the world, the highest losses, in any situation calling for sea control with power projection, will again be among the attack and fighter aircraft. Those aircraft should be available in theatre, as in the Pacific Fleet, or on deleted alert as in the Atlantic Fleet.

APPENDIX I

"The multimission airwings of carriers in overhaul have about 90 aircraft each. We believe these airwings are a source of aircraft to meet changed threat situations for carriers in deployed status. In case of an emergency that would require the Navy to make the carriers in overhaul available as soon as practicable, Navy officials said it would take [deleted] months to have the carrier ready." [See GAO note 2, p. 63.]

Certainly the NATO/Warsaw Pact conflict scenario would be such an emergency. The time frame [deleted] is the worst case possible, and assumes our current industrial capacity and funding, i.e., about one and one half shifts of shipyard workers with limited overtime. In an emergency of the scope which we are now discussing, the [deleted] estimate would be improved upon. Further, there are many situations in which a ship could easily be brought out of a overhaul in deleted time or less. In the early or late stages of an overhaul, this would certainly be possible. It would be a poor investment in that hull if in time of crisis we had no Carrier Air Wing available to embark.

(U) While the European "short" war theory is receiving increased attention these days, it is a theory based on defeat of the NATO forces in a brief period of time. We would hope to be able to sustain the forces in Europe long enough to terminate a NATO/ Warsaw Pact conflict on terms favorable to the United States. In such a scenario, all carriers will be deployed -- provided they have an air wing available for embarkation.

(U) "The Navy generally procures 25 percent of their operational requirements as training aircraft. In addition to training commitments these aircraft are scheduled to fill in for wartime attrition." [See GAO note 2, p. 63.]

(U) The Fleet Replacement Squadron aircraft referred to would most certainly be employed in the NATO conflict were we to have our backs to the wall in a losing situation. An analogous situation is that of the Japanese in World War II, who were required to expend their best pilots and forego the training of replacements. If it comes to that, we would expend our FRS assets, both aircraft and human.

But short of a losing situation in NATO, these training squadrons must continue to function in their primary role while we are engaged in conflicts of lower intensity and less desperate circumstances. In fact the demand for replacement aircrews increases when a war starts. There is a greater need for and utilization of the Fleet Replacement Squadron in wartime as can be easily documented from our recent experience. It would be folly to plan to expend these assets early in a non-NATO conflict, particularly if that non-NATO conflict had the potential for escalation to a world-wide war with the Soviet Union.

deleted

(U) "The Marine Corps is administratively under the Department of the Navy. As such, the Commander Naval Air Forces for each fleet has controlling custody of all Naval aircraft, including Marine Aircraft." [See GAO note 2, p. 63.]

(U) This statement is not completely accurate and requires clarification. In actuality, there are five "controlling custodians" of naval aircraft: Commander Naval Air Force, U.S. Atlantic Fleet; Commander Naval Air Force, U.S. Pacific Fleet; Commander, Naval Air Systems Command; Commander Naval Air Reserve Force; Chief of Naval Air Training. As controlling custodians, their staffs exercise administrative control of the assignment and material support of aircraft as specified by the Chief of Naval Operations. In essence, they have the responsibility of ensuring that operational commanders, including Fleet Marine Forces Atlantic and Fleet Marine Forces Pacific, receive their fair share of available assets to meet operational requirements. "Controlling custody" does not imply physical custody and should not be confused with operational control. The Marine Corps retains operational control of aircraft assigned to their Wings and Squadrons.

(U) "The Marine Corps is an excellent source of aircraft to adjust multimission carrier airwings to meet changing threat situations. Not only does the Marine Corps operate carrier compatible aircraft found in the multimission carrier airwing, but its pilots are carrier qualified." [See GAO note 2, p. 63.]

(U) The question of Marine Pilot carrier qualification and the dissimilarity between Navy and Marine aircraft has been discussed above (please see p. 7). The three active Marine Air Wings are designed for support of three active Marine Divisions in a conflict ashore, not for war-at-sea. In the case of our "primary consideration", the NATO/Warsaw Pact conflict, they would be needed to perform their primary mission. USAF tactical air forces are not programmed for support of Marine Divisions. Likewise, the Fourth Marine Air Wing (Reserve) is programmed for combat support of the Fourth Marine Division and cannot be tasked to be in two different places in a "Case I" conflict.

"The Navy does not have an adequate number of amphibious transport ships to accommodate all of the Marine Corps. The Department of Defense objective is to have such ships sufficient to simultaneously transport the assault elements of [deleted] Amphibious Force.

"Since only [deleted] airwings could be transported, [deleted] airwings could be used for other purposes, such as an alternative source for carrier deployable aircraft to provide flexibility to adjust multi-mission carrier air wings when required. [See GAO note 2, p. 63.]

(U) Most aircraft elements of the Marine Air Wings can be refueled enroute to the combat area, by Marine tankers if required.

The sealift capability for the MAFs will be for the most part in reusable containers; that is, more than one transit by most of those ships can be anticipated. Other measures to increase sealift capacity for the entire Department of Defense requirements are being developed. Airlift is another option. But this issue should not be intertwined with Navy requirements for aircraft aboard carriers.

(U) "The Navy has two reserve airwings and the Marines have one."....

(U) "All of the reserve aircraft are carrier deployable, and the reserve pilots have the necessary qualifications to operate from aircraft carriers. However, the reserve airwings do not have an assigned carrier." [See GAO note 2, p. 63.]

(U) The mission of the Reserve Marine Air Wing has been addressed previously.

In FY-1978, the Navy Reserve Air Wings will have a carrier assigned to them for combat mobilization. That ship is USS CORAL SEA (CV-43) and it will be specifically configured for the Reserve Aircraft requirements. One Reserve Air Wing will be currently carrier qualified at all times in order that it can be fully mobilized within deleted of callup. This duty will rotate between the two Navy Reserve Air Wings about every six months. Their aircrews and aircraft could be assigned to the Fleet Replacement Squadrons to release Regular aircrews for combat. As Reserve squadrons transition to aircraft with the same configuration of fleet assets, their aircrews and aircraft can be utilized as one-for-one combat attrition replacements. At any rate, it should be acknowledged that Reserve Air Wings, squadrons, and individual aircrews are a reserve force in the strict definition of the term, i.e. that "fraction of a military force held in readiness to sustain the attack or defense made by the rest of the force." It would be imprudent, at the least, to be required to commit our last reservoir of combat capacity in th first few days of a conflict which could continue for weeks, or even years.

(U) "The Navy could establish a pool of aircraft to provide the flexibility to adjust the deckload of deployed carriers rather than furnish each airwing a flexibility component."

(U) "It appears that not all of the carrier 11 be deployed with the same deckload to meet the same threats ission objectives at the same time." [See GAO note 2, p. 63.]

(U) Again this thesis ignores the requirement to put all

carriers to sea in a worldwide conflict, and does not address the capability of our carriers to increase the combat deck multiple over normal peacetime conditions. Navy must structure its forces for wartime use, not peacetime appearances.

(U) The peacetime pool arrangement also does not address the increased combat effectiveness realized when the "swing-wing" element trains with the whole air wing as in the Atlantic Fleet workup, and as the Pacific Fleet can accomplish on a continuing basis even during WESTPAC deployment.

Chapter 5

(U) Although there are inaccuracies in both the operating cost data provided, and the aircraft procurement cost data , tne total price tag applied to the 150 aircraft would not be appreciably changed. The thrust of the Navy position is that these 150 aircraft are not excess to requirements. [See GAO note 2, p. 63.]

(U) It is further offered that the "swing-wing" concept, and the aircraft involved, take advantage of an economic base already in existence. It provides the Navy the optimal sea control capability in the worldwide conflict, and the optimal sea-control-with-power-projection capability in lesser conflicts and contingencies. The carrier, its crew, all the support aircraft (EA-6B, E-2C, KA-6D, and reconnaissance aircraft), and supporting ships of the Carrier Task Force, are already there and paid for. The "swing-wing" is the most cost effective means for providing the additional punch required.

GAO notes:

1. Portions of this letter have been omitted because they are no longer relevant to the matters discussed in this report.

2. Page references in this appendix may not correspond to pages of this final report.

3. The quotes from our draft report do not necessarily correspond with the pertinent phrases in this final report.

4. Navy's comments are not responsive--GAO material is quoted out of context.

APPENDIX II

PRINCIPAL OFFICIALS

RESPONSIBLE FOR ADMINISTERING

ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office From	To
DEPARTMENT OF DEFENSE		
SECRETARY OF DEFENSE:		
Dr. Harold Brown	Jan. 1977	Present
Donald H. Rumsfeld	Nov. 1975	Jan. 1977
James R. Schlesinger	July 1973	Nov. 1975
William P. Clements, Jr. (acting)	Apr. 1973	July 1973
DEPUTY SECRETARY OF DEFENSE:		
Charles W. Duncan, Jr.	Jan. 1977	Present
William P. Clements, Jr.	Jan. 1973	Jan. 1977
ASSISTANT SECRETARY OF DEFENSE (COMPTROLLER)		
Fred P. Wacker	Sept. 1976	Present
Terence E. McClary	June 1973	Aug. 1976
DEPARTMENT OF THE NAVY		
SECRETARY OF THE NAVY:		
W. Graham Claytor, Jr.	Feb. 1977	Present
Gary D. Penisten (acting)	Feb. 1977	Feb. 1977
Joseph T. McCullum	Feb. 1977	Feb. 1977
David R. MacDonald	Jan. 1977	Feb. 1977
J. William Middendorf	June 1974	Jan. 1977
J. William Middendorf (acting)	Apr. 1974	June 1974
John W. Warner (acting)	May 1972	Apr. 1974
UNDER SECRETARY OF THE NAVY:		
R. James Woolsey	Mar. 1977	Present
David R. MacDonald	Sept. 1976	Feb. 1977
John Bowers (acting)	July 1976	Aug. 1976
Vacant	Mar. 1976	June 1976
David S. Potter	Aug. 1974	Mar. 1976
Vacant	June 1974	Aug. 1974
J. William Middendorf	June 1973	June 1974

APPENDIX II

	Tenure of office	
	From	To
DEPARTMENT OF THE NAVY (continued)		
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT):		
Gary D. Penisten	Oct. 1974	Present
Vacant	May 1974	Oct. 1974
Robert D. Nesen	May 1972	May 1974

(947222)