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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

The Readiness Of U.S. Air Forces In Europe-- Selected Aspects And Issues

This report is the unclassified version of GAO's SECRET report LCD-78-430. It addresses matters affecting the readiness of conventional U.S. Air Forces in Europe.

The report discusses the need for improved readiness reporting, shortages in certain war reserve materiel, supply support and maintenance problems, and personnel readiness. The report also discusses initiatives being taken by the Air Force in response to increased offensive capabilities of Soviet and Warsaw Pact air forces.



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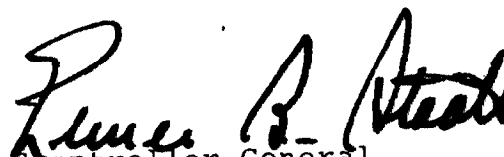
B-146896

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

This is an unclassified version of our report which discusses various matters affecting the readiness of conventional U.S. Air Forces in Europe and the status of some of the initiatives they are taking in response to improvements in the offensive capabilities of Soviet and Warsaw Pact Air Forces.

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).

Copies of this report are being sent today to the Director, Office of Management and Budget; the Secretary of Defense; the Secretary of the Air Force; and the Chairman, Joint Chiefs of Staff.


Comptroller General
of the United States



COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

THE READINESS OF CONVENTIONAL
U.S. AIR FORCES IN EUROPE--
SELECTED ASPECTS AND ISSUES

D I G E S T

The U.S. Air Forces in Europe, with [deleted] 1/ tactical fighter and reconnaissance aircraft, are a key element of the NATO defense alliance. In the first days of a NATO war, augmentation aircraft from the U.S. Tactical Air Command would more than [deleted] the number of U.S. aircraft in Europe. This report addresses the readiness of U.S. Air Forces located in Europe. GAO is also reviewing the readiness of U.S. Tactical Air Command augmentation forces and plans to report on their readiness at a later date.

Previously, GAO reported to the Congress (B-146896, Apr. 1973) that the U.S. Air Forces in Europe were not fully ready due to such factors as shortages of war reserve materiel and personnel and inadequate training facilities. *In addition,* Also, information in readiness reports to the Joint Chiefs of Staff was sometimes inaccurate and did not include all pertinent readiness factors.

Some problems, such as personnel shortages, have been alleviated. Others persist. Furthermore, increases in the overall number of Soviet and Warsaw Pact aircraft, along with improvements in their range and payload, have made air bases and material stockpiles in Europe more vulnerable to attack with less warning time. Matters which need to be further addressed to improve the effectiveness and readiness of U.S. Air Forces in Europe are discussed below.

Air Force criteria for determining and reporting readiness to the Joint Chiefs of Staff for use by them and the other national command authorities in monitoring force readiness and considering force availability permits a unit to report its aircraft readiness on

1/Classified information deleted throughout this report.

the basis of the estimated number that would be ready given certain preparation time.

Aircraft readiness reported on this basis is significantly higher than the readiness posture indicated by statistics on actual daily aircraft operational condition. (See p. 18.)

For example, Air Force wings in Europe during September 1977 considered that, on a daily average, [deleted] percent of their authorized aircraft were ready to perform their primary missions with [deleted] preparation time. If [deleted] percent or more of a squadron's authorized aircraft are ready to perform their primary mission, they are considered fully ready for reporting purposes. Daily aircraft operational status reports during September 1977, however, showed that, without this preparation time, on a daily average [deleted] percent of authorized aircraft were fully capable for all missions with an additional [deleted] percent capable for either primary or secondary missions.

A reporting system which permits estimating future readiness may be satisfactory if planned preparation time is available. However, it does not provide the national command authorities with information needed to make decisions under a surprise attack. Moreover, there is no assurance that the number of aircraft actually ready at any point in time can provide necessary deterrence during a crisis.

Also, squadrons may be assigned a primary and one or more secondary missions but, under present readiness reporting criteria, readiness is reported only on the capability of the squadron's aircraft to perform the primary mission. Partial capability is not reported.

The Joint Chiefs of Staff are currently studying ways to improve readiness reporting. GAO has identified alternatives for making readiness reporting more useful (see p. 21). First, Air Force units could be required to report aircraft readiness based on actual condition.

In this case, it may be necessary to reconsider the practicality of maintaining sufficient aircraft in a daily state of readiness to meet the present criteria for fully ready status. Any lesser status permitted would have to assure that the number of aircraft ready at any point in time provides the deterrence needed in a crisis. The status permitted should be set out in readiness reporting criteria.

A second alternative is to require aircraft readiness reporting of both actual and projected status. Under either alternative, it appears that reporting aircraft readiness for both primary and secondary missions would be useful to the national command authorities.

During the period October 1977 to March 1978, an average of about [deleted] percent of authorized aircraft in Europe were not fully mission capable on a day-to-day basis because they needed maintenance, supplies, or a combination of both (see p. 25). [deleted] needed maintenance. GAO noted a wide disparity in the average of day-to-day aircraft condition rates among different Air Force wings in Europe. These rates, which ranged from [deleted] percent in September 1977, may indicate that U.S. Air Forces in Europe would have varying degrees of difficulty transitioning to a wartime posture, particularly in a surprise attack. Although Air Force Logistics Command programs address such problems as the reliability and maintainability of aircraft components, GAO believes it would be worthwhile for Air Force headquarters in Europe to determine whether disparities in the aircraft condition rates of its wings may be caused by inadequately or inconsistently applied maintenance practices or inexperienced or underutilized maintenance staff.

About [deleted] percent of the Air Force's aircraft authorized for Europe were not ready because of supply shortages in September 1977. Some of the items in short supply were not stocked at the bases because of low usage rates and some were overdue from depots in the United States. The U.S. Air Forces in Europe are acting on three proposals to improve supply system responsiveness (see p. 35). Two of the proposals could result in increased stock levels in Europe. The third increases the requisitioning priority of units in Europe, but not stock levels.

[

deleted

]

Because of such factors as long production lead time and procurement delays, projected "get-well" dates for some major munitions and spare parts items are several years away (see pp. 44 and 51.) Also, planned future deployments of additional and new aircraft could increase the problems by raising overall requirements.

GAO believes, however, that opportunities exist to alleviate some shortages of war reserve spare parts. Currently, [

deleted

] A higher level of war reserve spares is required for squadrons with a mobility mission outside of NATO than for those that will operate in a NATO war from their present European locations, as most squadrons will. Since the primary mission of the Air Force in Europe is the defense of NATO, GAO believes that the Air

Force should consider other ways to meet possible non-NATO contingencies--such as using U.S. based and other squadrons that have war reserve spares for mobility missions (see p. 53). If feasible, this would enable the Air Force to allocate war reserve spare parts not needed for mobility missions to its squadrons in Europe with shortages.

Based on a recent "worse case study," the ability of U.S. Air Forces to survive and recover from an enemy conventional or chemical attack is [

deleted

] Projects for improving base survivability are planned and underway (see p. 74). Generally, however, such projects, while vital to combat capability, are far reaching and long term in nature.

Personnel readiness has improved considerably since GAO's prior review (see p. 61). In total, sufficient numbers of personnel have been assigned and most critical support positions have been filled. However, the Air Forces in Europe still fall short of their authorized strength for aircrews because sufficient numbers of pilots and navigators have not been assigned to primary aircrew positions. About [deleted] percent of assigned aircrews have completed all required training and are considered fully combat ready.

Training conditions, although still not ideal, meet Air Force and command identified training requirements and maintain basic crew readiness. Air Force officials in Europe cited training range limitations and host nation restrictions on flying as factors affecting the quality and realism of training. However, initiatives which are being implemented and planned should improve the quality and realism of training for U.S. aircrews in Europe. (See p. 78.)

Headquarters, U.S. Air Forces in Europe has identified [deleted] allied air bases throughout Europe, called collocated operating bases, for basing U.S. augmentation squadrons in wartime (see p. 76). Of these bases, none currently meet all of NATO's combat standards for dispersed aircraft parking, [deleted] percent aircraft sheltering, and [deleted] of on hand fuels and munitions storage. Air Forces officials in Europe said that [deleted] of the bases could support aircraft for [deleted] in wartime, if [deleted] warning time is available to move resources to the bases, but that [deleted] bases could be used in a no-warning situation.

RECOMMENDATIONS TO THE
SECRETARY OF DEFENSE

GAO recommends that the Secretary of Defense *should* request the Joint Chiefs of Staff in their on-going study to evaluate the alternatives set out above for making aircraft readiness reporting more useful and revise readiness reporting criteria to better meet the needs of the national command authorities. (See p. 23.)

GAO also recommends that the Secretary request the Joint Chiefs of Staff to assess the implications of deploying Tactical Air Command squadrons from the United States to collocated operating bases in Europe when adequate wartime support is not available, and modify deployment plans for these squadrons as appropriate. (See p. 82.)

RECOMMENDATIONS TO THE
SECRETARY OF THE AIR FORCE

GAO recommends that the Secretary of the Air Force

- undertake a thorough assessment of the status of war reserve stock for U.S. Air Forces in Europe and the implications of shortages of war reserve materiel on readiness;
- prepare prioritized plans to correct the most severe shortages;
- ensure that resources are appropriately allocated based on readiness priorities; and
- consider reallocating assets from other Air Force commands, in recognition of the priority mission of U.S. Forces in Europe. (See p. 59.)

Although the Air Force evaluates its needs for war reserve spares mobility packages on a periodic basis, GAO also recommends that the Secretary of the Air Force direct that an evaluation of the need for these packages by Air Force squadrons in Europe be made in view of their primary commitment to NATO combat roles and alternatives for meeting non-NATO mobility missions. (See p. 60.)

GAO recommends that the Secretary of the Air Force require the Commander in Chief, U.S. Air Forces, Europe to implement economical solutions--such as raising requisition priorities for units in Europe which do not result in additional requirements for inventory levels--to improve supply effectiveness in Europe. (See p. 38.)

GAO further recommends that the Secretary of the Air Force direct the Commander in Chief, U.S. Air Forces, Europe to better relate resources and readiness by making a composite analysis of all the elements that affect the ability of the Air Forces in Europe to accomplish their missions. Specific elements that should be considered in this analysis are

- acceptable levels of readiness achievement recognizing mission priorities;

- identification of shortfalls and related costs, in terms of both total requirements and their effect on acceptable levels of readiness achievement; and
- identification of funding priorities in terms of benefits to be recognized in mission accomplishment. (See p. 82.)

AGENCY COMMENTS

GAO did not request written comments from the Department of Defense on this report but discussed the report with officials from the Office of the Secretary of Defense; the Office of the Joint Chiefs of Staff; Headquarters, U.S. European Command; Headquarters, U.S. Air Force; and Headquarters, U.S. Air Forces, Europe. Based on these discussions, GAO made revisions to the report where appropriate.

Air Force officials disagreed with GAO's conclusion that there is a need to change readiness reporting criteria for Air Force aircraft to provide the national command authorities with information which reflects the actual operational condition of the aircraft. They said that estimated aircraft status, given certain preparation time, is a realistic measure of readiness because [deleted] They also said that actual daily status of aircraft is lower than that achievable and not a good measure of readiness because it reflects the results of using a standard peacetime workweek for maintenance personnel rather than an expanded wartime workweek. (See p. 19.)

GAO recognizes that the current system for determining combat readiness ratings for aircraft may be satisfactory under conditions of adequate warning time, but these ratings do not provide the national command authorities with information needed to make decisions in the event of a surprise attack because they show future capability. More importantly, can the aircraft actually ready at any point in time, provide the necessary deterrence needed in a crisis?

Officials from the Office of the Joint Chiefs of Staff did not take any position on GAO's conclusion that there is a need to change readiness reporting criteria for Air Force aircraft because of their ongoing service-wide study of readiness reporting criteria.



C o n t e n t s

		<u>Page</u>
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	USAFE missions	1
	USAFE's resources	2
	Augmentation in wartime	3
	Scope of review	4
	Agency comments	4
2	ISSUES AFFECTING THE READINESS OF U.S. AIR FORCES IN EUROPE	6
	USAFE readiness--a summary	7
	USAFE initiatives to improve read- iness	13
3	READINESS REPORTING--WHAT IT MEANS	15
	Readiness reporting criteria	15
	Actual condition of authorized air- craft	18
	Ongoing actions to change readiness reporting	20
	What should aircraft readiness re- porting include?	21
	Alternatives for improvements	21
	Conclusions	23
	Recommendation	23
4	SUPPLY SUPPORT AND MAINTENANCE--THE KEY TO READY AIRCRAFT SYSTEMS	24
	Daily condition of authorized air- craft	24
	Conclusions	37
	Recommendations	38
5	SHORTAGES IN WAR RESERVE MATERIAL	39
	Impact of shortages	39
	Munitions	42
	Spare parts	47
	Fuels	54
	Other WRM assets	56
	Conclusions	57
	Recommendations	59

		<u>Page</u>
CHAPTER		
6	PERONNEL READINESS	61
	Overall personnel status	61
	USAFE's aircrews are not fully ready	62
	Adequacy of training facilities in Europe	67
	Conclusions	69
7	USAFE INITIATIVES IN RESPONSE TO AN INCREASED THREAT	70
	USAFE's programs to improve surviv- ability	70
	Efforts to achieve more combat capabilities	75
	Plans for supporting augmentation forces	76
	Enhancing the quality and realism of training	78
	Observations	81
	Recommendations to the Secretary of Defense	82
	Recommendation to the Secretary of the Air Force	82
APPENDIX		
I	USAFE's command readiness as reported by USAFE in 1977 and in 1971	83
II	Combat readiness reporting criteria for U.S. Air Force standard aircraft organizations	84
III	6-month average of major items causing aircraft to be non-mission capable-- maintenance October 1977 through March 1978	85
IV	Top five supply items and systems causing aircraft to be less than fully mission capable in December 1977	86
V	USAFE WRM status under fiscal year 1977 requirements	88
VI	USAFE's vehicle posture--November 1977	89

		<u>Page</u>
VII	Summary of the WRSK/BLSS posture of USAFE tactical and reconnaissance aircraft as of September 1977	90
VIII	USAFE's aircrew C-ratings (September 1977)	91
IX	Ordinance training ranges in Europe available to USAFE forces and the type of events that can be performed at each	92
X	USAFE's prioritized survivability initiatives	93
XI	Aircraft shelter summary	94
XII	Proposed basing in Europe for tactical and reconnaissance wartime augmentation units as of October 1977	95

ABBREVIATIONS

AFLC	Air Force Logistics Command
BLSS	Base Level Self-Sufficiency Spares
DOC	Designed Operational Capability
DOD	Department of Defense
FORSTAT	Force Status and Identity Report
GAO	General Accounting Office
JCS	Joint Chiefs of Staff
NATO	North Atlantic Treaty Organization
RRR	rapid runway repair
TAC	Tactical Air Command
UCMS	Unit Capability Measurement System
USAFE	U.S. Air Forces, Europe
WRM	war reserve materiel
WRSK	war readiness spares kits



CHAPTER 1

INTRODUCTION

In 1971-1972, we evaluated the readiness of the U.S. Air Forces in Europe (USAFE). At that time, USAFE was experiencing personnel shortages, inadequate training facilities for aircrews, and shortages of war reserve materiel (WRM). These readiness deficiencies were blamed on the priority of the war in Southeast Asia, funding and personnel constraints, and the effects of relocating U.S. forces from France. (See "Readiness of the Air Force in Europe," B-146896, Apr. 1973.)

Since then changes in U.S. worldwide activities, the USAFE force structure, and the nature of the threat in Europe have affected USAFE's readiness posture and altered readiness concerns. This report contains our evaluation of selected aspects of USAFE's current readiness to perform its conventional missions in wartime.

USAFE MISSIONS

As the air component of U.S. European Command forces, USAFE supports joint U.S. military plans and operations in an area extending from Europe through the Persian Gulf and North Africa. Although USAFE may perform non-North Atlantic Treaty Organization (NATO) missions, its primary responsibility is to support plans for NATO's defense.

In peacetime USAFE commands, equips, trains, and supports assigned combat units and is responsible for assuring their continuous readiness to respond to crises or war. In a NATO alert or war, USAFE air power--its tactical fighters and reconnaissance aircraft--would be placed under the operational control of NATO. USAFE, as a national command, would continue to provide logistical, administrative, and intelligence support to U.S. air units operating under NATO command.

Each of USAFE's [deleted] ¹/ tactical fighter and reconnaissance squadrons is assigned a primary and, in most instances, a secondary wartime combat mission. For each mission, USAFE designates the minimum level of training proficiency the squadron must achieve. Primary combat missions assigned to USAFE units at the time of our review were as follows:

¹/Classified information deleted throughout this report.

<u>Primary mission</u>	<u>Type of aircraft</u>	<u>Number of USAFE squadrons</u>
Conventional/nuclear air-to-ground	F-111/F-4	[]
Conventional air-to-air	F-15/F-4	
Tactical reconnaissance	RF-4	deleted
Specialized reconnaissance	RF-4	
Total		[]

a/One squadron of F-4s has two primary missions--defense suppression and conventional/nuclear air-to-ground. One squadron has only a conventional role.

USAFE's RESOURCES

USAFE forces are grouped under three numbered air forces--the 17th Air Force located in Germany, the 3d in the United Kingdom, and the 16th in Spain. In a NATO crisis, squadrons located in [deleted] The locations of the air forces' wings and the tactical fighter and reconnaissance aircraft authorized for each wing are presented on the following page.

Additionally, USAFE commands a Tactical Control Wing, equipped with [deleted] OV-10 aircraft and [deleted] CH-53 helicopters for forward air control and tactical airlift. We did not review these units' readiness status.

In 1977, USAFE military personnel totaled about 50,000, an increase of 14 percent from 1971. USAFE's fiscal year 1978 operations and maintenance costs were estimated to be about \$380 million, about double the 1971 costs.

USAFE Tactical Fighter and
Reconnaissance Aircraft and Base Locations

January 1978

<u>Wing or squadron (note a)</u>	<u>Location</u>	<u>Authorized number and type of aircraft</u>
17th Air Force:	Sembach, Germany	
86th TFW	Ramstein, Germany	[] F-4E
36th TFW	Bitburg, Germany	F-15
50th TFW	Hahn, Germany	F-4E
52nd TFW	Spangdahlem, Germany	F-4 C/D
26th TRW	Zweibruecken, Germany	RF-4C
32nd TFS	Camp New Amsterdam, The Netherlands	F-4E
3d Air Force:	Mildenhall, England	
48th TFW	Lakenheath, England	F-111F
20th TFW	Upper Heyford, England	F-111E
81st TFW	Bentwaters, England	F-4D
	Woodbridge, England	F-4D
10th TRW	Alconbury, England	RF-4
16th Air Force:	Torrejon, Spain	
401st TFW	Torrejon, Spain	F-4C
Total		[deleted]

a/TFW--tactical fighter wing.
TRW--tactical reconnaissance wing.
TFS--tactical fighter squadron.

AUGMENTATION IN WARTIME

To carry out U.S. air commitments to NATO in a crisis or wartime, USAFE forces will be augmented by squadrons deployed from the U.S. Tactical Air Command (TAC). In the first [deleted] days after mobilization, more than [deleted] TAC aircraft--about [deleted] USAFE's in-place forces--are scheduled to arrive in Europe. TAC is responsible for maintaining the readiness and capabilities of these aircraft.

USAFE would assume control of TAC aircraft upon deployment to Europe, prior to their transfer to NATO operational control, and is responsible for providing air base facilities for squadron support and some types of prepositioned WRM, such as munitions and fuels.

SCOPE OF REVIEW

Our review was made from September 1977 through April 1978 primarily in Europe--at Headquarters, U.S. European Command, Stuttgart, Germany; Headquarters, USAFE, Ramstein, Germany; the 50th TFW, Hahn, Germany; the 36th TFW, Bitburg, Germany; the 48th TFW, Lakenheath, England; the 401st TFW, Torrejon, Spain; and the 435th Tactical Airlift Wing, Rhein-Main AFB, Germany. We also had discussions with officials at the Office of the Joint Chiefs of Staff (JCS), U.S. Air Force Headquarters in Washington, and various Air Force Air Logistics Centers in the United States.

During our assessment, we reviewed Air Force policies, requirements, resource reports, and readiness analyses. We discussed the rationale for certain requirements, the causes and impacts of deficiencies, and plans for improving limitations with appropriate officials.

We did not review certain USAFE plans, reports, evaluations, studies, and exercise reports detailing the nature and consequences of readiness deficiencies and information on the relative priorities of USAFE "get well" plans because many pertinent documents were not released to us. USAFE officials informed us that guidance from JCS prohibits release of information which provides an evaluation of significant factors that substantially improve or degrade the operational readiness of commands to execute approved plans.

AGENCY COMMENTS

We did not request the Department of Defense's (DOD's) written comments on this report, but we did discuss it with officials from the Office of the Secretary of Defense; the Office of the Joint Chiefs of Staff; Headquarters, United States European Command; Headquarters, U.S. Air Force; and Headquarters, USAFE. Based on these discussions, we have revised the report where appropriate and included agency comments in the report.

As discussed on pages 19 and 20, Air Force officials did not agree with our conclusion in chapter 3 that readiness reporting criteria for Air Force aircraft should be changed. JCS officials did not take any position on this conclusion because they were making a servicewide study of readiness reporting criteria.

CHAPTER 2

ISSUES AFFECTING THE READINESS OF

U.S. AIR FORCES IN EUROPE

In the past decade, Soviet and Warsaw Pact air force capabilities have grown both quantitatively and qualitatively. Perhaps most significantly the Soviets have improved their air offensive capability by improving offensive aircraft and by replacing defensive aircraft with dual capable (offensive and/or defensive) aircraft.

Along with changes in Soviet capabilities, U.S. defense planners have had to deal with increasingly constrained resources. During the past decade, personnel and equipment costs have increased significantly, the purchasing power of the defense dollar has been eroded by inflation and devaluation, and defense projects have generally faced stiffer competition for funds from social and economic programs.

In an environment of increased Soviet military capabilities and tight resources, the Congress and the Administration have placed renewed emphasis on the readiness of U.S. forces. The major readiness concerns can be summarized as follows:

1. Are existing forces prepared to effectively perform their wartime missions with the resources currently on hand?
2. Have U.S. responses to counter the increased Soviet capabilities assured that U.S. war fighting capability will remain effective?
3. Are resources being allocated and managed to maximize force readiness?

USAFE's basic readiness requirements include equipment, people, and supplies, specifically

- aircraft and trained aircrews to fly combat missions;
- support such as maintenance personnel, spare parts, and facilities to keep aircraft flying;

--adequate reserve stockpiles of consumable materiel such as fuel and munitions for use until wartime resupply is effected; and

--adequate communications and command and control capabilities to direct combat operations.

Readiness also requires that USAFE bases and stockpiles be secure and survivable against air strikes, including the use of chemical warfare weapons, as well as sabotage and terrorist attacks. Since large numbers of U.S. combat aircraft would augment in-place forces in wartime, the effectiveness of U.S. air power would depend on the availability in Europe of bases and materiel support for these additional aircraft.

USAFE has at least some deficiencies in all these requirements--a number could [deleted] impair USAFE's war fighting capabilities. Substantially improving USAFE's readiness posture will, in our opinion, depend on a better system for identifying, planning for, and funding readiness priorities. We believe, and DOD agrees, that the present system for managing readiness priorities to maximize readiness falls short of this goal.

USAFE READINESS--A SUMMARY

Since our 1971-72 review, several important changes have affected USAFE's readiness posture and concerns. Following U.S. disengagement from Southeast Asia, the United States reemphasized NATO as the priority for U.S. defense commitment. Accordingly, since the early 1970s, USAFE has obtained more personnel, modernized its forces with more sophisticated equipment, and generally received greater funding consideration for its requirements. However, the improved Soviet and Warsaw Pact air capabilities have increased USAFE's readiness requirements--in many cases negating USAFE improvements, and presented defense planners with new readiness concerns.

Increased Soviet air capabilities

Since 1972 Soviet and Warsaw Pact air forces have modernized and restructured. They have placed greater emphasis on offensive forces capable of attacking NATO bases and targets in the Central Region (Germany and the United Kingdom). This capability has been achieved by increasing

- the number of aircraft,
- the range of tactical aircraft, and
- the offensive capabilities and destructive power.

At the same time, Pact air defense has been improved, and Soviet ability to wage chemical warfare has increased.

USAFE intelligence officials estimate the Pact forces have about [deleted] combat aircraft in the forward area including [deleted] Soviet aircraft. By comparison, NATO has an air fleet composed of [deleted] aircraft in Europe, about [deleted] are U.S. aircraft. Given the current intelligence estimates of a [deleted] day Soviet mobilization and a [deleted] -day U.S. mobilization, aircraft in the forward area would increase to [deleted] for the Warsaw Pact aircraft versus [deleted] for NATO at the outbreak of war.

In terms of aircraft, the Soviet Union is reportedly outproducing the United States, and recent Soviet acceptances of aircraft are twice the United States'. With this production the Soviet Union has extensively modernized [deleted] air segments in the forward area since 1972, and increased its force size by about [deleted] percent. U.S. officials expect the Soviet Union to continue to lead the United States in production for at least the next 5 years.

The most important factor is, perhaps, the increased capabilities of these newer Soviet aircraft. In 1972, the Soviet air force in the forward area included roughly [deleted] offensive and [deleted] defensive-second-generation-aircraft. By 1978 third-generation-dual-capable- (offensive and/or defensive) aircraft replaced all of the Soviet defensively designed aircraft in the forward area, and many older offensive aircraft were replaced. Soviet offensive aircraft have improved in two key areas--they can now deliver greater weapon payloads farther.

The increased weapon delivery capability is reflected in the fact that previously assigned defensive aircraft had little or no air-to-ground weapon delivery capability while today, many of the Soviet aircraft stationed in the forward areas have significant delivery capability, as shown on the following page.

<u>Aircraft</u>		<u>Probable weapons delivery</u>
MIG-23, Flogger B	[lb. bombs
MIG-27, Flogger D		lb. bombs
Fitter C and D	deleted	lb. bombs lb. bombs
[deleted] (note a)]	lb. bombs

a/[

deleted

].

The average range of first and second generation Soviet aircraft was [deleted] miles. Today's Soviet aircraft have ranges of [deleted] miles. The chart below compares the number of Soviet aircraft capable of reaching NATO target areas in 1973 with 1977.

Warsaw Pact-Soviet Aircraft (note a)

Range Capability in 1973 vs. 1977

<u>Target area</u>	<u>Number of Soviet aircraft capable of reaching targets</u>		<u>Numerical increase</u>	<u>Percent increase</u>
	<u>1973</u>	<u>1977</u>		
West Germany	[
Benelux				
France and United Kingdom		deleted		
]

a/Figures should not be added.

An improved Soviet surface-to-air-missile capability in the forward area facilitated increased dedication to offensive aircraft operations. The number of ready to fire

surface-to-air-missiles increased from [deleted] in 1971 to [[deleted]] in 1973 and now stands at [delete] not including about [deleted] hand-held SA-7 missiles.

Other improvements include the deployment of [deleted] close air support attack helicopters in the forward area in 1977 and a greatly enhanced electronic countermeasure capability for jamming U.S./NATO ground air defense systems.

Also, the Soviets have continued to improve their chemical/biological capability. According to USAFE intelligence officials, the current Soviet chemical/biological capability is [

deleted

].

Also, we were told that Soviet forces spend numerous hours training in chemical warfare combat with full protective gear. The Soviets have specially designed equipment to quickly decontaminate chemically contaminated personnel, aircraft, and other supporting equipment.

Based on U.S. threat analysis, the Soviet buildup has serious implications for U.S. tactical air forces in Europe. These implications include

- increased numbers of attacking aircraft,
- increased vulnerability of U.S. and NATO bases and war reserve stockpiles to conventional or chemical attack, and
- decreased warning time of an impending attack.

USAFE intelligence sources believe that most likely, NATO will have about [deleted] days combined warning and mobilization time, although they acknowledged that a surprise attack is possible. USAFE also expects intense air warfare in the initial days of conflict and is continuing to evaluate the adequacy of its surge capability in the early days.

How ready is USAFE?

The following major factors were identified by us which could adversely affect USAFE's capability to perform its wartime mission.

--The aircraft combat readiness ratings USAFE reports to the JCS could be misleading and are of doubtful use to them and the other national command authorities for making the immediate deployment decisions necessary in the event of a surprise attack. These ratings are based on the number of aircraft that could be ready given [deleted] hours preparation time--not the lower number actually ready at any given point in time. 1/ Moreover, JCS cannot be assured that the aircraft actually ready at any point in time can provide the necessary deterrence needed in a crisis since actual aircraft readiness is maintained primarily to meet peacetime training needs rather than crisis requirements.

--USAFE has substantial [deleted].

--USAFE's capability to [deleted].

--Although all required training is being done, there is considerable concern that aircrew training lacks realism because of host nation restrictions.

--Wartime support for many augmentation forces is questionable principally because of inadequate facilities and limited WRM support.

The impact of these deficiencies on USAFE mission performance depends on a number of factors (war plans, warning time, the ability of Warsaw Pact forces to wage war effectively, and the validity of the requirements). Generally we were denied access to war plans and official military judgements as to what these limiting factors may mean in wartime.

1/The number of aircraft that are operationally ready at reporting time is included in the data reported to JCS. However, this number is not used either by the Air Force or JCS as a combat readiness indicator.

For example, because of JCS guidance, USAFE officials did not provide us commanders' situation reports or certain studies of readiness deficiencies.

Furthermore, we did not attempt to evaluate the validity of USAFE's established requirements. For the most part, our conclusions on WRM, personnel, and aircrew training are based on a comparison of the availability and status of resources in place with those USAFE has determined are necessary. In the case of aircraft readiness, as brought out later in this report, we question the reasonableness of reporting only projected as opposed to actual status. Also, we did not assess certain critical aspects--notably communications--that could seriously impact USAFE's wartime effectiveness. Communication problems among NATO allies have long been cited as a detriment to NATO's fighting capability.

The specific readiness limitations noted above have potentially far reaching consequences. For example, the fact that on the average [deleted] percent of USAFE's aircraft are fully mission ready at any point in time may mean USAFE will have difficulty transitioning to a wartime posture in a surprise attack.

NATO allies impact on USAFE readiness

In addition to the factors discussed in detail in this report, USAFE's ability to accomplish its wartime mission will depend in large part on the readiness and capabilities of the NATO allies. NATO has the responsibility over allied readiness, and USAFE is but one of these forces.

USAFE forces comprise only about one-fourth of NATO air forces in Central Europe. Recent studies have found that the other NATO forces are not as well provided with equipment, weapons, and supplies as U.S. forces. Compared with those of the United States, allied forces appear to be less able to counter improved Soviet air forces or sustain combat in the face of a very intense Warsaw Pact attack.

[deleted].

[deleted].

Other readiness concerns arising from the multinational nature of the NATO defense include:

- U.S. reliance on host nations for some important tasks (i.e., point air defense for bases outside Germany is the responsibility of the host nation). In Germany, the U.S. Army protects U.S. air bases.
- In wartime, U.S. combat forces will be placed under NATO command. Improvements needed to assure smooth transition to wartime are discussed in our report, "Relationships Between U.S. and NATO Military Command Structures--Need for Closer Integration," dated August 26, 1977.
- A NATO war will involve multinational decisions. Of concern is the timeliness and responsiveness of U.S. and NATO allied governments during a period of rising tension.
- NATO nations have only limited standardized or interoperable equipment and supplies. For air forces the primary requirements are communications and cross servicing, that is the ability to refuel and rearm aircraft at various allied bases. We have reported on this condition and the steps which were being taken to improve interoperability of NATO forces. (See "Standardization in NATO: Improving the Effectiveness and Economy of Mutual Defense Efforts" Jan. 1978).

USAFE INITIATIVES TO IMPROVE READINESS

U.S. military policymakers and military planners have recognized the need to improve U.S. tactical air force war fighting capabilities by:

- Deploying and planning for more capable aircraft for USAFE.
- Making arrangements to improve support for the augmentation squadrons.

--[

deleted

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--Emphasizing and improving the probability of USAFE bases surviving and operating after a direct attack.

--Taking steps to improve the quality and realism of aircrew training.

These initiatives are discussed in detail in the report. In our opinion, however, the effectiveness of some of these initiatives may be limited.

CHAPTER 3

READINESS REPORTING--WHAT IT MEANS

Each service is required to report periodically the combat readiness of certain of its forces to JCS. These reports are the primary source of information about force readiness and are used by the national command authorities (the President, Secretary of Defense, and JCS) to consider force availability. Present Air Force combat readiness ratings reported to JCS, however, are not based on the actual number of aircraft ready at a given time. Instead such ratings are based on the number of aircraft a unit estimates it could have ready given certain preparation time. This preparation time differs depending on the units primary tasking. While the system may be satisfactory under conditions of adequate warning time, will it also provide national command authorities with the data necessary to make decisions in the event of a surprise attack? More importantly can the aircraft actually ready at any point in time provide the necessary deterrence needed in a crisis?

The chapter points out shortcomings in the usefulness of reported readiness data and presents alternatives for making aircraft readiness reporting more useful.

READINESS REPORTING CRITERIA

Modern management demands accurate and current decision supporting information about military forces. Combat readiness reporting is needed for (1) monitoring the adequacy of overall force readiness, (2) decisionmaking regarding employment of forces, and (3) improving force readiness.

FORSTAT readiness reporting

A combat readiness rating system prescribed by JCS measures the degree to which a unit can carry out its missions. A system report, known as the Force Status and Identity Report (FORSTAT) shows the status of a unit's personnel, equipment and supplies on hand, equipment readiness, and training in four categories under standards for each as follows:

CategoryStandard

- C-1 Fully ready. A unit fully capable of performing the mission for which it is organized or designed.
- C-2 Substantially ready. A unit has minor deficiencies which limit its capability to accomplish the mission for which it is organized or designed.
- C-3 Marginally ready. A unit has major deficiencies of such magnitude as to limit severely its capability to accomplish the mission for which it is organized or designed.
- C-4 Not ready. A unit not capable of performing the mission for which it is organized or designed.

An overall C-rating is also reported. Normally it will be the lowest computed for any measured area but a commander may raise or lower an overall rating on the basis of his judgment of a unit's ability to carry out its missions. A synopsis of the Air Force's readiness reporting criteria for FORSTAT is in appendix II.

JCS FORSTAT guidance requires, among other things, that:

- Each reporting unit establish a specific time of day for submission of its report.
- Reports should be forwarded without significant delay. In no case should data be held and batched over a period exceeding 24 hours.

Each service has provided the specific criteria to be used by its organizations in calculating reporting, combat readiness ratings. These criteria are incorporated in and are part of the JCS FORSTAT reporting system. For the Air Force this criteria incorporates its own readiness reporting system, known as the Unit Capability Measurement System (UCMS).

Air Force readiness reporting

Under UCMS, each Squadron's missions (either primary or one or more secondary missions) are specified in terms of the assigned Designed Operational Capabilities (DOCs) of the

aircraft. Thus, there are separate DOCs for such missions as air-to-air defense, air-to-air superiority, and air-to-ground. Each DOC states the period of time the squadron has to get ready to perform the mission--its response time. Readiness is measured and reported within the Air Force for each DOC considering response time, in terms of measured resource areas similar to those reported under FORSTAT.

Although the resource areas that are measured are common to both FORSTAT and UCMS, there are two important differences between the two systems. The ultimate measures of readiness in FORSTAT are the C-ratings which are qualitative in nature. In the UCMS, quantitative measures--percentages of designed capability--are reported. Also, FORSTAT is not designed to assess readiness for a number of distinct missions whereas UCMS is.

UCMS data on the primary mission DOCs of each Air Force squadron is converted to C-ratings by the major commands, such as USAFE, and reported to Air Force, Headquarters, and JCS to comply with FORSTAT reporting requirements.

Determination of aircraft readiness

In USAFE, each squadron determines the readiness of its aircraft for conventional warfare by considering (1) the squadron's primary mission, (2) the number of aircraft mission ready at report time, and (3) the number of aircraft that can be made mission ready within [deleted] after report time.

--How is primary mission determined? Each squadron's primary and secondary missions are designated and assigned by USAFE (see p. 1.)

--What are mission ready aircraft? To be mission ready, an aircraft must be safely flyable and have operational all mission-essential subsystems which are specified by USAFE for the unit's primary mission.

--How are the number of mission ready aircraft determined? Each squadron counts the number of aircraft which are mission ready at reporting time and estimates the number of not-ready aircraft which could be made ready [deleted]

through maintenance actions. The total number of ready aircraft, thus determined are considered mission ready for UCMS and FORSTAT reporting purposes. No adjustment is made for ready aircraft which will break during the projection period as a result of operations during that period.

--When is aircraft status determined? All USAFE squadrons report their aircraft status as of 0400 Greenwich time.

--What is the basis for the [deleted] projection?
The [

deleted

].
Hence, additional nonoperational aircraft could be made ready during this time.

ACTUAL CONDITION OF
AUTHORIZED AIRCRAFT

USAFE's aircraft readiness posture based on a [deleted] projection is significantly higher than the posture indicated by daily average statistics on aircraft operational condition. As shown in the following schedule, in September 1977, on the average, USAFE wings reported in FORSTAT that [deleted] percent of their [deleted] authorized aircraft would be ready with [deleted] preparation time. The average number of aircraft actually fully ready during the month without preparation time was [deleted] percent of authorized aircraft.

<u>Unit</u>	<u>Aircraft</u>	<u>Daily average aircraft status</u>	<u>FORSTAT</u>
20th TFW	F-111E	[[
48th TFW	F-111F		
36th TFW	F-15		
81st TFW	F-4D		
50th TFW	F-4E		
401st TFW	F-4C	deleted	deleted
52nd TFW	F-4C/D		
86th TFW	F-4E		
32nd TFS	F-4E		
10th TRW	RF-4		
26th TRW	RF-4		
]]

The difference between the number of aircraft considered combat ready under FORSTAT and those considered operationally ready in daily aircraft status reports is not due solely to the use of the [deleted] projection. Under FORSTAT, aircraft are considered operationally ready if they can accomplish a unit's primary mission only. Under daily status reporting, aircraft considered operationally ready must be ready to accomplish the unit's primary and secondary missions. Daily aircraft status reporting also recognizes aircraft that are partially mission capable--aircraft which are flyable and could accomplish at least one wartime mission, either primary or secondary. In September 1977, [deleted] aircraft were partially mission capable in addition to the [deleted] aircraft that were fully mission capable. Total fully and partially mission capable aircraft for September were [deleted] or [deleted] percent of authorized aircraft.

Air Force and USAFE officials said that the daily status of aircraft is not a good measure of readiness. This status reflects such considerations as working maintenance personnel on a standard peacetime workweek rather than on an extended wartime workweek. They said the rate of operational ready aircraft on a daily basis could be improved by reducing the number of training flights and requiring overtime from maintenance personnel. USAFE officials said that increasing the daily rate of operational ready aircraft would result in less training for aircrews and reduced morale for maintenance personnel.

Air Force and USAFE officials said that projected aircraft status is a realistic measure of readiness [

deleted]).

In addition, they said that their ability to achieve projected rates of aircraft readiness has been tested and validated by various exercises and inspections.

ONGOING ACTIONS TO CHANGE
READINESS REPORTING

UCMS was originally developed as an improved readiness indicator to replace FORSTAT C-ratings for Air Force units with possible adoption for use by the other services. JCS, however, never agreed to accept UCMS data in lieu of FORSTAT data. In April 1977 UCMS was withdrawn from consideration by other services.

A June 20, 1978, Air Force Audit Agency report questioned the need for UCMS, noting that it essentially duplicated FORSTAT. The auditors recommended that the requirement for UCMS reporting either be eliminated or justified and that other ongoing actions to improve readiness reporting be expedited.

In response, Headquarters, USAF stated that it was planning to incorporate selected UCMS data totally within the FORSTAT reporting system. It noted that, for all practical purposes, UCMS would be eliminated. This action, expected to be completed by January, 1979, has been deferred pending the outcome of an ongoing JCS study of FORSTAT. However, there were no indications that any such action when taken, would change the way the Air Force reported its combat aircraft readiness to JCS.

We discussed FORSTAT readiness reporting criteria with JCS officials. We pointed out that USAFE's practice of using a [deleted] projection to determine aircraft readiness is inconsistent with the NATO standard of 12 hours. Furthermore, projected readiness may not be adequate for the national command authorities decision-making process in the event of a no-warning crisis. We also pointed out that aircraft readiness reporting was inconsistent between the services because the Air Force used a [deleted] projection, while in the FORSTAT reported C-ratings the Navy reported C-ratings based on aircraft readiness at the "as of" report time.

JCS officials said that in the past specific readiness reporting criteria had been left largely up to the services. They said that present FORSTAT readiness reporting criteria is mostly service developed with relatively little JCS input. However, a project was underway in JCS to standardize criteria among the services for liketype units which it expects would result in more consistent reporting and better capability for comparing the readiness of different units. JCS officials said that they were considering whether a preparation period should be included in the revised criteria for determining aircraft readiness but that no firm decisions had been made yet.

WHAT SHOULD AIRCRAFT READINESS REPORTING INCLUDE?

Aircraft readiness reporting to JCS should provide an accurate measure of aircraft readiness for wartime. Ideally, such reporting should

- reflect the readiness of each squadron to respond in the event of an attack with little or no warning,
- insure objective and accurate comparisons of readiness among squadrons, and
- identify the causes of degraded readiness so needed improvements can be made.

In addition, at a minimum, USAFE should measure and report its readiness in a manner that reflects its ability to meet NATO-readiness requirements. NATO requires that USAFE units be ready to respond in [deleted] and report accordingly. Another inconsistency is that NATO tasks USAFE units to provide [deleted] percent of authorized aircraft in a ready status versus [deleted] percent for FORSTAT.

ALTERNATIVES FOR IMPROVEMENTS

The foremost consideration in readiness reporting should be to provide meaningful and useful information to national command authorities. Under present Air Force FORSTAT criteria, reported readiness is not what it seems. Aircraft readiness is an estimate of future readiness if given certain preparation time rather than actual readiness at a given time. The actual readiness of two

units reporting the same combat readiness status may be quite different. In addition, reported aircraft readiness does not recognize the readiness of aircraft to accomplish missions other than the squadron's primary mission.

There are alternatives for improving Air Force criteria for reporting aircraft readiness in FORSTAT, considering the information needs of national command authorities. First, Air Force units could be required to report aircraft readiness based on actual status. Several specific benefits would result. The reported readiness of different aircraft squadrons could be compared more objectively. Uncertainties about how much warning time will be available and, thereby, how much preparation time to estimate in projecting readiness would be eliminated. Most importantly, reported readiness information would reflect the actual capability of the squadron at a point in time unclouded by estimates of future capability that may be difficult to obtain in the event of a surprise attack.

In considering this alternative, it may be necessary to reconsider the practicality of maintaining sufficient aircraft in a daily state of readiness to meet present FORSTAT criteria for fully ready status. Any lesser readiness status would have to consider the number of aircraft that must be ready at any point in time to provide the necessary deterrence needed in a crisis and should be set out in readiness reporting criteria.

A second alternative would be to require units to report both actual and projected aircraft readiness status. The benefits mentioned under the first alternative would be retained. In addition, a measure of the unit's capability to prepare for war in the expected reaction time would be reflected. Any projection should be consistent with NATO-reaction requirements and not exceed established mission response times.

Under either alternative, it appears that reporting readiness for both primary and secondary missions would be useful to the national command authorities.

CONCLUSIONS

The national command authorities need current, accurate, combat readiness information for monitoring the adequacy of overall force readiness, for decision-making regarding employment of forces, and for improving force readiness.

We believe that [the Air Force criteria for reporting aircraft readiness in FORSTAT does not emphasize the data needed for decisionmaking by the national command authorities if there is less warning time than planned or in the event of a surprise attack.) In addition, aircraft readiness reporting may not be sufficiently objective for monitoring the adequacy of overall force readiness and for improving it.

RECOMMENDATION

We recommend that the Secretary of Defense request the Joint Chiefs of Staff in their ongoing study to evaluate the above alternatives for making readiness reporting more useful and revise readiness reporting criteria to better meet the needs of national command authorities.

CHAPTER 4

SUPPLY SUPPORT AND MAINTENANCE--

THE KEY TO READY AIRCRAFT SYSTEMS

At any point in time, a certain number of aircraft will not be ready to perform their missions because periodic or unscheduled maintenance is required or replacements for broken parts and components are not readily available from the supply system. Effective maintenance and supply practices contribute to minimizing the number of aircraft which are not ready.

At the time of our review, an average of about [deleted] percent of USAFE's authorized aircraft were not ready on a day-to-day basis. There was wide variance of operational ready rates among USAFE wings. This chapter discusses maintenance and supply factors which affect daily aircraft readiness in USAFE and recommends areas where maintenance and supply management can be improved.

DAILY CONDITION OF AUTHORIZED AIRCRAFT

USAFE is authorized [deleted] tactical and reconnaissance aircraft--F-4s, F-15s, F-111s, and RF-4s--for mission requirements. During our review, USAFE possessed almost all of their authorized aircraft, having an average of [deleted] on hand during January 1978.

	<u>Authorized</u>	<u>Possessed</u> <u>January 1978</u>
F-4	[[
F-111		
F-15	deleted	deleted
RF-4		
Total]]

In addition to mission authorized aircraft, USAFE is assigned [deleted] aircraft specifically for nonoperational activities such as depot maintenance, modification,

and inspection. These aircraft are assigned to squadrons so that USAFE's readiness posture will not be degraded while aircraft are undergoing depot maintenance and special modifications. During January 1978, an average of [deleted] of these nonoperationally active aircraft were present on USAFE bases. The remainder were at depots in the United States where depot maintenance for F-15s and F-111s is done, or Spain where depot maintenance for F-4s is accomplished.

USAFE's maintenance reports from October 1977 to March 1978 showed that, on the average, about [deleted] percent of USAFE's aircraft were less than fully ready, of which [deleted] percent needed maintenance and [deleted] percent needed supplies. Another [deleted] percent were not fully ready for a combination of maintenance and supply reasons.

This data is obtained from the Air Force Aerospace Vehicle Status Report. It represents a summary of the percentage of time during each 24-hour period that each aircraft was mission capable or not mission capable due to maintenance or supply reasons. The following schedule summarizes actual aircraft condition data from this report.

Average Number of Aircraft Not Fully Capable

Because of Maintenance and/or Supply

October 1977 to March 1978 (note a)

<u>Aircraft</u>	<u>Aircraft authorized</u>	<u>Maintenance only</u>	<u>Maintenance and supply</u>	<u>Supply only</u>	<u>Total</u>
F/RF-4	[
F-111					
F-15			deleted		
Total]

a/A 6-month period is used in these computations, instead of the full 9-month period used elsewhere, because in October 1977 USAFE added a combined "maintenance and supply" category.

USAFE reports indicate that during this period, an equivalent of [deleted] of these [deleted] not fully mission capable aircraft were partially mission capable and would have been able to perform at least one of their assigned tasks.

USAFE officials advised us that the daily average aircraft operational rates for fully mission capable aircraft reflect peacetime considerations such as daily training sortie requirements. The principal concern regarding day-to-day rates is maintaining sufficient ready aircraft to accomplish the unit's scheduled training flights. However, such figures also show the extent that maintenance and supply actions are needed to achieve fully mission capable status for aircraft within the projected time frame.

The importance of daily operational condition data in evaluating USAFE's posture is shown by statistics presented below. Discounting the [deleted] percent fully mission capable rate for the F-111F, which was encountering extraordinary maintenance problems, daily aircraft rates for fully mission capable aircraft ranged from [deleted] percent at USAFE's wings. This disparity in daily readiness rates from unit to unit would seem to indicate that some USAFE wings will need to accomplish much more than others to provide [deleted] percent of their fleet in a mission ready status within the required response time.

Average Daily Operational
Condition of USAFE Aircraft
September 1977

<u>Unit</u>	<u>Aircraft</u>	<u>Authorized</u>	<u>Authorized Fully Mission Capable Aircraft</u> (Percent)
20th	TFW	F-111E	[
48th	TFW	F-111F	[
36th	TFW	F-15	
401st	TFW	F-4C	
52nd	TFW	F-4C/D	
81st	TFW	F-4C/D	deleted
50th	TFW	F-4E	
86th	TFW	F-4E	
32th	TFS	F-4E	
10th	TRW	RF-4	
26th	TRW	RF-4]

We investigated maintenance and supply problems being encountered by USAFE units on a day-to-day basis and the actions being taken by USAFE and the Air Force to alleviate such problems.

Aircraft not fully mission capable because of maintenance

For the 6-month period, October 1977 through March 1978--about one out of every [deleted] authorized aircraft was either being repaired or waiting to be repaired. An average of [deleted] percent of USAFE's aircraft were not fully mission capable because of maintenance. For example:

- The F-111 was not fully mission capable [deleted] percent of the time because of maintenance.
- The F-15 was not fully mission capable [deleted] percent of the time.
- The F/RF-4 was not fully mission capable [deleted] percent of the time.

The F-15s, deployed in 1977, have the best record, while the older F-4s and RF-4s have significantly higher maintenance rates, due in part, to their age. A number of specific problems, discussed on page 30, account for the high maintenance time on the F-111 system, especially the F version.

At any point in time a certain percentage of aircraft will be down for maintenance. Air Force officials informed us that USAFE formerly used 24 percent as a "down-for-maintenance" guide, but currently USAFE has no official criteria or standard for an acceptable number of aircraft down because of maintenance. The present standard is to generate a specific number of daily aircraft sorties per squadron.

Systems fail more frequently than anticipated

USAFE's extensive maintenance time was generally related to a few specific aircraft systems. Although USAFE provided few specific reasons for this, wing personnel cited higher than expected failure rates for certain aircraft systems and implementation of time compliance technical

orders as the reasons. For example, maintenance time for the F-111 bombing navigation unit and flight control unit was cited as resulting from higher than expected system component failures. One avionics system for the F-111F was failing at a rate 5 times more than it was certified-- every 80 hours instead of the certified 400 hours. In addition to tasking maintenance capabilities, this also creates supply problems because supply stockage objectives are initially developed based on the expected meantimes between failures. Time compliance technical orders are Air Force directed modifications to aircraft systems for either safety or technology reasons.

Our analysis of detailed wing level documents from October 1977 through March 1978 showed that much of the maintenance time for each aircraft was for the same reasons. For example, special inspections consumed the most maintenance time at four of the six F-4 wings. The radio navigation system and the engine were reported as two of the top five maintenance items at five of USAFE's six F-4 wings. For the F-111 aircraft at Upper Heyford and Lakenheath, the three systems requiring the most maintenance time were the same at each wing--the engine, the fuel system, and the bomb navigation system. A summary of the systems causing the most maintenance time is presented in appendix III.

Special problems with the F-111 aircraft

The F-111 aircraft when fully ready is one of the most capable U.S. weapon systems. The F-111 is capable of supersonic automatic terrain-following flight at 200 feet in day/night all weather conditions. This aircraft has penetration and strike capability unsurpassed by any other U.S. aircraft and is a critical asset for USAFE's warfighting plans. However, with an average of [deleted] percent not fully ready because of maintenance, the F-111 is currently USAFE's [deleted] maintenance problem.

The major F-111 maintenance problem revolves around the engine. In April 1978, [deleted] of USAFE's [deleted] authorized F-111Fs were awaiting depot maintenance repair of the engine combustion casing, and the remaining F-111Fs were flying reduced sortie rates until the casing problem could be corrected. USAFE estimates the casing problem will be corrected on the F model by [deleted] and on the E model by [deleted].

A new engine problem has surfaced which involves cracks on the engine's first stage fan hub. At the time of our review, the Air Force was studying this problem, its impact and required corrective action. One USAFE official stated, however, this problem could be serious.

We were told the F-111 engine problems were suspected as early as 1971, and some had been confirmed at least several years ago. The first engine-related crash was in October 1976. Despite these problems, the F-111F version was deployed to Europe in April 1977. To correct these problems, engines are, in some instances, being returned to the United States for depot repairs.

The gun system

The F-111 was designed to have an AIM-9 missile and a 20-mm-gun capability. However, use of these weapons has never been seriously practiced, virtually restricting the F-111 from air-to-air combat.

[
deleted
] limits its usefulness and precludes aircrew practice. [

deleted

].

A USAFE official said that while the F-111 engine and gun system were real problems for safe peacetime operations, they would not prevent the use of these systems in wartime. However, in our opinion, if these systems limit peacetime operations then they could possibly affect wartime operations.

Air Force Logistics Command Actions To Improve Reliability

The Air Force Logistics Command (AFLC) conducts a program of modifications to improve the capability and reliability of aircraft. Reliability modifications should improve aircraft maintainability, for example, by increasing the meantime between failure for aircraft components.

We discussed the aircraft systems causing the most maintenance problems (as shown in appendix III) with officials at AFLC Air Logistics Centers to determine what actions were being taken by AFLC to solve recurring maintenance problems and when "get well" actions were projected. We believe that reliability improvements in aircraft systems and components should have a generally positive impact on readiness and reduce the maintenance burden required of USAFE units to achieve fully ready status for aircraft in wartime.

AFLC officials said that reliability improvements for the F-4 aircraft are not being emphasized because the F-4 has been operating about 20 years and over the years has had extensive reliability improvement modifications. Although some reliability modifications are planned or in process, the emphasis is now on modifications to provide additional capability, and significant overall improvements in reliability will not result.

In contrast, AFLC has extensive reliability modifications underway for the F-111 and, if successful, significant long-term improvements in F-111 daily operational readiness status could result.

As shown in appendix III, the F-111 systems causing most maintenance downtime in September 1977 were

- engine,
- fuel system,
- bombing navigation,
- airframe, and
- flight controls.

The engine was causing more maintenance downtime than all the other remaining systems. The status of recently completed and ongoing engine modifications is shown in the following table.

<u>System</u>	<u>Problem description</u>	<u>USAFE completion date</u>	<u>Cost</u> (millions)
Engine	Correct fatigue cracks in engine 1st stage hub (PACER HUB)	a/Unknown	\$ 6.9
Engine	Correct fatigue caused from worn air seals (PACER FAN)	July 1977	\$ 5.9
Engine	Strengthen fuel ignition parts (PACER CAN)	June 1979	\$22.3

a/Engines being modified during scheduled depot maintenance cycle.

In addition, reliability modifications on the F-111 components have been initiated which should improve the reliability of the fuel system and the reliability and capability of the bomb navigation system.

Due to the relatively recent deployment of the F-15 at Air Force units, the need for extensive reliability modification programs has not yet been documented. However, at the time of our review, AFLC modifications underway to improve F-15 reliability were as follows:

<u>Modification description</u>	<u>Completion date</u>
Augmenter fuel pump	Dec. 1978
Engine blade containment band	Sept. 1978
Unified fuel control	Dec. 1979

We were also told that the F-15 engine managers monitor all F-111 TF-30 engine problems and corrections because of the similarity of operations between the two engines.

USAFE's management of
maintenance problems

In the Air Force, maintenance is principally a wing function. In overseeing maintenance effectiveness, USAFE is primarily concerned with the wing's ability to generate the number of sorties needed to meet peacetime training requirements. USAFE officials do not routinely monitor maintenance time expended at the various wings. While headquarters receives some summary maintenance reports and daily aircraft readiness status readings, these are not sufficiently detailed to pinpoint specific problems or to identify problems and causes common to wings throughout the command. USAFE officials did advise us that a considerable amount of maintenance time could be associated with USAFE's personnel management efforts. In lieu of working personnel overtime, they allow aircraft to sit unrepaired for longer periods of time, providing the aircraft can be made ready in [deleted].

USAFE headquarters officials could not identify the specific causes for high maintenance rates. With the exception of the F-111 engine, headquarters officials could not tell us which systems or parts at each wing were requiring the most maintenance time. Similarly, they were unable to specify the reasons for the deficiencies or relate followup or corrective action to these problems.

Recognizing that AFLC programs address such maintenance problems as the reliability and maintainability of aircraft system components, it would be worthwhile for USAFE to determine whether disparities in the not mission capable due to maintenance rates of its wings may be caused by

- (1) inadequate or inconsistently applied maintenance practices or
- (2) inexperienced or underutilized maintenance staff.

Aircraft not mission capable
because of supply

At any point in time, about [deleted] percent of USAFE's aircraft are less than fully mission capable because of spare parts shortages. Previously, the Air Force goal was for 5 percent of aircraft to be not capable because of supply reasons. The Air Force no longer uses this as a firm goal and it should also be

recognized that new and old systems generally experience higher rates. New systems have higher failure rates because of new parts failures, and old systems because of parts failing due to age.

The primary reasons for USAFE's supply shortages are (1) items needed are not stocked by the USAFE unit and (2) items have been requisitioned and are overdue from supply depots. As the chart below shows, non-stocked items and overdue requisitions accounted for about 70 percent of the supply problems which caused aircraft to be not fully ready.

The Reasons Aircraft Were Not
Fully Ready Because Of Supply Shortages
December 1977

	<u>Number of incidents</u>	<u>Items not stocked</u>	<u>Requisition overdue</u>	<u>Total</u>
		----- (percent) -----		
F/RF-4	1,543	40	31	71
F-111	857	25	48	73
F-15	161	28	59	87
Total	<u>2,561</u>			
Average		34	38	72

We were advised by USAFE officials that Air Force policy and insufficient assets at the supply depot were the principal causes. Air Force policy directs USAFE to stock items based on the number of demands against that item in a 6-month period. If sufficient demands are not registered, USAFE is not authorized to stock the item. According to USAFE, new modifications to existing aircraft account for a number of "stocks not authorized" situations.

AFLC, in response to USAFE's followup on overdue items, indicated that contract delays, production problems, procurement practices, and increased or modified demand were the principal reasons for depots not having needed stocks. In the case of the F-111, the depot reported insufficient assets for 12 of USAFE's top 24 supply problem items for October through December 1977 for these reasons.

Discussion of Logistics Support
Problems With AFLC Officials

As shown in appendix IV, we identified the specific aircraft system major items causing the most aircraft downtime in USAFE due to nonavailability. We discussed these items with appropriate AFLC officials to determine (1) causes of the shortages, (2) actions being taken to alleviate the shortages, and (3) projected dates for alleviating the shortages. In general, we found that these supply system shortages were due to commonly recurring logistics problems.

Four of the five F-4 major items identified were in short supply because they were being modified as part of an extensive ongoing modification program to improve and modernize the capability of the F-4 aircraft. To date, a total of \$1.4 billion has been approved for this program and more funding is expected. Such modifications create shortages because spare items are withdrawn from the system to be modified. The F-4 items undergoing modification and programmed completion dates for the programs are as follows.

<u>Item</u>	<u>Modification completion date</u>
Receiver transmitter	11/79
Platform gyro	3/80
Navigation computer	3/80
Receiver transmitter	11/79

Shortages of F-111 items were caused by a variety of factors. The shortage of one item, the receiver/transmitter of the electronic countermeasure system, was attributed to a procurement lead time of 21 months. In such cases, the system cannot quickly respond to increases in demand for the item because of the long lead time for additional procurement. As of July 1978, 60 units were on order and no date was projected for achieving the stockage objective.

The shortage of another item, the navigation light, was caused by delays in delivery from the contractor. According to AFLC officials, this shortage has now been alleviated.

Another shortage, the stabilizer platform, a component of the bomb navigation system, occurred because the overall system is considered obsolete and will be replaced. In effect, management has decided to live with the shortage until the replacement is made. The platform has a unit cost of \$200,000 and the total deficit is 50 units. Procurement of the 50 units would cost \$10 million.

According to AFLC officials, the bomb navigation system is outdated, electromechanical, and has limited capability. The system will be replaced with an advanced state-of-the-art system that will provide additional capability and improved reliability. Replacement of the system is programmed for completion within the next 8 years.

Three of the five F-15 items in short supply (the wide band amplifier, the multiplex indicator, and the parametric amplifier) are components of the aircraft fire control system. As shown in appendix IV, components of the fire control system accounted for the bulk of F-15 item shortages. Total planned procurement for these items is 229, however, as of July 1978 only 129 had been delivered. AFLC officials said these items are being procured in increments to minimize obsolescence before all the assets are delivered. The procurement contract contains a clause which provides that the items will be delivered in the latest configuration.

USAFE's management of supply problems

USAFE's supply managers identify, highlight, and monitor supply shortages causing unit nonreadiness. USAFE prepares daily, weekly, monthly, and quarterly reports identifying supply status and its impact on aircraft preparedness. Also, we were told that wing and USAFE Headquarters personnel discuss problem areas with inventory managers on a daily basis. These methods highlight problems and expedite remedial actions (principally shipment of needed items) on a daily item-by-item basis.

USAFE has made proposals which would make the system more responsive--to prevent the number of shortages. These include

- raising the safety level factor for direct support items providing added insurance that high usage, mission-essential items have an extra increment of safety level stockage;

--realining the force activity designator to allow a higher requisitioning priority for units in Europe and the Pacific; and

--recognizing actual repair cycle time for repairable items in lieu of less responsive standards currently used in computing resupply formulas.

Action was being initiated to implement all three proposals. We believe, however, that the first proposal is the least desirable of the three. We have previously reported that the use of redundant inventory levels, such as safety levels, are unduly expensive because they result in significant increases in requirements. 1/ In fiscal year 1975, for example, over half the Air Force's total requirements for repairable items were safety level requirements.

Regarding the third proposal, we have reported that requirements for repair cycle float items can be unnecessarily increased when actual performance is used instead of reasonable performance standards. 2/ Standards should be realistic and based on work measurement analysis. Use of peacetime actual repair cycle time can mask inefficiency and cause a problem during mobilization.

We believe that realining the force activity designator to allow a higher requisitioning priority--the second alternative--is the best solution and should be emphasized. This alternative would have little or no impact on inventory requirements and, accordingly, would be least expensive.

1/ "The Air Force Can Reduce Inventories by Eliminating Unneeded Stock Levels, "LCD-76-425, June 17, 1977.

2/"Better Management of Spare Equipment Will Improve Maintenance Productivity and Save the Army Millions," LCD-76-442, Apr. 5, 1977.

Supply alternatives

If a unit's aircraft are not mission ready because of supply shortages, it can often act on an interim basis until the needed part is received from the depot. Several methods used by USAFE to overcome shortages and get aircraft flying again are withdrawal of assets from war reserve stocks, cannibalization of other aircraft, and receipt of lateral support from other bases in Europe with similar aircraft. Depending on the type of aircraft, USAFE uses each to some extent. However, in some instances, USAFE has no alternative but to wait until the part arrives from the depot. Our analysis of the alternatives used in December 1977 showed that F-4 and F-111 units relied primarily on withdrawals from war reserve stocks to eliminate supply-limiting items. The F-15 with only limited war reserve stocks relied heavily on cannibalization and replenishment from the depot.

In a prior report which analyzed not operational readiness rates due to supply in detail, we found that such actions improve readiness and reduce aircraft not operational rates 1/.

CONCLUSIONS

Actual operational rates for USAFE aircraft vary greatly among USAFE wings. USAFE does not emphasize oversight of the effectiveness of its wings maintenance programs in relation to day-to-day operational ready rates. Some factors affecting operational status are clearly beyond USAFE's and its units' control. However, we believe that the significant differences being reported by USAFE units in the percentage of authorized aircraft which are not ready, primarily due to maintenance requirements, may indicate that maintenance practices in some USAFE wings can be improved. USAFE officials told us that they are aware of significant differences in unit maintenance requirements and have on occasion provided additional personnel to overcome the problems encountered by some units.

1/"Analysis of Air Force Rates of Aircraft Not Operationally Ready Due to Supply," B-179264, Mar. 29, 1974.

RECOMMENDATION

We recommend that the Secretary of the Air Force require the Commander in Chief, USAFE, to implement economical solutions--raising requisition priorities for units in Europe which do not result in additional requirements for inventory levels--to improve supply effectiveness.

CHAPTER 5

SHORTAGES IN WAR RESERVE

MATERIEL

WRM is prepositioned stockpiles of critical resources such as munitions, fuels, and spare parts to support planned levels of combat missions until resupply is effected. WRM resources in Europe are needed for in-place squadrons, as well as for augmentation squadrons scheduled to arrive from the United States. At the time of our review in 1971, USAFE had [deleted] overall WRM shortages and, while requirements have changed, [deleted] shortages still exist as illustrated below.

<u>Overall Status of WRM</u>		
<u>Total authorized</u>	<u>Total shortage</u>	<u>Percent of shortage</u>
------(millions)-----		
1977	[
1971	deleted]

This chapter contains our evaluation of the impact of WRM shortages on USAFE's ability to sustain planned levels of wartime combat missions. Details on the types of WRM shortages are shown in appendix V.

IMPACT OF SHORTAGES

The impact of WRM shortages on achieving planned wartime combat missions depends on the validity of WRM requirements. The starting point for establishing WRM requirements is the plan which sets out combat mission sorties in wartime. At the time of our review, the planning factors, such as wartime sortie rates and surge requirements in the early days of a war, were being reevaluated because of the changing threat.

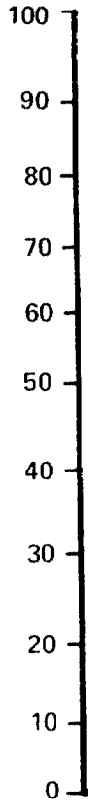
We did not verify the accuracy of USAFE's computation of WRM requirements, but were told they are computed based on factors such as

- resource consumption rates,
- types and numbers of targets,
- aircraft attrition rates,
- days until resupply is effected, and
- scheduled deployments of augmentation forces.

In assessing potential impact, the most critical shortages, in terms of days' supply, have the most impact on USAFE's ability to meet the levels of activity planned in wartime. An approximation of the WRM situation in USAFE in January 1978 is illustrated in the following graph.

ON HAND ASSETS AS A PERCENT OF
WRM STOCKAGE OBJECTIVES

PERCENT OF
AUTHORIZED
UNITS ON HAND



AVIATION
FUEL

AIR-TO-AIR
MISSILES

AIR-TO-GROUND
MUNITIONS

deleted



ON HAND ASSETS



STOCKAGE OBJECTIVE

NOTE:
Stockage objectives are established for deleted days, of supply,
with the exception of fuels which at some locations requires
only deleted days of supply.

The chart illustrates, in general terms, that
[deleted]].

For our evaluation, we divided WRM into the following categories

- munitions,
- fuels,
- spare parts, and
- other.

With the exception of spare parts, USAFE's daily readiness reports to the JCS do not measure the availability or condition of war reserve assets. Munitions, fuels, and other WRM items are tracked through various reporting methods, but we found no evidence that the status of those assets is routinely correlated with other readiness data to indicate the impact of WRM shortages on mission accomplishment.

MUNITIONS

USAFE's munitions requirements are for air-to-air missiles, used in aerial combat to achieve air superiority; missiles and bombs, for air-to-ground combat; and smaller munition rounds for aircraft gun systems, used in both air-to-air and air-to-ground combat. Because augmenting squadrons deploying from the United States will not carry their own munitions supplies, USAFE's WRM stocks must be sufficient to sustain these forces as well as those already in Europe.

In January 1978, USAFE had onhand [

deleted

]. These assets are not identified in terms of availability for in-place or augmenting forces and we could not determine how much of the specific munitions related to each of these forces.

Air-to-air missiles

The Air Force distributes the quantities of available missiles to USAFE based on its allocations from overall available stocks. These missiles are critical for attaining air superiority, which USAFE officials say they expect to achieve in the first [deleted] of combat. While requirements are expressed in terms of [deleted] days of supply, we were told that most missiles will be needed and used during the [deleted] of conflict. As shown below, using USAFE's estimated sortie rates and expenditures-per-sortie for an intense scenario, USAFE will [

].

Type	In Complete Rounds		
	Fiscal year 1978 Author- Allocation ization by Air (note a) Force	Onhand as of March 31, 1978	Days of supply (note b)
AIM 7E	[
AIM 7F	deleted		
AIM 9J]

a/This figure represents the Air Force approved authorization for USAFE. USAFE planners believe that requirements are actually greater. For example, USAFE estimates [deleted] AIM 7Fs are needed to support revised war plans.

b/Days of supply are not additive because missiles are used on different aircraft and maximum arming configurations call for simultaneous use of different missiles. Also, while days of supply for the AIM 7F and AIM 9J generally relate to a [deleted] objective for F-15 and F-4 aircraft the AIM 7E relates to a [deleted] objective for the F-4.

The number of missiles allocated to USAFE is less than the number authorized because the Air Force has a shortage of items due in part to production and procurement delays. For example, AIM 7E and AIM 7F missile shortages were attributed to an Air Force decision to discontinue AIM 7E production and await the availability of the

newer, more effective 7F missiles. Apparently, unforeseen production delays and certain test findings have postponed the 7Fs' production and left the Air Force short of both 7E and 7F missiles. Consequently, available missiles are distributed to all major commands on an allocation basis, thus spreading the shortages across the commands.

In certain circumstances, to alleviate the shortages of particular missiles, others may be substituted. In USAFE's situation, the substitution option is somewhat

[deleted]. Furthermore, the probability of kills-per-sortie is usually reduced when substituting a less preferred weapon for the principal armament. For example, in place of the radar guided AIM 7F missile which is the preferred weapon for the F-15, USAFE could fully arm the aircraft with the more plentiful (but still short) heat-seeking AIM 9J missile. But, in doing so,

[

deleted

]. Similarly, the F-4 can be armed with the AIM 9E (which USAFE is phasing out) as an alternative to the preferred AIM 9J. Again, [

deleted

]. Thus, even if substitute missiles were available, substitution would mean increased numbers of sorties would be needed to accomplish an objective, with the probability of increased aircraft losses.

After the missiles run out, the only option is to use the aircraft gun system--an alternative which greatly underutilizes the capabilities of most of USAFE's sophisticated (and expensive) aircraft.

No quick solutions are in sight for the missile shortages. For example, Air Force testimony before the Congress indicates the AIM 7F shortage will continue through [deleted]. Procurements from funding through 1978 totaled about 2,200 missiles Air Force wide--[

deleted

].

Air-to-ground munitions

Air-to-ground munitions, which include non-guided bombs, guided bombs, and missiles, are used to destroy targets on the ground. The air-to-ground capability has become increasingly important to counter superior numbers of Soviet armor.

USAFE has computed all air-to-ground munitions requirements except missile requirements which are set by Headquarters, USAF. These requirements include the Maverick, needed for the A-10 aircraft, which are expected to deploy to USAFE in 1979. The status of air-to-ground shortages is summarized below.

Air-to-Ground Munitions (note a)

<u>Munition type</u>	<u>Complete rounds</u>	
	<u>FY 1978 requirement</u>	<u>On hand as of March 31, 1978</u>
Air-to-ground missiles:		
AGM 65 Maverick	[
AGM 45 Shrike		
Laser-guided bombs:		
GBU 12		
GBU 10 (note c)		deleted
Air-to-ground bombs:		
Mark 82, 500 lb bomb		
Mark 84, 2,000 lb bomb		
Mark 20, Rockeye]

a/Based on data examined, we were unable to develop days of supply information with any degree of reliability because of the many unknowns.

b/Air Staff identified requirement; all others identified by USAFE.

c/GBU 10 serves as a substitute for GBU 12.

The overall air-to-ground munitions shortages are [deleted] shortages. However, some shortages could degrade wartime performance. Air-to-ground guided missiles, for example, are especially important because their probability of destroying a target is greater than that for unguided bombs.

Use of substitute munitions

As depicted in the following chart, some munitions have been designated as substitutes for others.

<u>Primary type munition</u> (shortfall munition)	<u>Designated substitute</u> (secondary)
--	---

[

deleted

]

The overall effect of substitution is that shortages in a few categories are somewhat alleviated. For instance, [

deleted

]. As with missiles, substitution can degrade effectiveness. For example, because of loading factors, an aircraft can carry six 500-pound-bombs, but only two 2,000-pound-bombs. Thus, we were told more sorties may be needed to hit the same number of targets, possibly leading to higher aircraft attrition.

USAFE perceptions of why munitions shortages exist

USAFE officials said most of the munitions shortages are caused or aggravated by situations beyond USAFE's control, such as production delays and changing requirements. For example, [

deleted

]. Increased requirements, caused by changing threat perception and

revised war plans, create immediate shortages which will exist until stocks are built up. The Maverick shortage is an example of the impact of increased requirements. With the decision to deploy the A-10 to Europe, USAFE's requirements for Maverick missiles increased significantly. [

deleted

]. In terms of impact, USAFE officials said the lack of Maverick missiles would reduce the effectiveness of the A-10, but that the A-10 gun system alone makes it a potent weapon system.

Munition storage problems

Problems associated with munitions availability include the adequacy and survivability of munitions storage facilities. Currently, USAFE lacks sufficient on-base storage at main operating bases and augmentation bases. If munitions were available to meet USAFE's total requirements, USAFE would have problems securely storing them because about [deleted] percent of its munitions assets are now stored in [deleted] central depots.

The greatest storage problem is in [deleted

] from most operating bases. Optimally, USAFE wants to disperse all assets to the bases in order to enhance munitions survivability and reduce wartime movement requirements. New construction, in process or planned, near bases will reduce some of the munitions concentration. [deleted

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SPARE PARTS

War reserve parts consist of replacement parts and components needed to keep aircraft and their subsystems operational. USAFE requires these parts only for aircraft stationed in Europe because wartime augmentation aircraft are equipped with their own spares which they will bring with them when they deploy. War reserve spares are configured in two types of standard packages to provide a [deleted] -day supply of parts for wartime until resupply is initiated.

The first type of package is called Base Level Self-Sufficiency Spares (BLSS). BLSS is for support of aircraft that will operate from the same base in wartime as in peacetime. BLSS quantities are limited to those necessary to supplement peacetime operating stock levels.

The second type of package is called the War Reserve Spares Kit (WRSK). WRSKs are air transportable packages of spares and repair parts and related maintenance supplies for units that will deploy from their peacetime operating bases. WRSKs are transported to the deployment site at the same time the units deploy.

WRSK requirements are much greater than BLSS because aircraft which deploy from home bases cannot take advantage of

--peacetime operation stocks located on base and

--base maintenance repair capability.

Thus, WRSK employs a remove and replace concept rather than the remove, repair, and replace support concept assumed under BLSS. As a result, more components are needed to support a unit with WRSK than BLSS. The most significant example of the difference in costs is the F-111F. The BLSS support package for a squadron of F-111Fs costs \$5 million, while the WRSK package for a squadron of F-111Fs costs \$43 million.

USAFE's [deleted] aircraft have been authorized either BLSS or WRSK support--BLSS is authorized for about [deleted] aircraft and WRSK is authorized for [deleted] aircraft. [

deleted

].

Shortages of WRSK/BLSS

Most WRSK/BLSS shortages in USAFE apply to the [deleted] aircraft, as shown in the following schedule.

USAFE WRSK/BLSS Summary (note a)

September 1977

<u>Aircraft</u>	<u>Role</u>	<u>Number of aircraft</u>	<u>Authorized</u>	<u>On hand</u>	<u>Shortage</u>	<u>Percent of dollar fill</u>
			----- (millions)-----			
F/RF-4	Dual	[]
F-111	(A to G)			deleted		
F-15	(A to A)					
Total		[]

a/See app. VII for a detailed breakdown of WRSK/BLSS by aircraft type.

Shortages are shown in terms of dollars and not quantities because shortages are principally composed of a relatively small number of expensive avionics assets. For example, a shortage of [

deleted

].

Impact of shortages

As indicated in the above chart, most of the shortages are for the [

deleted

].

[deleted] Shortages in Selected Major Items

<u>Item</u>	<u>Units authorized</u>	<u>Units on hand</u>
[deleted]		

Three of the five shortages present the greatest potential for reduced mission capability.

[deleted]		
-------------	--	--

A similar situation exists for USAFE's [deleted] aircraft wing, as shown below:

[deleted] Shortages for Selected Items

<u>Item (note a)</u>	<u>Units authorized</u>	<u>Units on hand</u>
[deleted]		

However, the shortages may be less than they appear because of overstated requirements. In a previous report to the Congress, we recommended a number of procedures for reducing requirements, such as (1) combining separately computed safety level requirements for BLSS and (2) reconsidering the need for 30 days of WRSK support in view of the fact that standard delivery times for resupplying overseas bases range between 12 and 17 days. 1/

Reasons for shortages

USAFE officials said they can do little to remedy the shortfalls because the shortage of WRSK and BLSS assets are caused by

- delays beyond established time frames for the Air Force supply system to replace some war reserve assets temporarily withdrawn to maintain aircraft operational readiness and
- long-term supply system shortages of some specific high value war reserve items.

We discussed with AFLC officials the status of the specific high value war reserve spare parts for the [deleted] systems in short supply (see p. 50) to determine the reasons for shortages. In general, they said that nonavailability of these components can be attributed to a combination of commonly recurring logistics problems coupled with the fact that full funding was delayed for [deleted]. Specific problems associated with each component were as follows.

1. [deleted]--This item, which has a unit cost of \$209,000 was backordered with an expected "get well" date of December 1979. The shortage is compounded because it has a high failure rate (28-hour mean time between failure) due to poor soldering connections. The connections are being resoldered at air force units.
2. [deleted]--This item has a long production lead time of 20 months, is

1/"The Air Force Could Reduce War Reserve Requirements of Spares and Repair Parts for Combat Ready Units" (LCD-75-444, Aug. 27, 1978).

backordered, and outstanding orders are expected to be filled by November 30, 1978.

3. [deleted]--These shortages are compounded by a combination of a 21-month production lead time and a higher than expected failure rate. The item was backordered with a delivery date of July 1979. AFLC has an engineering change proposal in process, programmed for application in March 1979 which should triple the reliability of the item.
4. [deleted]--This system has experienced unusually high maintenance requirements on certain of its components, which have resulted in low availability. Considering levels of unserviceable assets, the item is not in short supply.
5. [deleted]--Shortage of this system is caused by a combination of long production lead time, and low reliability of two components which are being replaced. Receipt of outstanding backorders is scheduled for April 1979.

We identified [deleted] These items, listed on page 50, are all integral to the [deleted]. AFLC officials attributed existing shortages to a combination of two factors. First, the [deleted] has had a number of configuration changes due to changes in the state of the art. Such changes were made to items temporarily withdrawn from the system which would have normally been available to meet requirements and, thus, reduce available assets.

Second, AFLC contracts for procurement of these components require delivery to be spread out in increments and to be made with the latest configuration change. Contract terms are so specified in order to reduce the impact of obsolescence due to rapid state-of-the-art developments.

Ongoing analysis of assumptions
underlying WRM spare parts

The Air Force has computed its overall requirement for aircraft war reserve spare and repair parts at \$2.8 billion, \$1.7 billion of which has been funded. In July 1977, the Subcommittee on Defense on the Senate Appropriations Committee asked us to review the entire DOD war reserve procurement program. We reported to the Committee that the

overall Air Force requirement for war reserve spares was questionable because many subjective assumptions are used to measure aircraft wartime capabilities which in turn affect the computation of the requirement for war reserve spares and components. 1/

In response to our report, DOD has tasked the Air Force to develop a detailed analysis of the assumptions underlying the requirement for war reserve spares. Thus, depending on the Air Force's analysis, requirements could change substantially.

Do USAFE squadrons need WRSK?

WRSK is required for units expected to deploy from their home base in wartime. In a NATO war, [deleted]. However, other USAFE [deleted]. The cost of the more expensive WRSK support for these non-NATO missions is \$81 million. The estimated comparable BLSS support would be \$18 million, a difference of \$63 million.

In evaluating USAFE's need for extensive WRSK, the following factors should be considered:

- How critical are USAFE squadrons in a non-NATO contingency?
- What is the likely warning time preceding such a contingency? Would it be enough to deploy TAC squadrons from the United States (TAC squadrons are equipped with WRSK assets)? Can USAFE squadrons respond significantly sooner than U.S. based squadrons?
- If the requirement for USAFE WRSK assets is considered critical, could it be satisfied by fewer squadrons? Could [deleted] squadrons (equipped with WRSK for NATO purposes) be used until TAC augmentation arrives?

1/"Determining Requirements for War Reserve Spares and Repair Parts--Importance of the Wartime Planning Process" (LCD-78-407A, June 6, 1978).

In view of higher costs and the serious shortfalls in war reserves, there is reason, in our opinion, to question the utility and necessity of WRSK support for many USAFE aircraft. USAFE's primary mission is the defense of NATO. Because BLSS support is less expensive, USAFE could potentially recognize considerable savings by shifting from WRSK to BLSS. A reduced funding requirement might be easier to meet, enhancing USAFE's readiness to accomplish its primary mission. A reconsideration of mobility requirements for USAFE units based on the above factors would, at a minimum, identify the extent that BLSS support could be substituted for WRSK.

FUELS

Aviation fuel is prepositioned in Europe to support USAFE's in-place forces and expected augmentation squadrons. The amount of fuel prepositioned in Europe is based on war plans and the estimated resupply time which varies by location. For example, USAFE needs [deleted] of supply for units in the United Kingdom and [deleted] for those in Central Europe. Overall, USAFE has about [deleted]. The remainder is not on hand principally because USAFE lacks adequate storage. Furthermore, some fuel which is available is malpositioned, that is, stored out of the region where it is required. [

deleted

]. A summary of USAFE's aviation fuel status by region is presented on the following page.

Status of USAFE's Aviation Fuels

<u>Region</u>	<u>Required fuel reserves</u>	<u>Stored at terminal in region</u>	<u>On-base</u>	<u>Stored at terminal out of region</u>	<u>Unfilled requirements</u>
------(barrels)-----					
Central	[]
United Kingdom/ Norway			deleted		
Southern					
Total	[]
a/Fuels for U.S. bases in	[deleted]

As can be seen from the above data, except for the [deleted], USAFE's shortages of aviation fuels are [deleted]. The most important concern is the adequacy of storage.

Fuel storage

As shown in the table, USAFE has filled all its Central Region requirements. However, [

deleted

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]

In all areas--Central, United Kingdom, and Southern--insufficient on-base storage at collocated operating bases was cited as a problem. This shortfall could limit the effectiveness of augmentation units deploying to these bases.

OTHER WRM ASSETS

Other categories of WRM include support equipment such as vehicles, ground support equipment, and items for configuration of aircraft such as tanks, pylons, and racks. As indicated in appendix V, these items, with the exception of vehicles, are generally fully or substantially on hand.

Vehicles

War reserve vehicles are prepositioned at appropriate USAFE bases to support anticipated wartime requirements. USAFE has identified 1,788 WRM vehicle requirements but only 542 vehicles, or 30 percent, are on hand. The current requirements do not include most of the vehicles necessary to support augmentation forces at collocated operating bases. USAFE's status of WRM vehicles is as follows:

	<u>WRM Vehicles</u>		
	<u>As of November 1977</u>		
	<u>Authorized</u>	<u>On hand</u>	<u>Percent</u>
General purpose	916	196	21.3
Special purpose	395	274	69.3
Materiel handling equipment	402	50	12.4
Base maintenance	<u>75</u>	<u>22</u>	<u>29.3</u>
Total	<u>1,788</u>	<u>542</u>	<u>30.3</u>

In addition to these shortages, about 44 percent of the on hand assets need to be replaced because of such factors as age and high milage.

Vehicles are important to USAFE operations because they transport and handle the supplies, fuels, and munitions necessary to support combat operations. Without required vehicles, some operations will have to be done manually and

other operations will have to wait until the available vehicles can support them. For example, USAFE has on hand only 12 percent of its required materiel handling equipment, such as forklifts, to unload cargo aircraft, and its shortage could delay turnaround time of critical airlift resources. USAFE's authority to commandeer privately owned vehicles in wartime will offset some of the general purpose vehicle shortages. However, such substitutions for specialized equipment, such as materiel handling equipment, are unlikely.

As a result of these shortfalls and the condition of the war reserve vehicle fleet, over two-thirds of USAFE WRM vehicles are rated only marginally ready or unready.

The principal reason for vehicle shortages appears to be a lack of funding and emphasis by the Air Force. Although vehicles are recognized as important, they are support assets and generally receive a lower funding priority by the Air Force than those assets related directly to aircraft operations. Some planned improvements are underway, and USAFE will receive, in addition to normal replacement assets, 850 additional vehicles before 1980. However, firm "get well" dates have not yet been established, and the identification of additional vehicles needed at collocated operating bases could increase USAFE's vehicle requirements by as many as 3,000 vehicles.

In the meantime, USAFE has taken measures to alleviate this problem. For example, USAFE has requested, through the U.S. Army, Europe, that arrangements be made with the host nation to provide transportation support in wartime. Also, as mentioned above, USAFE officials said that they plan to commandeer vehicles privately owned by U.S. military personnel and U.S. civilian employees if necessary.

CONCLUSIONS

[

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].

No quick solutions are in sight. Projected "get well" dates for some major munitions and spare items are several years away, and planned future deployments of additional and new aircraft may increase the problems by increasing requirements. On the other hand, USAFE may have some limited opportunities to improve its readiness by reconfiguring some war reserve spares packages to reflect the spare stocks needed for a NATO war. Currently, [deleted]].

We believe USAFE's generally poor WRM status raises serious questions about Air Force priorities and resource allocations. Some of the more important issues include:

- The seemingly greater emphasis placed on developing and procuring new aircraft as opposed to supporting these aircraft. Large sums of money are being spent on highly sophisticated aircraft which may not be able to deliver their promised capabilities in war-time because of insufficient munitions support.
- The benefits to be gained by additional deployments of aircraft to Europe when USAFE cannot adequately support those it now has in theater, and knows it will not have key items for future aircraft. For example, [

deleted

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The USAFE commander told us that he wants the A-10 in Europe as soon as possible so that USAFE can learn to use it in the European environment. He said that the principal factor in deciding to deploy new weapons systems, such as the A-10, is whether they represent an improved capability. Concerning the A-10, he believed that even with less than full munitions and equipment support, it would be a useful system. We believe, however, deployment decisions should be made after all factors are considered, and if systems are considered essential then the proper resources should be devoted to make them fully combat mission capable.

[

deleted

]. Realistic augmentation plans are particularly important, since assets on hand are not clearly delineated between in-place and augmenting forces to show how well augmenting forces can be supported.

The costs of developing and procuring new tactical weapons systems are visible. The costs of deploying and fully supporting them are much less so. Also, key items, such as munitions and fuels, are not measured in the regular Air Force or JCS-required readiness reporting systems. We believe a comprehensive assessment of the impact of WRM shortages on planned wartime activity is necessary to clearly identify priorities and develop realistic plans. This would not only assist Air Force managers, but would also provide a realistic basis for congressional evaluation of major policy and funding decisions. Such an assessment should emphasize the requirements and assets on hand by force type--in place and augmenting--so as to allow managers to evaluate the relative status and additional needs for each force. It would appear this would better facilitate prioritizing needs and filling open requirements. WRSK and BLSS support for USAFE units should be similarly assessed recognizing the importance of USAFE's primary mission--NATO.

RECOMMENDATIONS

We recommend that the Secretary of the Air Force:

- Undertake a thorough assessment of the status of USAFE's war reserve stocks and the implications of WRM shortages on USAFE's readiness.
- Prepare prioritized plans to correct the most severe shortages.
- Ensure that resources are appropriately allocated based on readiness priorities.

In seeking corrective solutions, the Secretary of the Air Force should give consideration to reallocating assets to USAFE from other Air Force commands, in recognition of the priority mission of U.S. forces in Europe.

Although the Air Force evaluates its WRSK needs on a periodic basis, we also recommend that the Secretary of the Air Force direct that an evaluation of the need for WRSK mobility packages in Europe by Air Force squadrons in Europe be made in view of their primary commitment to NATO and alternatives for meeting non-NATO mobility missions. Specific factors that should be considered in making such an assessment are listed on page 53.

CHAPTER 6

PERSONNEL READINESS

In our previous review, we found that USAFE readiness was degraded by shortages of air crews, the availability of personnel with mission-essential skills was not clearly and uniformly identified and measured, and training was hampered by inadequate facilities. At that time, the Air Force had personnel shortages which were blamed mostly on U.S. involvement in Viet Nam.

USAFE personnel readiness has improved considerably since that time. In total, sufficient numbers of personnel have been assigned and most critical support positions have been filled. USAFE still falls short of its total authorized strength for aircrews because sufficient numbers of pilots and navigators have not been assigned to primary aircrew positions. Further, about [deleted] percent of assigned aircrews are not considered fully combat ready because they have not completed all required training. However, we do not believe personnel readiness would be a major limiting factor on USAFE's current overall capability.

Training conditions, although still not ideal, are adequate to meet overall Air Force and command-identified training requirements. USAFE officials are concerned that facility limitations and host-nation restrictions affect the quality or realism of training.

OVERALL PERSONNEL STATUS

USAFE measures its personnel readiness by evaluating the following two key categories of qualified personnel.

- Mission ready aircrews (formed and trained).
For example, a pilot and navigator assigned to specific flying positions as a primary duty.
- Personnel with critical skills considered essential to aircraft launch, repair, and turnaround, such as maintenance personnel.

As described in the following section, USAFE continues to fall below full-readiness standards established for aircrews. With respect to the secondary category, USAFE

generally reports enough personnel with essential skills to accomplish assigned wartime aircraft support tasks. Overall, about 96 percent of the almost 18,000 USAFE identified essential skill support positions are filled, with every squadron reporting full readiness in this category in December 1977. Also, unlike during our prior review, USAFE now specifically and uniformly identifies and measures essential skill requirements and availability, thus, enhancing the meaningfulness of personnel readiness reports.

USAFE'S AIRCREWS ARE NOT
FULLY READY

USAFE is authorized a total of 723 aircrews. To be considered fully combat ready, 85 percent of 625 of USAFE's authorized aircrews must be assigned, formed, and fully trained. Based on these standards, in September 1977,

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A detailed analysis of USAFE's aircrew readiness by squadron is in appendix VIII.

Two principal reasons for reduced aircrew readiness are:

--Not enough qualified personnel have been assigned flying duties to form the number of crews authorized.

--Some formed aircrews are not mission ready because of training shortfalls.

Insufficient number
of formed crews

As of September 1977, USAFE had 642 or 89 percent of its authorized aircrews assigned and formed as shown below:

USAFE Aircrew Manning

September 1977

<u>Aircraft</u>	<u>Crews authorized</u>	<u>Crews formed</u>	<u>Shortage</u>	<u>Percent formed of authorized</u>
F-4	394	368	26	93
F-111	170	145	25	85
F-15	90	70	20	78
RF-4	<u>69</u>	<u>59</u>	<u>10</u>	<u>86</u>
Total	<u>723</u>	<u>642</u>	<u>81</u>	<u>89</u>

Over half the shortages of formed aircrews related to F-111 and F-15 aircraft, both of which had been introduced into USAFE during 1977. We were told these shortages were temporary and will be overcome during 1978 with the assignment of qualified personnel. In July 1978, we were told USAFE's formed aircrew percentage had increased to 93 percent.

The Air Force Personnel Center is responsible for assigning personnel to fill USAFE aircrew positions. However, the Personnel Center has not assigned USAFE enough personnel to fill all these positions. While USAFE has been assigned more pilots and navigators than is reflected in the above formed crew positions, some pilots and navigators are, of necessity, serving in positions, such as wing overhead or non-flying positions, and are not assigned to primary crew positions.

Basically, there are two categories of aircrew positions--flying and non-flying. Flying positions include both primary duty aircrew positions and overhead positions, such as wing command and safety officer. Personnel holding primary duty positions train daily for air combat. Personnel assigned to wing or squadron

overhead positions receive some flight training, but not enough to qualify as mission ready. For peacetime readiness reporting purposes these personnel are not counted, but in wartime, they would be expected to supplement primary duty crews.

In addition to flying positions, other rated pilots and navigators are assigned to non-flying positions, such as support or staff functions. We were told such personnel, although rated, were generally not assigned flying duties because of age, medical reasons, or lack of qualification in the command's aircraft systems. Apparently, USAFE can switch some personnel from non-flying to flying positions depending on their qualifications. Officials said this would only be done if the shortage was extreme and expected to last for an extended period. Personnel in non-flying positions received no flight training. We did not assess the qualifications of personnel assigned to non-flying positions to determine the feasibility of assigning these personnel to flying positions.

Some aircrews are not fully trained

Of the 642 formed and assigned crews as of September 1977, [deleted] or [deleted] percent were considered fully trained and combat ready. Poor weather conditions, inoperable equipment, and other priorities generally prevented the other [deleted] percent from completing all required training. Training requirements, limitations, and impacts are described below.

USAFE's training requirements

Before assignment to USAFE, aircrews are trained and qualified by TAC. USAFE training programs are designed to upgrade assigned crews to mission ready status for specific wartime tasks and to ensure that readiness is maintained through periodic training. Minimum training standards and requirements are set by the Air Force. USAFE, a a major command, tailors these requirements to meet its wartime missions and conditions in Europe. USAFE may modify or add to Air Force established requirements but cannot reduce them. If Air Force requirements cannot be met, USAFE must request a waiver.

USAFE training officials told us that USAFE, in January 1978, fully implemented the Air Force's new Graduated Combat Capability concept. Under this concept, USAFE determines the combat capabilities needed for its total force, assigns specific priority capabilities for each unit, and sets requirements (numbers of sorties, types of training events) for each unit. These requirements, in effect, define what USAFE considers necessary for a crew to maintain mission ready status. USAFE allows flexibility to assure training is tailored to crew proficiency, experience, local conditions, and available resources.

USAFE provides the following three types of training.

1. Initial qualification training is designed to qualify an aircrew in basic flight duties. The training involves such things as local area procedures and familiarization flights. This training is used to transition newly assigned aircrews into unit equipment and the local flying environment, as well as retrain aircrews who have not flown for 180 days.

2. Mission qualification training provides additional training needed to upgrade aircrews to mission ready status. It involves academic training, simulator use, flight training to include accomplishing a specific number of sorties and performing required events.

3. Continuation training is provided once aircrews have attained mission ready status so that they can perform a mission effectively and progress to higher levels of capability. This training is given in 6-month cycles, with requirements which must be met during each training period. The types of training which must be accomplished include a specified number of sorties, simulator training, and specific events such as strafing, maneuvers, and weapons delivery.

The wing commander must see that necessary training is given and accomplished and that aircrews maintain readiness. If an aircrew member fails to meet event standards within necessary time frames, the unit commander reevaluates him. The aircrew member may be maintained at mission ready status despite incomplete training, if the unit commander determines additional training is not required.

USAFE officials consider USAFE training programs sufficient to meet training requirements and maintain basic crew readiness. According to these officials, sufficient flying hours are allocated for crews to successfully complete all required events. However, all crews are not mission ready at all times for a variety of reasons, for example, newly assigned crew members will be receiving initial training. Additionally, some training is not accomplished within required 6-month time frames because:

--Poor weather conditions, especially in Central Europe, preclude timely training.

--Inoperable aircraft or insufficient equipment suspends training. This is best illustrated by the technical problems with the F-111F, causing excessive down-time.

--Other priorities, such as exercises, use up a unit's flying hours, without fulfilling some required events.

In September 1977, [deleted] percent or about [deleted] of USAFE's formed crews were not mission ready because all training requirements were not met.

Impact of aircrew readiness problems

While the availability of formed trained crews is critical to USAFE's combat effectiveness, USAFE's current aircrew readiness posture in light of aircraft operational rates and WRM shortfalls does not appear to be a readiness limiting factor. For example, USAFE units have more mission ready aircrews than they have mission capable aircraft. Furthermore, shortages of certain WRM assets, such as munitions, may reduce the number of war-time sorties.

A comparison of the average aircraft and aircrew readiness reported under FORSTAT to the JCS for the month of September 1977 illustrates this point.

<u>Wing</u>	Number of aircraft mission <u>ready</u>	Number of aircrews mission <u>ready</u>
10th	[]
81st		
36th		
32nd		
50th		
48th	deleted	
86th		
52nd		
401st		
20th		
26th	[]

As shown above, [deleted] of USAFE's wings averaged more mission ready aircrews than they had mission ready aircraft. The use of pilots and navigators assigned to overhead positions in peacetime, as aircrews in wartime, will further strengthen the aircrew posture.

ADEQUACY OF TRAINING
FACILITIES IN EUROPE

In 1972 we found that aircrews could not train in all required events because host nations restricted the types of training which could be accomplished at European training facilities. According to USAFE officials, training conditions in Europe, although still far from ideal, are adequate to allow crews to accomplish all required Air Force and USAFE training. However, host nation training restrictions limit the quality of training and guide USAFE's establishment of training requirements.

USAFE officials said that the command currently has no waivers for training requirements and that all required training can be done in Europe. Some USAFE officials told us, however, that certain events not now required might be required if facilities were available. For example, currently USAFE does not have a regular facility for live missile firings in Europe, and opportunities for supersonic and low level flights are limited.

Even though all established training requirements can be met, USAFE officials said that training conditions are not optimal. For example, the United States owns only one air training range in Central Europe. With this exception, the ranges used by USAFE are controlled by host nations; thus U.S. aircrews are subject to host nation scheduling priorities. Also, we were told that no single training range is sufficiently large and varied to allow practice of all required events. As a result, units may need to deploy to several locations for training. For example, we were told that the smallest Air Force range in the United States is larger than the largest available facility in Europe. See appendix IX for a listing of training ranges and events that can be accomplished at each.

In addition to facility limitations, host nations restrict the use of ground and air space. USAFE officials said these restrictions limit the realism of training and guide USAFE's establishment of training requirements. For example, if the host nation restricts certain events, then USAFE does not establish requirements for these events. As in the United States, safety and environmental concerns limit the altitude and speed of training flights, the types of maneuvers which may be exercised, and practice with live munitions delivery. According to USAFE officials, these restrictions reduce the quality and realism of training by, among other things,

- limiting practice to repetitious "canned" routes,
- allowing only simulated rather than live deliveries of certain types of munitions, and
- restricting exercise of certain maneuvers and aircraft characteristics which would be used in wartime (for example, supersonic or low level flight maneuvers).

Although similar limitations exist in the United States at some ranges, we were told that USAFE generally has fewer restrictions and greater opportunities for quality training in the United States. USAFE has been working on several ways to improve the quality and realism of training and is planning considerable expenditures to do so. Some of these initiatives are discussed in chapter 7.

CONCLUSIONS

USAFE personnel readiness has improved considerably since our prior review. In total, sufficient numbers of personnel have been assigned and most critical support positions have been filled. USAFE still falls short of its total authorized strength for aircrews because sufficient numbers of pilots and navigators have not been assigned to primary aircrew positions.

About [deleted] percent of assigned aircrews are considered fully combat ready because they have completed all required training. USAFE officials consider [deleted] percent as a satisfactory percentage and that those aircrews which are not fully ready could be used in combat.

Compared to USAFE's other problems, principally aircraft operational condition and war reserve shortages, the crew deficiencies would not appear to impose major limits on USAFE's ability to carry out wartime missions.

Training conditions, although still not ideal, are adequate to meet Air Force and command identified training requirements and maintain basic crew readiness. Facility limitations and host nation restrictions affect the quality or "realism" of training. In view of USAFE's initiative to improve the quality and realism of training discussed in chapter 7, the impact of these problems on training should be lessened in the future.

CHAPTER 7

USAFE INITIATIVES IN RESPONSE

TO AN INCREASED THREAT

In the past decade, Soviet and Warsaw Pact air capability has grown both qualitatively and quantitatively. The implications for U.S. and NATO planners are that the Soviets have a greater offensive capability than ever before without any real loss of defensive capability. To offset this improved Soviet-Warsaw Pact capability, U.S. planners have initiated programs to

- increase base survivability against conventional and chemical attacks,
- achieve more combat capability with available forces by increasing sorties and deploying more capable aircraft,
- increase support for augmentation squadrons, and
- improve the quality and realism of crew training.

Many of the costs associated with these efforts have not yet been identified. At this time, USAFE estimates it will cost at least \$2 billion to achieve the program goals of increased survivability, enhanced combat capability, better support for augmentation aircraft, and improved training. But, USAFE officials generally could not tell us which programs would provide the most immediate readiness benefits.

This chapter describes the current status of these efforts and contains our recommendations on the need to emphasize developing techniques in relating to resources and readiness.

USAFE'S PROGRAMS TO IMPROVE SURVIVABILITY

USAFE has identified 41 separate survivability initiatives which are necessary to improve the Commands' survivability against improved Soviet offensive capabilities. The initiatives were developed based on a recent "worst case" study of potential Soviet-Warsaw Pact

attack damage to one U.S. main operating base. The study projected that a USAFE base's current ability to survive and recover from an initial Warsaw Pact chemical or conventional attack is [deleted]. In a worst case situation, a chemical attack could [

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Based on the study, the four highest priority initiatives identified were

- aircraft sheltering,
- accuracy denial,
- chemical warfare defensive equipment/facilities, and
- rapid runway repair (RRR) equipment/capability.

The estimated cost of all 41 initiatives is about \$1.3 billion covering a period through fiscal year [deleted]. A list of all 41 initiatives is provided in appendix X.

Aircraft sheltering

The USAFE aircraft shelter program to physically protect U.S. aircraft has been in progress for several years. As of January 1978, USAFE had completed or was constructing 759 of the [deleted] shelters it had identified as needed. [

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] as well as sheltering for about [deleted] augmentation aircraft [deleted]. (See app. XI for a detailed breakdown of USAFE's shelter program.)

Accuracy denial

In addition to the aircraft shelter program, USAFE is initiating programs to make USAFE bases more difficult targets for Warsaw Pact air forces. "Tone down" of airfield facilities, construction of alternate launch and recovery surfaces, the use of smoke, and decoys are some of the programs in process or being considered. These programs are designed to lessen the destructive potential of a Warsaw Pact attack and reduce the time necessary to launch a counter offensive.

The "toning down" of air base facilities was started in 1977 and is being accomplished with USAFE operations funds. A related program, to construct alternate launch and recovery facilities at USAFE bases in Europe, is also in progress. According to USAFE officials, alternate launch and recovery facilities could significantly reduce the expected Warsaw Pact damage impact on USAFE operations. Having more runway surfaces is likely to reduce the immediate repair requirements, thus lessening the time before a counter offensive could be launched. To date, military construction program funds have been used to construct alternate launch and recovery facilities at one base and to initiate construction for a second base. Although USAFE had identified \$60 million in its 1979 military construction program request to provide alternate launch and recovery facilities at 10 additional bases in Europe, all monies for alternate runways have been deleted by the Congress.

Rapid runway repair (RRR)

To increase USAFE's ability to rapidly repair aircraft runways and expedite the launch of aircraft, USAFE's engineers have (1) developed new requirements for RRR capability at USAFE bases and (2) taken steps to replace aging equipment now in Europe. In 1977 USAFE generally had, in accordance with NATO criteria, the necessary RRR resources-- personnel, trucks, graders, loaders, and so forth--to comply with NATO's criteria for repairing aircraft launch surfaces. During 1977, assessments of Soviet-Warsaw Pact destructive capabilities caused the USAFE engineers to question this criteria. For example, under old criteria, USAFE's engineers were prepared to repair within 4 hours three large craters at bases in Central Germany. U.S. bases in the United Kingdom, with sufficient existing runways and far removed from the front line, did not plan for any U.S. Air Force RRR capability. (If any repairs were required in

the United Kingdom, they would be accomplished by British civilians.) However, recent assessments have shown that USAFE bases in Germany need three times greater repair capability than they currently have and that bases in the United Kingdom are now more vulnerable and should have RRR capability as well. NATO's criteria has not been changed to reflect these new assessments.

USAFE officials have discussed the possibility of additional host nation RRR support, without satisfaction. To obtain the additional capability, therefore, USAFE's engineers have planned a large RRR equipment procurement program over the next 6 years for USAFE main operating bases. Augmentation bases, by agreement, will have to be supported by the host nation, even though USAFE officials are unsure of many of the host nation's capabilities. The expanded RRR procurement program will provide equipment for 52 RRR packages in Germany, the United Kingdom, Spain, Greece, Turkey, and Italy. This is in addition to the seven kits they currently have in place which are 10 years old and need replacing. The total cost of adding 52 new RRR kits is about \$88 million and replacing the 7 older kits will cost about \$12 million. Plans for providing the personnel to support this equipment have not been finalized.

Chemical survivability

In 1977 we reported on the nature of the chemical threat facing USAFE forces [deleted]. (See "U.S. Chemical Warfare Defense: Readiness and Costs" (PSAD-77-105.) The threat was identified as serious and [deleted]. A U.S. Air Force wide program is attempting to overcome this disparity, and USAFE forces have been given priority over other Air Force commands for each phase of the multifaceted, multivear program.

To meet the Air Force goal of [deleted] USAFE has ordered sufficient protective clothing sets to equip each individual with one set. According to USAFE officials, these sets should be received by the [deleted]. The next major goal is for USAFE to operate up to [deleted] in a chemical environment. The target date for achieving this goal is [deleted]. To achieve this goal, the Air Force has (1) initiated research and development work to improve on existing technology, (2) developed procurement plans for additional personal protective equipment and facilities, and

(3) directed additional chemical warfare defensive training. The costs of the various actions have not been clearly identified, but based on USAFE officials' projections, the cost for personal protective equipment alone could be in excess of \$200 million.

Base defense

The U.S. Army's 32d Army Air Defense command provides an air base defense for U.S. air bases in Germany using Vulcan and Chapparral anti-aircraft systems. Air defense for U.S. bases located in other European countries is a host nation responsibility. A recent joint Army/Air Force study found the current base air defense system is [deleted].

In conjunction with the U.S. Army in Europe, USAFE is now identifying and studying needed improvements from both the standpoint of additional weapons and newer weapons. The question of additional weapons to those now provided by the Army--the Vulcan and Chapparral--is still being studied and would probably require the Army to move assets from other defense sites. From the standpoint of newer weapons, the Stinger and Roland missiles have been tentatively identified for USAFE bases air defense when these systems are procured for deployment [deleted].

The defense of USAFE bases at ground level is the responsibility of USAFE's security police. Although USAFE's security police generally believe their posture to defend USAFE bases against terrorists and saboteurs is good, they stated that improvements were necessary to make them effective in a general war situation. For example, USAFE has developed new tactics and training to protect bases against terrorist threats, and its nuclear security force has more than doubled to protect against terrorists. But, planning is just now beginning to enhance the defense of USAFE bases in general war. Matters of principal concern are (1) procurement of mobile armored vehicles for each base, (2) development and procurement of new tactical communications equipment, and (3) the designation and training of augmentation forces from the United States. This whole program is still in the conceptual stages and all requirements, costs, and time frames have not yet been identified.

EFFORTS TO ACHIEVE MORE
COMBAT CAPABILITIES

To meet the increased Warsaw Pact offensive capability, USAFE has instituted several actions to improve its combat capability. Newer aircraft have been deployed to Europe, programs to operate in a more intense combat environment have been instituted, and actions to improve electronic warfare capability are in progress. The costs, although not clearly defined, will be substantial.

Changes in force composition

Since our prior review, USAFE's force composition has undergone major changes. The size of USAFE's reconnaissance force has been reduced by [deleted] aircraft and tactical fighter aircraft have been reduced by [deleted]. This reduction has been offset by the introduction of newer, specialized, and more technologically advanced aircraft.

In 1977 84 F-111F tactical fighters and 72 F-15 air superiority aircraft were introduced in Europe as replacements for aging multipurpose F-4 aircraft. In 1979 USAFE plans to add 108 A-10 close-air-support aircraft to its force. Also, USAFE plans to add the all purpose dual capable F-16 fighter aircraft in [deleted]. Each new aircraft type represents an improved state of the art and greater capability for USAFE forces.

Sortie surge

USAFE estimates of a more intensified air battle in the early days of combat have prompted planners to reassess USAFE's combat sortie requirement. New increased requirements for fuels, munitions, and war reserve spare parts have been developed to support an intensified battle. Periodic flying exercises have been initiated to test USAFE's capability of achieving higher daily wartime sortie rates. Maintenance personnel, through sortie surge exercises and special test programs, are trying to find ways to turn aircraft around at a faster rate. Unit Readiness Exercises, to practice surge flying conditions, are discussed later in this chapter.

Electronic warfare capability

Warsaw Pact air defense systems in Central Europe present a formidable obstacle to U.S. and NATO air operations. As demonstrated in Viet Nam and the Middle East, air defense

systems can inflict considerable damage on penetrating aircraft unless the sites can be neutralized or destroyed.

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The Air Force believes that systems now being developed should improve USAFE's ability to operate against Warsaw Pact air defense sites, but the development of these systems is long term in nature. Interim limited signal jamming devices are being installed on some of USAFE's aircraft to afford some protection.

PLANS FOR SUPPORTING AUGMENTATION FORCES

USAFE's approximately [deleted] tactical fighter and reconnaissance aircraft are only a part of the total air power the United States has committed to NATO. If NATO is attacked, or if an attack seems imminent, the United States plans to deploy within the first [deleted] days, more than [deleted] tactical fighter and reconnaissance aircraft from TAC to augment USAFE forces in Europe. USAFE is responsible for ensuring augmentation aircraft will be adequately supported. The basic requirements are air base facilities (including dispersed parking and communications) to accommodate increased numbers of aircraft and war reserve stocks to support combat operations. Regarding the latter, augmenting aircraft will bring their own spare parts, but will depend on USAFE for munitions, fuels, and other WRM. USAFE's requirements are supposed to include equipment and consumables needed for augmenting forces. Apparently, USAFE considers augmentation forces' requirements when developing its requirements. However, the status of these assets does not appear to be specifically identified or monitored. [

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For years it has been recognized that USAFE main operating bases could not effectively accommodate large numbers of additional aircraft. Further, the expanded enemy offensive capabilities increased the vulnerability of air bases in Europe and established a need for maximum aircraft dispersal. To prevent overcrowding at U.S. bases

and ensure greater aircraft survivability, the collocated operating base concept was adopted.

Collocated operating bases are allied bases which augmenting U.S. squadrons would use in wartime. Under current plans, most augmenting aircraft within the first [deleted] are scheduled to be based at collocated bases. Appendix XII shows the anticipated basing and schedule for deployment. USAFE has identified [deleted] collocated operating bases throughout Europe and has negotiated technical agreements with host authorities for [deleted] of these locations. Joint support plans are, in most cases, still being developed. In NATO's southern region, the political climate is limiting progress, and the United States is having difficulty completing all the agreements.

Of the [deleted] identified bases, none currently meet all of NATO's combat standards--dispersed aircraft parking, 100 percent aircraft sheltering, and [deleted] of on-hand fuels and munitions storage. To varying degrees, each of these bases requires additional aircraft sheltering, improved communications, new or additional fuel and munitions storage, and ground vehicle support equipment. USAFE planners are continuing to identify the facility improvements and WRM requirements needed to assure that augmenting forces can effectively operate from foreign bases in wartime.

Currently, USAFE believes [deleted] bases could support aircraft for [deleted] in wartime, if USAFE personnel had [deleted] warning to move resources to the base. USAFE's program manager said that [deleted] bases could be used in a "no warning" situation.

Program improvements are now being accomplished using NATO infrastructure and U.S. military construction program funding. USAFE's program manager projects that all [deleted] bases could be ready sometime in the [deleted] at a total cost of between \$500 million and \$1 billion. The viability of the support for augmentation forces, however, will be questionable as long as the war reserve shortages discussed in chapter 4 continue to exist. Further, until on hand assets are specifically identified for in-place or augmenting forces, the status of support for various augmentation force's aircraft cannot be adequately assessed.

ENHANCING THE QUALITY AND REALISM OF TRAINING

As discussed in chapter 5, USAFE officials are concerned that USAFE training programs lack sufficient realism, thus reducing training effectiveness. The increase in the number of relatively inexperienced crew members, as the number of combat veterans declined after Viet Nam, intensifies the problem. Furthermore, in the face of greater Warsaw Pact numbers, the quality of people as well as equipment becomes more important in maintaining a credible NATO deterrent.

Realism is hard to define and will almost never, short of an actual war situation, be fully achieved. As used by USAFE training officials, realistic training means having people practice the tactics, procedures, maneuvers, and events which they will be expected to perform in wartime--using the full capabilities of their equipment, in the most effective and planned manner, against the likely tactics of an enemy, in an environment which approximates a real combat situation.

In addition to being hard to define, the impact of realism is difficult to measure. As discussed in chapter 5, USAFE training programs do not include some realistic elements, but USAFE officials were unable to tell us how this lack of realism has affected readiness. This makes it difficult to identify the impact of increased realism on readiness or assess the cost benefits of USAFE actions. Nevertheless, USAFE's very expensive and sophisticated aircraft may be underutilized if personnel are not sufficiently prepared to maximize their capabilities. In some instances (as described below), USAFE is expending considerable funds to obtain more realistic training.

USAFE actions to improve training realism

Since 1976, USAFE has taken numerous steps aimed at increasing the quality, principally realism, of its training. We did not assess the extent of effectiveness of all these various programs. Some of these actions--in process or planned at this time--include:

- Introducing, in January 1977, a squadron of F-5 aircraft to act as aggressors in dissimilar air combat training. The F-5s, employing Soviet tactics, engage in air-to-air combat with USAFE's

F-4 and F-15 aircraft. Training is presumed to be more realistic because USAFE aircraft confront dissimilar aircraft using the enemies' tactics.

- Developing an integrated mission training exercise, similar to TAC's RED FLAG exercise which simulates mission planning, preparation, and accomplishment under anticipated combat conditions.
- Exchanging crews between USAFE and TAC. This effort began in 1976 and had the twofold benefit of exposing TAC crews to European conditions while at the same time allowing USAFE crews to receive special training in the United States. Four to five crews were exchanged monthly during fiscal year 1977. The program was discontinued in 1978 because of funding constraints.
- Improving training ranges. For example, an electronic warfare range in the United Kingdom became partially operational in August 1977. This range, the costs of which are shared by the United States and the United Kingdom, alleviates an electronic countermeasures training deficiency.

Perhaps the major training enhancement programed by USAFE is the planned introduction of the Air Combat Maneuvering Instrumentation (ACMI) system. This system allows pilots to fly realistic air-to-air combat missions and later review the battle on three dimensional displays showing all phases of the engagement, including simulated missile firings and hits. The USAFE Air Combat Instrumentation range, under development at Decimomannu, Sardinia, will be a joint-use facility shared by the German, British, Italian, and U.S. Air Forces. According to USAFE officials, this system will provide the opportunity to upgrade overall NATO air combat training through multinational interface, as well as to allow unilateral and joint tactics evaluation and development.

The Air Force presently has two ACMI systems operational in the United States, one at Nellis Air Force Base and one at Tyndall Air Force Base. The Air Force also shares range time on a Navy ACMI range at Oceana Naval Air Station. By 1984, the Air Force plans to have ACMI system capabilities at 14 locations, including USAFE and PACAF.

The USAFE Instrumentation system is programed to be operational in [deleted]. Although a multinational venture, the United States is unilaterally acquiring

and installing the U.S.-developed system at a cost of about [deleted] million. USAFE's share of one-time costs for access to the range and range development is estimated to be an additional \$4.4 million. Initial recurring costs of \$7 million per year are anticipated until 1980, thereafter they will drop to about \$5 million. ACMI is eligible for NATO infrastructure funding; however, USAFE officials said that current infrastructure funds have all been committed for other purposes. [

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USAFE exercises

Exercising is an important form of training. USAFE conducts many types of exercises which officials say demonstrate and enhance USAFE's capability to meet wartime aircraft flying requirements. However, we were precluded from examining the results of these USAFE exercises and, thus, cannot confirm USAFE's assessment of exercise performance or value.

According to USAFE officials, since June 1977, each USAFE tactical fighter and reconnaissance unit has been tasked on a regular and continuing basis to plan and conduct separate 5-day intensive unit flying training exercises. According to USAFE, these exercises are designed to increase sortie generation capability by exercising the unit's wartime mission at a wartime sortie rate. Combat realism is emphasized; sortie surge and quick-return procedures are practiced; limitations are surfaced, causes are identified, and actions are initiated to correct the identified factors limiting combat capability. Other specialized exercises test USAFE's ability to support augmentation forces at collocated operating bases, to streamline maintenance procedures for rapid aircraft turnaround, and to support maritime operations.

One of the principal advantages of having the U.S. Air Force in Europe, in our opinion, is that it can exercise and train units with our allies in the environment in which a war would be fought. USAFE units participate in a number of multinational exercises. However, we were told that many of these current exercises, provide training of limited value because:

--Host nation restrictions limit USAFE crews in practicing realistic concepts and tactics.

--In some instances, the role USAFE forces are assigned limits training. For example, USAFE squadrons will serve as aggressor squadrons for allied force practice, or Central Region forces will participate in maritime exercises in the Southern Region, which do not reflect anticipated wartime tasking.

--Some multinational exercises concentrate on command and control aspects.

According to USAFE's manager of exercise planning, USAFE is seeking ways to improve NATO exercises and joint training events which would enhance the capabilities of all NATO forces, as well as USAFE units.

OBSERVATIONS

In response to the increased Soviet-Warsaw Pact threat, USAFE planners have identified and programed new initiatives to defend against and counter these new capabilities. Current multiple programs cover the gamut of USAFE operations--base survivability and security, aircraft combat operations, augmentation forces, and training programs. It is estimated that significant expenditures will be required to accomplish these improvements.

In undertaking these improvements USAFE is tackling some critical and complicated problems areas, in which anticipated readiness gains are not easily quantifiable. USAFE's managers and planners should be commended for their efforts. We believe that USAFE should make a composite analysis of all these various elements so that its managers, the Air Force, and the Congress can see as clearly as possible what its status is, what needs to be done, which items are of greatest importance to enhanced readiness, and how the U.S. Air Force could most effectively allocate resources for USAFE's requirements.

The Secretary of Defense in his Defense Planning and Programming Guidance, dated March 11, 1977, indicated such an interest stating that DOD needed to enhance its capabilities to define and measure readiness, relate changes in resources applied to changes in readiness, and adjust allocations of Defense resources to attain the desired levels.

We agree. In an environment of limited resources and increased needs, every possible effort has to be made to maximize the resources that are available. This cannot be effectively accomplished until all the necessary factors are clearly laid out in terms of need, cost, effect on mission accomplishment, readiness benefits, and acceptable levels of achievement.

RECOMMENDATION TO THE
SECRETARY OF DEFENSE

We recommend that the Secretary of Defense request the Joint Chiefs of Staff to assess the implications of deploying TAC squadrons from the United States to collocated operating bases in Europe when adequate wartime support is not available and modify deployment plans for these squadrons as appropriate.

RECOMMENDATION TO THE
SECRETARY OF THE AIR FORCE

We recommend that the Secretary of the Air Force direct the Commander in Chief, USAFE, to initiate steps to better relate resources and readiness by making a composite analysis of all the elements that affect USAFE's capability to accomplish its mission. Specific elements that should be considered in this analysis are

- acceptable levels of readiness achievement recognizing mission priorities;
- an identification of shortfalls and related costs, in terms of both total requirements and their effect on acceptable levels of readiness achievement; and
- an identification of funding priorities in terms of benefits to be recognized in mission accomplishment.

USAFE'S COMMAND READINESS AS
REPORTED BY USAFE IN 1977 AND IN 1971

<u>Unit</u>	<u>Squadron</u>	<u>Aircraft</u>	<u>Average reported C-rating September 1977</u>	<u>Reported C-rating 1971 (note a)</u>
36th TFW	22d TFS	F-15	┌	┐ b/C-2
	53d TFS	F-15		
	525th TFS	F-15		
48th TFW	492d TFS	F-111F		b/C-3
	493d TFS	F-111F		
	494th TFS	F-111F		
	495th TFS	F-111F		
20th TFW	55th TFS	F-111E		
	77th TFS	F-111E		
	79th TFS	F-111E		
50th TFW	10th TFS	F-4E		b/C-2
	496th TFS	F-4E		
	313th TFS	F-4E		
			deleted	
86th TFW	526th TFS	F-4E		
	512th TFS	F-4E		
81st TFW	78th TFS	F-4D		C-3
	91st TFS	F-4D		
	92d TFS	F-4D		
52nd TFW	23d TFS	F-4D		
	81st TFS	F-4C		
	480th TFS	F-4D		
-	32nd TFS	F-4E		
401st TFW	612th TFS	F-4C		C-2
	613th TFS	F-4C		
	614th TFS	F-4C		
26th TRW	17th TRS	RF-4		
	38th TRS	RF-4		
10th TRW	1st TRS	RF-4	┌	┐
	d/30th TRS			
	d/32d TRS			
	d/307th TFS			
	d/353d TFS			

a/C-ratings reported by USAFE April and June 1971.

b/The type of aircraft assigned was different.

c/Unit undergoing conversion to type aircraft shown.

d/Units reviewed by GAO in 1971, no longer in Europe.

Note: C-1 = Fully ready
C-2 = Substantially ready
C-3 = Marginally ready
C-4 = Not ready

COMBAT READINESS REPORTING CRITERIA FOR U.S. AIR FORCE

STANDARD AIRCRAFT ORGANIZATIONS

Percent Required For Area

<u>AREA 1</u>	<u>C-1</u>	<u>C-2</u>	<u>C-3</u>	<u>C-4</u>	
Personnel	90-100	80-89	65-79	Less than 65	For units with an in-place generation tasking - indicates the percentage of the authorized essential personnel that are assigned/available. For units with a deployment tasking - indicates the percentage of the personnel required by a Unit Type Code (UTC) package that are assigned/available to deploy.
<u>AREA 2</u>					
Equipment/supplies on hand	90-100	83-89	55-82	Less than 55	A specified percentage of applicable UE authorized support equipment, WRSK, BLSS, spare engines, aircraft, and peacetime operating stocks assigned and available to the unit.
<u>AREA 3</u>					
Equipment readiness	75-100	57-74	41-56	Less than 41	A measure of the major equipment (aircraft) authorized that is ready to accomplish the assigned mission.
<u>AREA 4</u>					
Training	85-100	70-84	55-69	Less than 55	A percentage of authorized/formed crews that are assigned and mission ready.

NOTE 1: The percentages in the measured areas are for the commander to determine unit warfighting capability. The criteria for reporting in each of the measured areas have been developed to assist the commander in assessing unit readiness to perform its combat mission. The commander, however, must consider all available factors. In those instances where the rating derived using the criteria differs from his judgment of the actual combat capability, he will submit a commander's estimate of capability accompanied by justification and rationale in the remarks section. In no case will computed measured areas percentages or rating be changed.

NOTE 2: Measured Area 3, equipment readiness, will reflect the commander's forecast for the reaction time subsequent to the "as of" time of the report being submitted. The commander's forecast, should be based upon those conditions he anticipates will prevail over the reporting period and be based upon the resources available to him. Appropriate remarks will be submitted when the commander's forecast for Measured Area 3 differs from what is reported in card types L and M.

NOTE 3: The C-rating and personnel data reported in FORSTAT for units designated to be augmented with AFRES/ANG resources should reflect only their authorized/assigned/available personnel capability. Augmentee personnel represent a capability only in the event that they are assigned to the unit upon mobilization.

NOTE 4: Units will use crews authorized rather than crews formed in computing C-ratings for training (Measured Area 4) when crews formed exceed crews authorized.

6-MONTH AVERAGE OF MAJOR ITEMS

CAUSING AIRCRAFT TO BE NON-MISSION CAPABLE--MAINTENANCE

OCTOBER 1977 THROUGH MARCH 1978

F-4 aircraft [deleted] authorized aircraft)		Average monthly non-mission capable--maintenance (NMCM) percent-- [deleted]		Grounded aircraft equivalent
Cause	Average NMCM percent	Percent of impact		
Special inspections				
Engine				
Radio navigation				
Fuel system				
Flight control		deleted		
Landing gear				
F-111 aircraft [deleted] aircraft authorized)		Average monthly non-mission capable--maintenance (NMCM) percent-- [deleted]		Grounded aircraft equivalent
Cause	Average NMCM percent	Percent of impact		
Engine				
Fuel system				
Bombing navigation				
Airframe				
Flight controls		deleted		
F-15 aircraft [deleted] authorized aircraft)		Average monthly non-mission capable--maintenance (NMCM) percent-- [deleted]		Grounded aircraft equivalent
System affected	Average NMCM percent	Percent of impact		
Engine				
Airframe				
Fuel system				
Scheduled inspection				
Landing gear		deleted		
RF-4 aircraft [deleted] authorized aircraft)		Average monthly non-mission capable--maintenance (NMCM) percent-- [deleted]		Grounded aircraft equivalent
Cause	Average NMCM percent	Percent of impact		
Radio navigation				
Special inspections				
Scheduled inspections				
Engine		deleted		
Fuel system				
Flight control				

TOP FIVE SUPPLY ITEMS AND SYSTEMS CAUSING
AIRCRAFT TO BE LESS THAN FULLY MISSION
CAPABLE IN DECEMBER 1977

F/RF-4 Items (Total incidents--1,543)

<u>Item</u>	<u>System affected</u>	<u>Number of incidents</u>	<u>Percent of impact</u>
Receiver transmitter	Radio navigation	52	
Platform gyro	Radio navigation	32	
Liquid oxygen converter	Oxygen system	22	
Navigation computer	Radio navigation	22	
Receiver transmitter	Radio navigation	<u>18</u>	
		<u>146</u>	<u>9.5</u>

Systems Most Effected

<u>System</u>	<u>Number of incidents</u>	<u>Percent of impact</u>
Radio navigation	208	15.0
Fire control	117	8.4
Flight control	117	8.4
Instruments	105	7.6
Jet engine	103	<u>7.4</u>
		<u>46.8</u>

F-111 Items (Total incidents--857)

<u>Item</u>	<u>System affected</u>	<u>Number of incidents</u>	<u>Percent of impact</u>
Receiver transmitter	Electronic countermeasure	29	
Liquid oxygen regulator	Oxygen system	21	
Navigation light	Aircraft lighting	17	
Electronic actuator	Weapons delivery	16	
Stabilized platform	Bomb navigation	<u>16</u>	
		<u>99</u>	<u>11.6</u>

Systems Most Effected

<u>System</u>	<u>Number of incidents</u>	<u>Percent of impact</u>
Bomb navigation	126	15.9
Flight control	91	11.5
Electronic counter- measure	70	8.8
Airframe	68	8.6
Jet engine	60	<u>7.6</u>
		<u>52.4</u>

F-15 Items (Total incidents--161)

<u>Item</u>	<u>System affected</u>	<u>Number of incidents</u>	<u>Percent of impact</u>
Wide band amplifier	Fire control	9	
Multiplex indicator	Fire control	6	
Packing performed	Jet engine	6	
Hinge butt	Airframe	5	
Parametric amplifier	Fire control	<u>3</u>	
		<u>29</u>	<u>18</u>

Systems Most Effected

<u>System</u>	<u>Number of incidents</u>	<u>Percent of impact</u>
Fire control	42	35.3
Landing gear	12	10.1
Airframe	10	8.4
Jet engine	9	7.6
Flight control	4	<u>3.4</u>
		<u>64.8</u>

USAFE WRM STATUS UNDER

FISCAL YEAR 1977 REQUIREMENTS

<u>Item</u>	<u>Authorized</u>	<u>On hand</u>	<u>Excesses</u>	<u>Shortage</u>
----- (in millions) -----				
Munitions				
Aviation fuel				
Aviation oil				
Ground petroleum				
Aircraft auxiliary fuel tanks (note c)				
Pylons and adapters (note c)				
Bomb racks				
Gun pods				
Guns and gun barrels				
Other consumables				
Chaff				
Liquid oxygen (note d)				
De-icing fluid				
Film (note e)				
Base level self-sufficiency support (BLSS) (note f)				
War readiness spare kits (WRSK) (note f)				
Station sets (MAC-SAC)				
Housekeeping and administrative equipment and supplies to support augmentation forces				
Bomb damage repair vehicles				
Rations (in-flight) (note g)				
Harvest Eagle packages				
Vehicles to support augmentation forces				
Total (note i)				

deleted

a/Munition dollar values are based on fiscal year 1978 requirements as the dollar values under fiscal year 1977 requirements were not available. Also, these figures were rounded to the nearest million dollars.

b/The gun pods actually have an excess of \$49,295.

c/The figures for tanks, racks, adapters, and pylons show excesses as well as shortages because the excess assets may not be interchangeable on all aircraft types.

d/Dollar figures for liquid oxygen are unavailable as the value in each location varies due to electricity rates.

e/The dollar values for film assets are:
 Authorized: \$19,584
 On hand : \$ 3,595
 Shortage : \$15,989

f/The figures for BLSS and WRSK have changed but estimates were not available as of January 1978.

g/The actual values for in-flight rations are:
 Authorized: \$48,134
 On hand : \$48,049
 Shortage : \$ 85

h/The excess chaff cannot be used to alleviate shortages because it represents different kinds and uses of chaff.

i/The data on this table is the most recent information available from USAFE, Headquarters. The "as of dates" extend from September 1977 through January 1978.

USAFE's VEHICLE POSTURE--

NOVEMBER 1977

I. Combined Posture--Peacetime and

<u>Vehicle type</u>	<u>Wartime Assets</u>			<u>Firm due ins</u>	<u>Tentative due ins</u>
	<u>Authorized</u>	<u>On hand</u>	<u>Percent</u>		
General purpose	7,837	6,976	89.0	730	1,392
Special purpose	2,043	1,833	89.7	121	181
Materiel handling equipment	1,055	655	62.1	16	113
Base maintenance	1,083	977	90.2	48	66
Fire fighting	249	250	100.4	18	6
Total	<u>12,267</u>	<u>10,691</u>	<u>87.2</u>	<u>933</u>	<u>1,758</u>

Shortage: 1,576

Old assets that should be replaced: 3,158

Total firm/tentative due ins: 2,691

II. Peacetime Assets Only

<u>Vehicle type</u>	<u>Authorized</u>	<u>On hand</u>	<u>Percent</u>	<u>Replace- able</u>	<u>Percent</u>
General purpose	6,921	6,780	97.9	2,099	30.9
Special purpose	1,648	1,559	94.6	471	30.2
Materiel handling equipment	653	605	92.6	153	25.3
Base maintenance	1,008	955	94.7	165	17.3
Fire fighting	249	250	100.4	33	13.2
Total	<u>10,479</u>	<u>10,149</u>	<u>96.8</u>	<u>2,921</u>	<u>28.8</u>

III. War Reserve Assets

<u>Vehicle type</u>	<u>Authorized</u>	<u>On hand</u>	<u>Percent</u>	<u>Replace- able</u>	<u>Percent</u>
General purpose	916	196	21.3	107	11.7
Special purpose	395	274	69.3	99	36.1
Materiel handling equipment	402	50	12.4	30	60.0
Base maintenance	75	22	29.3	1	4.5
Total	<u>1,788</u>	<u>542</u>	<u>30.3</u>	<u>237</u>	<u>43.7</u>

SUMMARY OF THE WRSK/BLSS POSTURE
OF USAF TACTICAL AND RECONNAISSANCE AIRCRAFT
AS OF SEPTEMBER 1977

WRSK		BLSS	
Authorized aircraft	Number	Authorized Dollars	Shortage dollars
	Units	Units	Percent
	(in millions)	(in millions)	(in millions)

deleted

USAFE'S AIRCREW
C-RATINGS (SEPTEMBER 1977)

<u>Unit</u>	<u>Squadron</u>	<u>Aircraft</u>	<u>USAFE's reported monthly average aircrew C-rating</u>
36th TFW	22d TFS	F-15	┌
	53d TFS	F-15	
	525th TFS	F-15	
48th TFW	492d TFS	F-111F	┐
	493d TFS	F-111F	
	494th TFS	F-111F	
	495th TFS	F-111F	
20th TFW	55th TFS	F-111E	
	77th TFS	F-111E	
	79th TFS	F-111E	
50th TFS	10th TFS	F-4E	
	496th TFS	F-4E	
	313th TFS	F-4E	
86th TFW	526th TFS	F-4E	deleted
	512th TFS	F-4E	
81st TFW	78th TFS	F-4D	
	91st TFS	F-4D	
	92d TFS	F-4D	
52d TFW	23d TFS	F-4D	
	81st TFS	F-4D	
	480th TFS	F-4D	
	32d TFS	F-4E	
401st TFW	612th TFS	F-4C	
	613th TFS	F-4C	
	614th TFS	F-4C	
26th TRW	17th TRS	RF-4	
	38th TRS	RF-4	
10th TRW	1st TRS	RF-4	└

a/Unit undergoing conversion to type aircraft shown.

NOTE: C-1 = Fully ready (85-100 percent of aircrews).
 C-2 = Substantially ready (70-84 percent of aircrews).
 C-3 = Marginally ready (55-69 percent of aircrews).
 C-4 = Not ready (less than 55 percent of aircrews).

Ordnance Training Ranges in Europe
 Available to USAF Forces and the Type
 Of Events That Can Be Performed at Each

	Low angle strafe	High angle strafe	Rockets	Low angle high drag	Low angle low drag	Dive bomb	High altitude dive bomb	Dive toss	High altitude dive toss	Stabilized climb	Loft toss	Radar lay down	Visual lay down	Radar low angle drag delivery	Visual low angle drag delivery	LORAN
X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
			X													
X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
X			X	X	X		X					X	X	X	X	X
X		X	X	X	X	X	X	X	X	X		X	X	X	X	X
				X					X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X				X	X	X	X	X
		X	X	X	X	X	X	X	X							
												X	X	X	X	X
X		X	X	X	X	X	X					X	X	X	X	X
				X					X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		X	X	X	X	X	X					X	X			

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USAF'S PRIORITIZED SURVIVABILITY INITIATIVES

PRIORITIZED SORTIE GENERATOR ITEM/ PROGRAM

PROGRAM SUB-ELEMENTS	
SEMI-HARDENED CONSTRUCTION	LAUNCH/RECOVERY
CHEMICAL WARFARE	
ESSENTIAL OPERATIONS FACILITIES	
BASE PROTECTIVE MEASURES	
MUNITIONS-POL STORAGE	
COMMUNICATIONS SURVIVABILITY	
ALTERNATE PAVEMENTS	
RRR EQUIPMENT	
CATAPULT BARRIER	
RESEARCH AND DEVELOPMENT	

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AIRCRAFT SHELTER SUMMARY

<u>Bases</u>	<u>Aircraft authorized</u>	<u>Shelters required</u>	<u>Completed as of October 1977</u>	<u>Programed through fiscal year 1979</u>	<u>Requirements not completed or programed through fiscal year 1979</u>
Main operating bases:					
Bitburg					
Hahn					
Ramstein					
Sembach					
Spangdahlem					
Zweibruecken					
Camp New Amsterdam					
Aviano					
Incirlik					
Alconbury					
Bentwaters					
Lakenheath					
Upper Heyford					
Woodbridge					
Total			deleted		
Collocated operating bases:					

PROPOSED BASING IN EUROPE FOR
TACTICAL AND RECONNAISSANCE WARTIME

AUGMENTATION UNITS AS OF

OCTOBER 1977

Bases

Main operating bases:

deleted

Collocated operating bases:

deleted

* U.S. standby bases

(947261)



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