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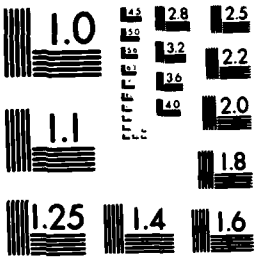

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USAF
OPERATIONAL MAJOR COMMAND
FUNCTIONAL AREA REQUIREMENT

15 December 1982
Under Contract
F49642-82-C-0045

Prepared by

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Prepared for

UNITED STATES AIR FORCE
READINESS ASSESSMENT GROUP
(AF/XOOIM)

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ABSTRACT

This Functional Area Requirement (FAR) describes readiness information requirements for Air Force Major Commands. It discusses the information requirements at three management levels: Air Staff, Major Command, and Wing. The desired characteristics of an operational readiness measurement system are presented and the shortfalls of current systems are discussed. A low risk method of implementing an operational Air Force Integrated Readiness Measurement System (AFIRMS) is recommended.

PREFACE

This document has evolved from the contributions of numerous personnel familiar with the readiness measurement problems of the Air Force. It is intended to supplement, not replace, the two previously published AFIRMS FARs.

The authors recognize the complexity of readiness measurement and appreciate the assistance received that made possible this publication. Comments, clarifications, and suggestions for improvement are solicited. Please forward these to: Department of the Air Force, AF/XOOIM, The Pentagon, Washington, D.C. 20330.

The AFIRMS staff wishes to thank all Air Force personnel who granted us the time for interviews, presented briefings and material, and allowed us to observe the operation of their functional areas. We appreciate the time, concern and hospitality extended to us. Any errors of fact or interpretation are the responsibility of the authors.

EXECUTIVE SUMMARY

The AFIRMS Program

The Air Force Integrated Readiness Measurement System (AFIRMS) program was initiated by the Directorate of Operations and Readiness, Headquarters United States Air Force in April, 1978. The objective of the program is to provide Air Force decision-makers and their staffs with a complete, timely, and accurate assessment of their operational readiness.

The initial thrust of the program concentrated on an effort to examine the "user" viewpoint of readiness information needs. Interviews were conducted with Air Force personnel who represented all levels of command from a broad cross section of functional areas. The compilation and analysis of data collected during these interviews were published in two Functional Area Requirements. The first, USAF AFIRMS FAR, 14 March 1980, concentrated on the deployment and employment of Tactical Air Command units. The second, USAFE Annex to USAF FAR, 20 August 1982, expanded the information to include units in USAFE. This document, USAF Operational MAJCOM FAR, expands coverage to the Military Airlift Command and the Strategic Air Command in particular, but relates to all major operational commands in general (PACAF, AAC, AFLC, ATC, RDJTF, etc.).

Readiness Information Requirement

The requirement for readiness information is examined at three echelons of Air Force management: the Wing, the Major Command, and the Air Staff. Managers at the Wing require readiness information to evaluate their ability to accomplish tasking from higher headquarters. They require an integrated look at Wing resources in order to efficiently produce combat sorties. The MAJCOMs require an aggregated look at their Wings' readiness posture to properly plan and issue tasking orders, and to acquire and properly position the necessary resources among the Wings. Accurate and timely readiness measurement is needed by the Air Staff to make efficient decisions concerning budget, policy, resource allocation, and force level guidance.

Although not covered in this document, it is recognized that readiness information is required by other organizations such as OSD, JCS, Unified Commands, Joint Commands, and Allied Commands. AFIRMS should provide support at these levels too.

To satisfy management needs, a readiness measurement system must display certain critical characteristics. To accurately measure readiness the system must be tasking-based. Current resources cannot simply be counted. They must be compared to the resources required to accomplish tasking in order to reflect true readiness. The data collected and computed must be accurate and must be presented in a timely manner. For proper decision response, managers need accurate information relayed to them promptly. The measurement system must also present an integrated picture of resource requirements. Isolated counts of resources are not acceptable. Integrated readiness measurement must collectively consider those resources required to accomplish a task.

Conclusions

None of the current readiness measurement systems meet the critical characteristics required for proper management decisions. That is, there does not currently exist an integrated, tasking-based readiness measurement system that is accurate and timely. The systems used today primarily furnish resource counts that often must be verified with manual calculations and numerous phone calls. Managers lack confidence in the accuracy of the data and the information may arrive too late to support critical decisions. A clear need exists for a reliable Air Force Integrated Readiness Measurement System.

Recommendations

The Air Force should continue its program to provide an integrated readiness measurement system with the characteristics required to meet management needs. The proposed approach is an AFIRMS Learning Prototype Phase (LPP).

The LPP will establish an AFIRMS testbed with components at a USAFE Wing, USAFE Headquarters, and Headquarters USAF (Air Staff/XOOIM). Trials run on this testbed will be used to design an operational readiness measurement system. The LPP is a low risk approach to provide a detailed functional description, functional specification, data requirements document, and implementation plan that will allow the Air Force to establish an Operational AFIRMS.

Section 1

INTRODUCTION

1.1 Background

The Air Force Integrated Readiness Measurement System (AFIRMS) program was initiated by the Directorate of Operations and Readiness, Headquarters United States Air Force in April, 1978. The objective of the program is to provide Air Force decision-makers and their staffs with a complete, timely and accurate assessment of their operational readiness.

In order to determine the user requirements for an effective readiness measurement system, interviews were conducted with Air Force personnel representing all levels of command and various functional areas within Headquarters Air Force, Tactical Air Command (TAC), Strategic Air Command (SAC), Military Airlift Command (MAC), Air Force Logistics Command (AFLC), United States Air Forces in Europe (USAFE) and the North Atlantic Treaty Organization (NATO). The results of the analysis and compilation of the data gathered during these interviews were published in two reports:

- USAF AFIRMS Functional Area Requirement (FAR), 14 March 1980 (major emphasis on TAC)
- *USAFE Annex to USAF Functional Area Requirement*, 20 August 1982 (major emphasis on USAFE Tactical Fighter Wing)

This document expands the scope of the information contained in the 1980 USAF FAR to include requirements of SAC, AFLC, MAC and TAC in a single report that emphasizes the general readiness measurement requirements of a USAF operational Major Command (MAJCOM). Based on the many interviews conducted, a general statement of requirements which supports all operational commands has been identified. This FAR continues the extensive study and analysis needed to accurately identify Air Force requirements for readiness measurement information.

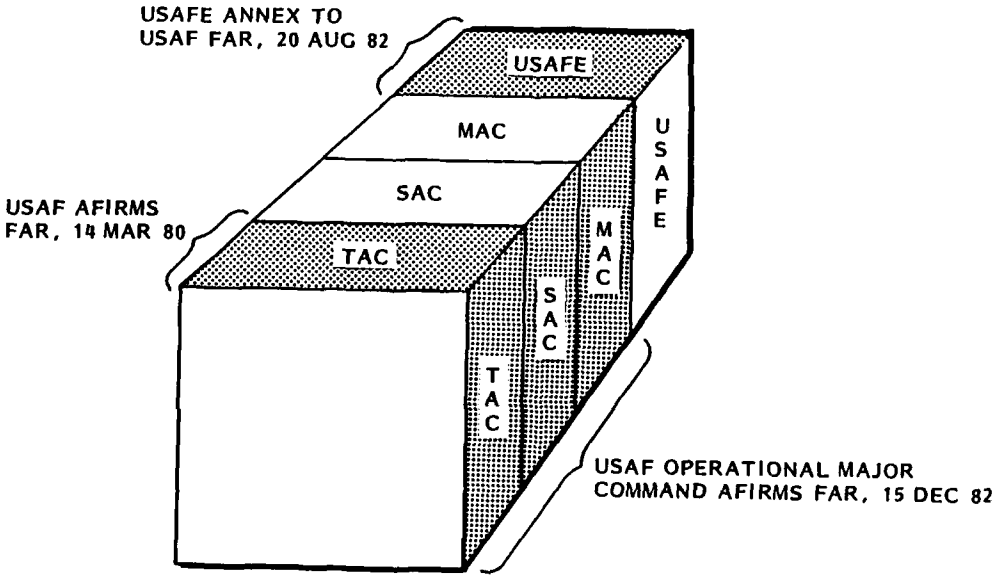

Figure 1-1. Functional Area Requirements

1.2 What This Document is Not

Having stated that this document is about readiness measurement, it is important to state what it is not about. It is not concerned with a specific solution to the problem of satisfying the stated requirements nor is it concerned with providing a cost justification for a solution to that problem. Those functions will be accomplished during the AFIRMS Learning Prototoype Phase (LPP). The stated objective of this document is to firmly establish the need - the WHY and WHAT - for AFIRMS.

1.3 The WHY

Operational readiness is a critical consideration in many Air Force decisions. Accurate and timely force readiness information is needed to support:

1) Development of the Program Objective Memorandum (POM)
   - Requires a capability to associate dollars to readiness
2) Force planning and sustainment evaluation
3) Crisis management
   - Requires the selection of unit(s) to respond
   - Requires the determination of sustainment duration, shortfalls, and evaluation of possible corrective actions or courses of action
4) Daily operations
   - Requires support of efficient allocation and employment of resources to maintain readiness and current operations

To satisfy these needs, readiness must be stated in terms of units' ability to perform assigned tasking. There are also requirements to evaluate past readiness, current readiness and the readiness of alternative future forces.

Although several methods are currently used for assessing operational readiness, a consensus of Air Force decision-makers reflects dissatisfaction with the quality and timeliness of the readiness measurement information they are provided. For example, a response to a crisis or contingency situation requires rapid and accurate assessment of force readiness to perform specified tasking. As a crisis situation changes, the source data representing that situation may change significantly. Decision-makers and their staffs do not currently have the tools available to allow them to quickly and easily determine overall readiness and sustainment, assess readiness information, nor to present it in a usable form. The level of detail, manner of expression or structure of the data may not be appropriate for readiness assessment purposes.

During interviews with Battle Staff/Contingency Support Staff (CSS) personnel it was learned that much data must be manually processed before it is usable. In many cases, the validity of the data is suspect, and frequent phone calls, often over secure lines, must be made to verify and clarify data. Even after involved manual processing, the posture of resources that affect the required readiness assessment is not always apparent. Nevertheless, large quantities of data are collected, reported and processed daily in an attempt to provide the desired information.

Current readiness measurement systems concentrate on a comparison of available resources to resources required for the completion of a "standard" mission. There is no attempt to take into consideration the "actual" or tasked mission which may vary significantly from the "standard". For the readiness measurement to be accurate, it must be based on tasking. A functional area requirement exists for accurate and timely tasking-based readiness information.

1.4 The WHAT

Before prescribing a solution to the readiness measurement problem it is necessary to first specify what information the users need. This is done by examining and describing the decision-making activities in the Air Force that require readiness measurement information. Once the requirements are determined, the desired properties, such as completeness, accuracy, level of detail or aggregation, and availability, can be specified. This provides a baseline against which the limitations and deficiencies of current methods can be measured, or improved methods may be judged.

Specifically, the AFIRMS FAR:

- Presents readiness measurement information requirements in the relevant Air Force context
- Assesses current readiness measurement products
- Presents conclusions
- Recommends management actions

1.5 Scope

Rather than attempt a detailed study of the information requirements of the entire community, the scope of the analysis described in this document was constrained through several simplifying assumptions. To illustrate these constraints, a three dimensional cube will be used. Figures 1-2 through 1-4 will show the partitioning in each plane. Figure 1-5 will combine the three planes to provide a total look at the scope of the analysis.

First, this analysis presents the general information requirements of operational Major Commands (MAJCOM): the Strategic Air Command (SAC), the Tactical Air Command (TAC), and the Military Airlift Comand (MAC). Although the roles of each of these commands is unique, the organizational structures manifest many common characteristics. Maintaining an operational MAJCOM view limits the level of detail without detracting from a meaningful presentation of readiness information requirements. It is understood that there are other MAJCOMs in the Air Force, and they are sources for much essential readiness information. However, for purposes of focus and clarity, the term MAJCOM in this document will refer only to TAC, MAC or SAC. Any reference to other Major Commands will be made by specific name.

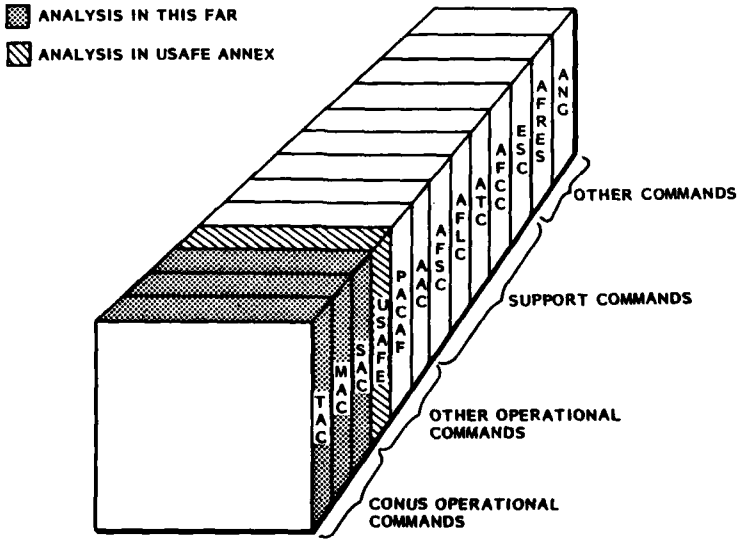

Figure 1-2. Air Force Major Commands

Second, Air Force management was assumed to operate during two conditions: peace and crises. Peace represents the day-to-day management or "business" view. Crises represent a continuum of conditions that may require military action ranging from a show of force to limited use of force to sustained war.

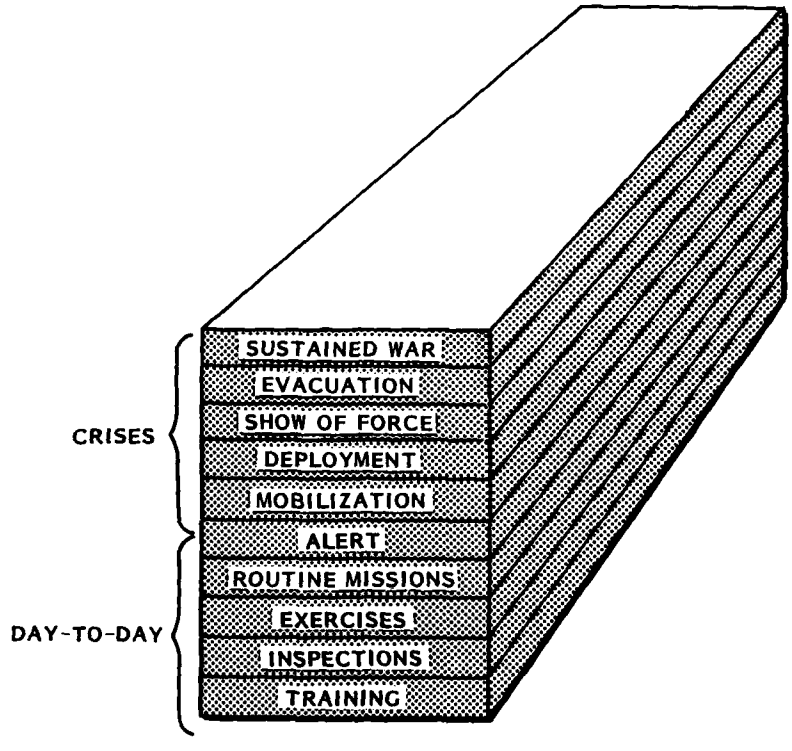

Figure 1-3. Scope of Conditions

Third, the management of Air Force units receives direction and guidance from different echelons up to and including Congress and the White House (Figure 1-4). The scope of this FAR will be limited to Headquarters USAF (Air Staff), MAJCOM and Operational Wing. Air Staff responsibility includes budget, policy, resource allocation and force level guidance and decision-making. MAJCOM is concerned with resource management and goal setting. Wing management describes Wing activities required to generate sorties.

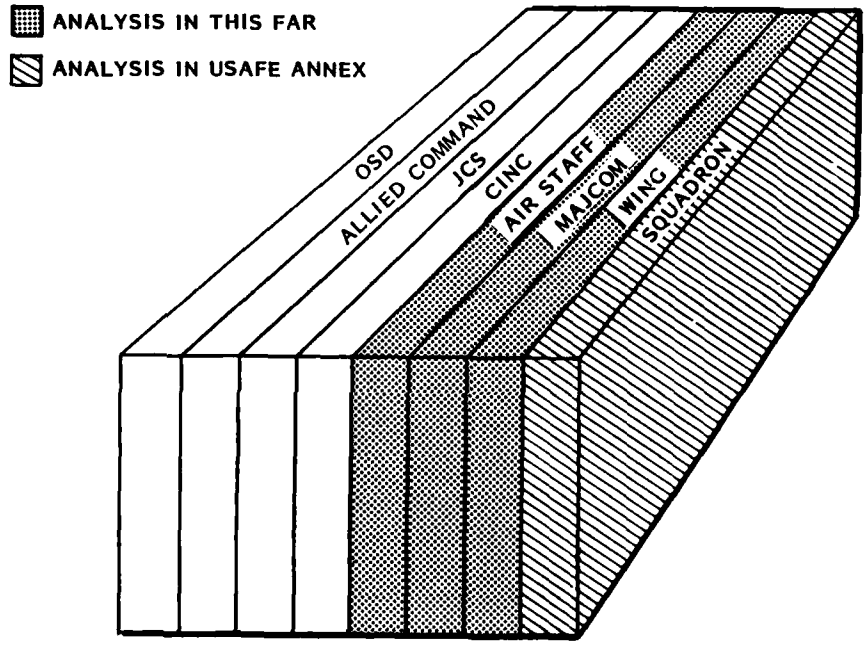

Figure 1-4. Air Force Levels of Management

At these management levels much of the source information is the same, but the information requirements are different because the points of view and responsibilities are different. At the Wing level a relatively structured situation exists where specific tasks require detailed information near real-time. A semi-structured situation exists at the MAJCOM level where decision-makers require aggregated data. Except during a crisis, the data is required with less currency and rapidity than at the Wing. At the Air Staff level, with the exceptions of contingency or crisis, there are very long range and broad management problems such as force modification, operational planning, budget programming and threat quantification. The information is required in highly aggregated form for some purposes; however, unpredictable requirements for details may occur to support Air Force program budgets or to plan force assignments to meet perceived threats. The shaded area of the figure below indicates the scope of this study.

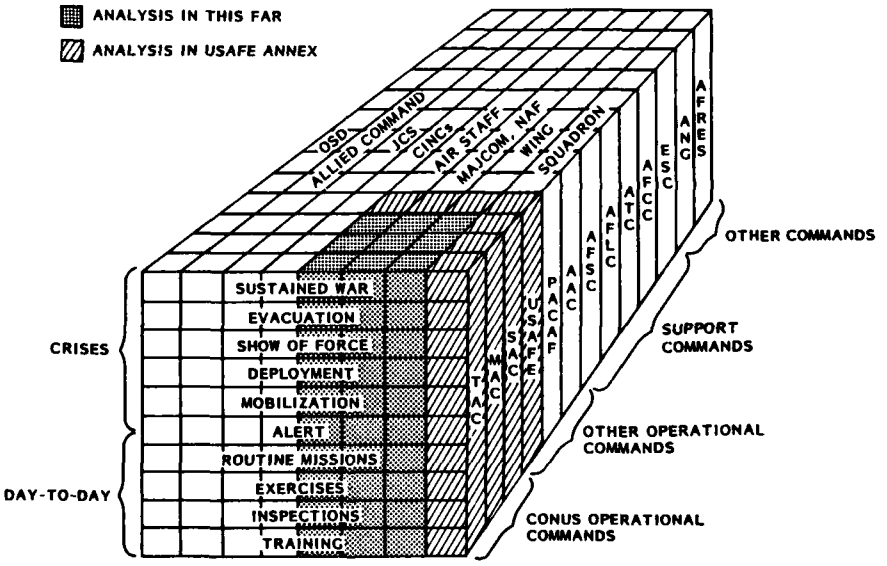

Figure 1-5. Scope of FAR

Finally, this analysis addresses only readiness measurement information requirements as opposed to all information requirements. This significantly reduces the scope since other kinds of information requirements are apparent and could be derived from the models in this study. The criteria for distinguishing readiness measurement information requirements from other information requirements is included in Section 1.8, Working Vocabulary.

1.6 Approach

The Functional Area Requirement for AFIRMS has resulted from the careful analysis of user needs. The importance of the conceptual phase of system study and development is emphasized in AFR 300-15, 16 January 78, paragraph 1-6b.

> "Analyzing the Requirements. After the requirements have been stated, they must be analyzed to identify and define any problems that will be involved in providing, changing, or converting a management or operational capability to meet the requirement. The set of requirements that emerges after this analysis is the main tool used in project direction and control. Since the inability to produce this governing set of requirements may be a sign that the project is not needed, it is essential that: (1) The analysis be thorough and avoid specifying any specific design solution. (2) The analysis documentation defines the requirements clearly and fully."

The approach used to achieve these goals for AFIRMS consists of three essential elements. First, the desired user capability is defined in the form of readiness measurement information requirements. Next, automated and manual methods currently used for readiness evaluation are examined. Finally, the difference between desired and actual capabilities is presented in terms of deficiencies (unmet requirements) and limitations (poorly met requirements). Valid recommendations can be made once these steps have been performed.

1.7 Technique

The information presented in this document is the result of the extensive study and analysis of what users do, what decisions they make, the information used to influence those decisions and the properties of that information. The information requirements presented in this FAR are not the system builder's preferences nor the combined wish lists of real and imagined users of the proposed system. The primary source of the information used to derive the requirements was interviews of a cross section of Air Force personnel at all levels of command who prepare and use readiness measurement information. Additionally, significant effort was devoted to comprehending the processes, policies, procedures and organization of the Air Force in order to understand the decisions to be supported by readiness measurement information.

Interviews proceeded from the Air Staff through the Wing level with direction provided by AF/XOOIM. The use of this path allowed an appreciation of the controlling information and activities at higher command levels and also aided in understanding the control and execution of operations at the Wing level. Comparisons of how readiness measurement and the associated information requirements are viewed at each command level were explored. The user's viewpoint and requirements were always the main points of consideration.

The main tool for the analysis of the information requirements was a disciplined analysis technique called SADT™ - Structured Analysis and Design Technique, a trademark of SofTech, Inc. SADT consists of a graphical language for describing systems. The language describes the relationships between activities and data within a system such that people with diverse backgrounds can understand the system being described. This language allows unambiguous communication of information between analysts and people interviewed. The technique includes a precise method for developing the descriptions as well as procedures for documenting the analysis process. The SADT language is used in Section 2, Readiness Measurement Information Requirements, to present the results of the requirements analysis. These SADT diagrams have been through a thorough review cycle by Air Force personnel interviewed as well as AF/XOOIM and project personnel.

1.8 Working Vocabulary

For purposes of readiness measurement in the AFIRMS context, it was necessary to choose precise meanings for readiness related terms from the numerous meanings in current usage. The reader must be familiar with the terms as they are defined in this section; otherwise, the content of succeeding sections may be unclear. Specifically, the section addresses the terms readiness, capability, effectiveness and sustainability. A complete working set of readiness measurement terms is presented in the Appendices.

Since it is the operational readiness of the force that is of interest, the properties being measured to provide an assessment of readiness are derived from models of the Wing operations. For readiness measurement purposes, readiness has meaning only in terms of capability to perform specified tasking; thus, readiness is defined as the ability of the unit to perform the tasking specified in an OPLAN, frag order, or flying schedule. (The current JCS definition of readiness is contained in Appendix B.)

Note that capability, as defined here, is not a function of threat; threat is implicit in the tasking. Also, in this FAR the concept of readiness is not extended to military effectiveness. Effectiveness is concerned with what is required to achieve political goals, and those issues are not addressed in this document.

In the AFIRMS context, readiness is separated from sustainability. Sustainability refers to the maintenance of a certain level of capability over a specified period of time. Sustainability is an important issue and will be addressed in this document.

1.9 Structure

The remainder of this document will: present readiness measurement information requirements, assess current readiness measurement and present conclusions from the analysis. The readiness measurement information requirements in Section 2 are presented in the context of a management decision network. SADT models describe three management levels and show the

data needed to carry out management functions in response to crises and day-to-day situations. Models and tables show the decisions to be made and how readiness measurement information requirements are similar or different relative to command level and viewpoint. Readiness measurement information requirements are addressed in terms of content, timing and format.

In Section 3 readiness measurement products are discussed in historical perspective from 1947, and current Air Force readiness assessment systems are identified. Readiness concepts, such as C-ratings and percentages, are evaluated. The limitations and deficiencies of current readiness measurements are explained by focusing on the metric used, the fidelity of the measurements (precision, timeliness, and synchronization) and the coherence of current readiness information. After comparing readiness measurement information requirements to existing capabilities, Section 3 highlights readiness measurement needs.

The conclusions in Section 4 summarize the needs pointed out in Section 3. An improved method of readiness measurement is required to provide more accurate and timely information. The main requirements presented are a tasking-based readiness metric expressed in standard units or language and a method of deriving required readiness in terms of sorties by mission type. Section 5 contains recommendations for developing an operational AFIRMS.

Section 2

READINESS MEASUREMENT INFORMATION REQUIREMENTS

2.1 Overview

This section presents readiness measurement information requirements in the context of management decisions that depend on readiness information. SADT models are used to describe these requirements. Collectively, these models form a management decision network operating continuously with changing emphasis as the world situation dictates. This model network is explained in Section 2.3.

The functions (activities) in the models occur at three different levels: Air Staff, MAJCOM and Wing. The information (data) in the models is needed to accomplish the functions. The first diagrams that appear in Sections 2.4 and 2.5 are overviews of the models.

There is text above each diagram to explain the activities and decisions taking place. Opposite each page with the text and model diagram is a table that correlates to the diagram. Readers should read the text, scan the diagram and then correlate the table with the diagram.

The purpose of the tables is to specify the information required to make the decisions or perform the activity listed in the first column of the table. The boldface underlined activities in the first column match the activities on the overview diagram. Thus, on two facing pages the reader can see one command level of the management decision network in either day-to-day (Section 2.4) or crisis (Section 2.5) mode, and the information needed to support each function. For readers wishing to skip the foldout detailed tables, the first two pages of Sections 2.4 and 2.5 contain high level summaries (with tables and diagrams) of the general information requirements.

While reviewing the tables, keep in mind that these resources, as well as the data about them, must be integrated to yield a measurable unit of readiness. The resources are assumed to be compared against some form of tasking and the number of requirements that apply in each situation depends on that tasking.

2.2 How to Read an SADT Model

Sections 2.4 and 2.5 contain models of Air Force management using diagrams developed with Structured Analysis and Design Technique (SADT). This graphic technique uses a series of diagrams to describe a system with each level of diagrams representing a greater level of detail.

The top level diagram is a single box representing a major activity. That box is broken down into another diagram containing three to six boxes that detail the major activity into sub-activities. Likewise, each of those boxes could, in turn, be broken down into a diagram containing more boxes. (See Figure 2-1). The break out continues until the desired level of detail is reached, or the description is exhausted or complete.

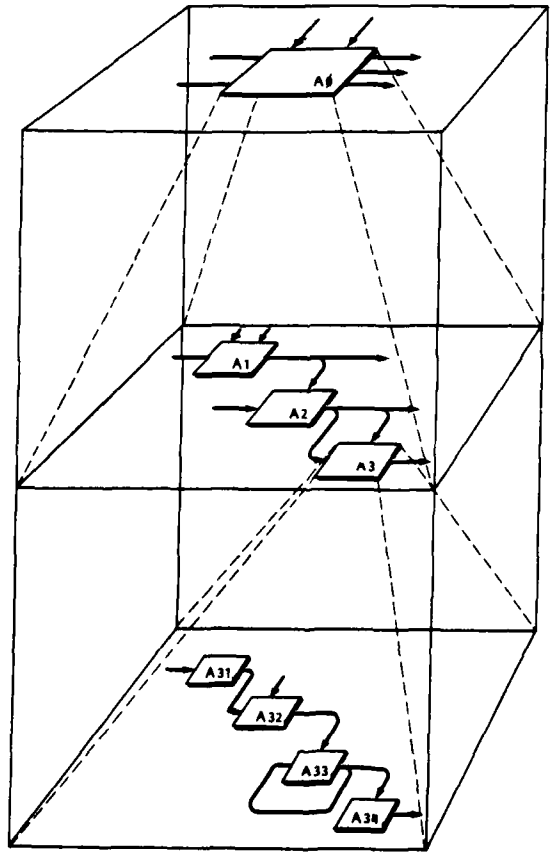

Figure 2-1. SADT Diagram Breakdown

Each box in a diagram represents a specific activity and is named with a verb or verb phrase. Each of the four sides of the box represents a specific type of data: input data enters on the left side; control data enters on the top; output data exits on the right side; and, mechanisms enter on the bottom (Figure 2-2).

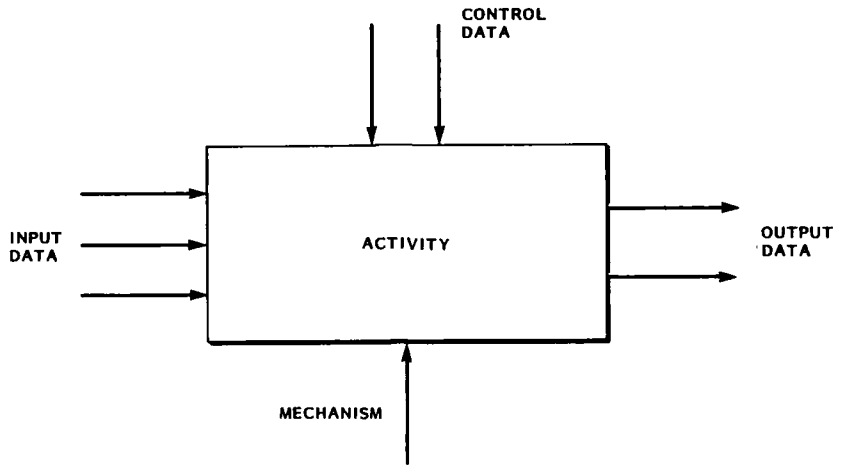

Figure 2-2. SADT Activity Box

Input data is data which is to be transformed by the activity. Output data is data transformed by the activity and is to be used elsewhere. Control data is data that constrains the operation of an activity. The distinction between input and control allows the model to explicitly show data that may not be transformed into output, and only modifies the behavior of an activity. The mechanism describes organizations which perform the given activity or identifies the department, section, or even the individual who is responsible for the activity.

The preceding discussion was a very basic description of SADT that should enable the reader to understand the following models of Air Force management. A total of eight diagrams are presented: four each for day-to-day management and crises management. Each management level contains a summary diagram and a breakdown of three of the boxes in that summary.

2.3 Readiness Measurement Information for a Management Decision Network

Readiness measurement information must indicate to Air Force managers the capability of combat related units to perform their tasking. In the operational flying wings, readiness measurement information must convey the readiness of the Wings to produce a specific type of sortie. This information is needed by Air Force managers day-to-day and during a contingency. To derive the requirements for readiness measurement information, the functions and activities of Air Force personnel who need readiness measurement information were analyzed. Figure 2-3 represents a network of the models produced. Each triangle symbolizes a model in the network.

The network shows both the chain of command and the information flow between Air Force management levels. The models in the network describe current (working) systems as they are, not as they should be. No attempt has been made to prescribe a new readiness measurement system. The information requirements describe the kinds of readiness information needed to support decision-makers. Specific products (system outputs) have not been prescribed.

It should be noted that separate models were not prepared for management functions performed at the Numbered Air Forces (NAF). Their activities closely resemble those of the MAJCOM, and they use aggregated Wing data to support the MAJCOM. JCS and CINCs are presented for context only; they are out of the scope of this analysis.

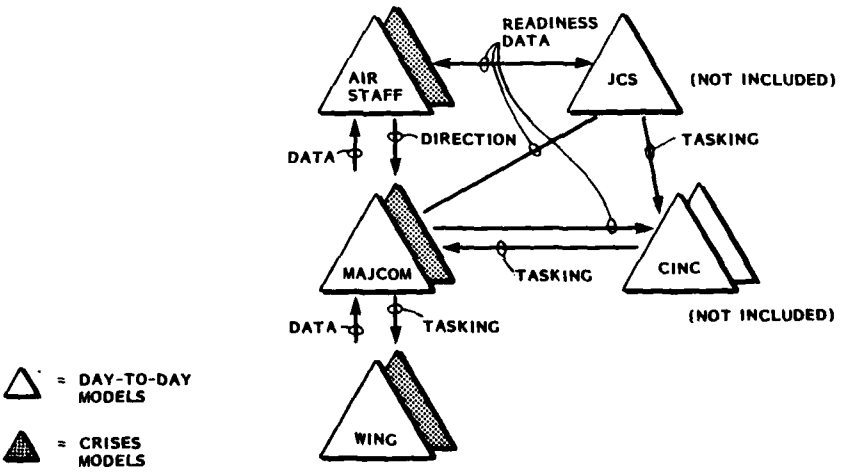

Figure 2-3. Management Decision Network

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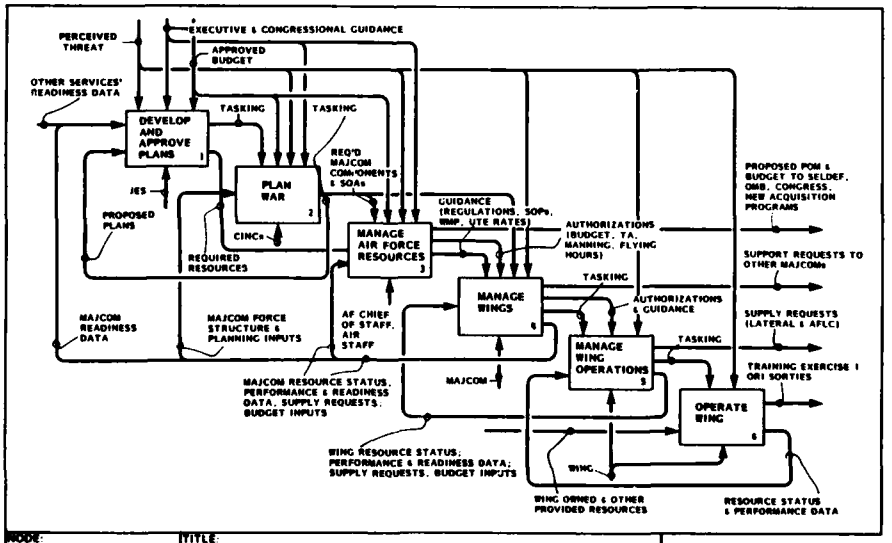
2.4 Air Force Day-to-Day Management (Summary)

The Air Force is responsible for planning, providing, mobilizing, training, equipping, and maintaining combat ready and reserve forces. The model below depicts the day-to-day activities performed at six management levels. The remainder of this section will be a detailed analysis of boxes 3, 4 and 5 which represent Air Staff, MAJCOM and Wing management. JCS and CINCs (boxes 1 and 2) are beyond the scope of this study. Operate Wing (box 6) is not covered since the required level of detail would necessitate a breakdown to individual MAJCOMs.

The main function of the Air Staff in day-to-day operations is to determine future resource requirements and to obtain the funds required to provide and maintain resources to perform combat activities. The Air Staff establishes and defends Air Force funding requirements through the Program Objective Memorandum (POM) and budgeting process. It establishes required allocation levels, allocates available resources and establishes performance standards to maintain and improve the Air Force readiness posture. To accurately determine resource requirements the Air Staff must be able to translate a desired capability level into specific resource levels and thus, dollar amounts.

The MAJCOMs (box 4) participate in planning the expected wartime operations of their Wings and continuously monitor Wing performance. They establish training and performance criteria, schedule Wing participation in deployments and exercises, coordinate and obtain support from other MAJCOMs and resolve problems and deficiencies for Wing management. The MAJCOMs must know the readiness capability of each of their units to meet specified tasking at any time.

The Wings (box 5) continuously prepare to fly combat and support missions. Day-to-day training sortie activity and aircraft maintenance prepare the Wing to perform combat missions and sustain a fighting force. Wing management requires detailed and timely information to support day-to-day decision-making.



MODE: AO/SUMMARY | TITLE: Figure 2-4. Day-to-Day Management (Summary)

Table 2-1

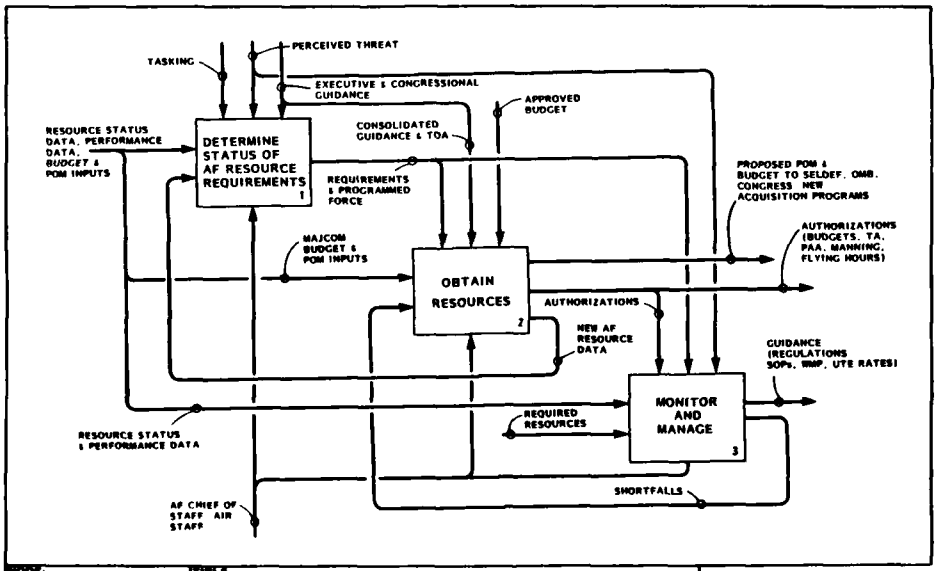
SUMMARIZED DAY-TO-DAY MANAGEMENT REQUIREMENTS

CONTENT	TIMING	FORMAT
• Must reflect readiness impact of trends in condition of resources • Must be aggregated to a level which is useful for making force structure, budgeting, and resource allocation decisions • Must identify and qualify system-wide deficiencies • Must state resource requirements to meet hypothetical tasking • Must assist both line management (wing level decision making) and higher level management, (Air Staff decision making) • Must be compatible to and understood at the decision level of the user • Must reflect increase/decrease in readiness due to resource expenditures	• Must be available for performance of day-to-day activities • Must be available in time to support decisions	• Must be presented in terms and format that meet user requirements

2.4.1 Air Staff Decisions

Daily, the Air Staff determines the status of resource requirements (box 1), obtains and apportions funds to procure the resources (box 2), and monitors the use of the resources (box 3) to ensure that the Air Force is prepared to meet its wartime commitment. Readiness information is needed to support the Air Staff in making far-reaching decisions. Day-to-day the Air Staff requires aggregated Wing data for predicting requirements, planning forces, justifying budgets, formulating programs, and examining trends for modifications and procurements.

Air Staff long-range planning requires predictive and historical information concerning overall force readiness. Predictive information must state what capability can be expected from existing resources and what resources are required to satisfy a desired level of readiness to meet a perceived threat. The historical data must state what levels of readiness were maintained with available, not authorized resources, and how resource shortfalls affected readiness levels.



MODE: A3 | TITLE: Figure 2-5. Manage Air Force Resources (Air Staff)

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQU INFORMATION
DETERMINE STATUS OF RESOURCE REQUIREMENTS		
• Plan force structure • Preplan use of force • Specify performance and resource requirements	• Threat estimates • Existing AF Resource Data WMP Budgets DOC TA Flying Hours Manning Levels UTE Rates • New weapon system(s) data (MDS Performance Criteria)	• Given required capability levels of existing combat units, the resource requirement to operate at the required levels (e.g., resource requirements to support X number of sorties by type for for Y days for Z units or aircraft) • Status of facilities at employment location • Transportability of resources
OBTAIN RESOURCES		
• Develop and defend POM • Develop and defend Budget	• Last year's POM • Existing AF Resource Data (e.g., status, location, amount, availability)	• Unit capability based on fluctuations in different levels of funding and impacts on units' capabilities as a result of budget cuts or changes in resource allocations
• Procure and enlist	• Panel briefings • MAJCOM POM inputs • Revisions, requests • Program options, recommendations • Preliminary POM • Short term deficiencies	• Trends in AF readiness resulting from shortfalls and deficiencies in specific resource categories • Relationship of resource levels to capability of combat units to perform tasking • Relationship of budget decisions to combat capability over time for planning and procurement

Table 2-2

MANAGE AIR FORCE
RESOURCES (AIR STAFF)
(DAY-TO-DAY)

	READINESS MEASUREMENT REQUIREMENTS	
	INFORMATION	PROPERTIES
evels	• Given required capability levels of existing combat units, the resource requirement to operate at the required levels (e.g., resource requirements to support X number of sorties by type for for Y days for Z units or aircraft) • Status of facilities at employment location • Transportability of resources	• Must depict relationships of resource categories and proper amounts of each resource to perform a specified task • Must be based on realistic resource standards, e.g., attrition rates, break rates, consumption rates • Must be available as needed
dations	• Unit capability based on fluctuations in different levels of funding and impacts on units' capabilities as a result of budget cuts or changes in resource allocations • Trends in AF readiness resulting from shortfalls and deficiencies in specific resource categories • Relationship of resource levels to capability of combat units to perform tasking • Relationship of budget decisions to combat capability over time for planning and procurement	• Must be consistent and reliable • Must permit computation of capabilities based on hypothetical data, e.g. depict a different capability level with $50 million for flying hours vs. $25 million for flying hours • Must be available as needed

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIRE INFORMATION	P
OBTAIN RESOURCES (Cont'd)			
	• MAJCOM Budget inputs • Supply Requests	• Readiness implications of specific resource categories and resource levels (e.g., impact of 10% reduction in flying hours for training)	
MONITOR AND MANAGE • Oversee operations and programs • Respond to questions • Improve readiness posture/profile	• Material and manpower status data • Resource status performance data What or who How many Where Condition What can it do and how long • Management direction • Organizational charts, personnel rosters, files, logistics and operations information systems	• Detailed unit capability based on planned war-time tasking, and capability measured against all level of tasking (including: primary, secondary, tertiary DOC statements) • Aggregated readiness data ordered by command, weapon systems, and mission, measured against a specific task • Capability levels for different MDS units. Indication of Wing's performance against specific tasking requirements. Means of comparing unit readiness • Shortfalls	• Mu ta cc • Mu ar to re • Mu ne

Table 2-2 (Continued)

MANAGE AIR FORCE
RESOURCES (AIR STAFF)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Readiness implications of specific resource categories and resource levels (e.g., impact of 10% reduction in flying hours for training)	
• Detailed unit capability based on planned war-time tasking, and capability measured against all level of tasking (including: primary, secondary, tertiary DOC statements) • Aggregated readiness data ordered by command, weapon systems, and mission, measured against a specific task • Capability levels for different MDS units. Indication of Wing's performance against specific tasking requirements. Means of comparing unit readiness • Shortfalls	• Must be reported with specific tasking against which it was computed • Must highlight shortfalls which are impacting on overall ability to maintain high level of readiness • Must be available as needed or upon request

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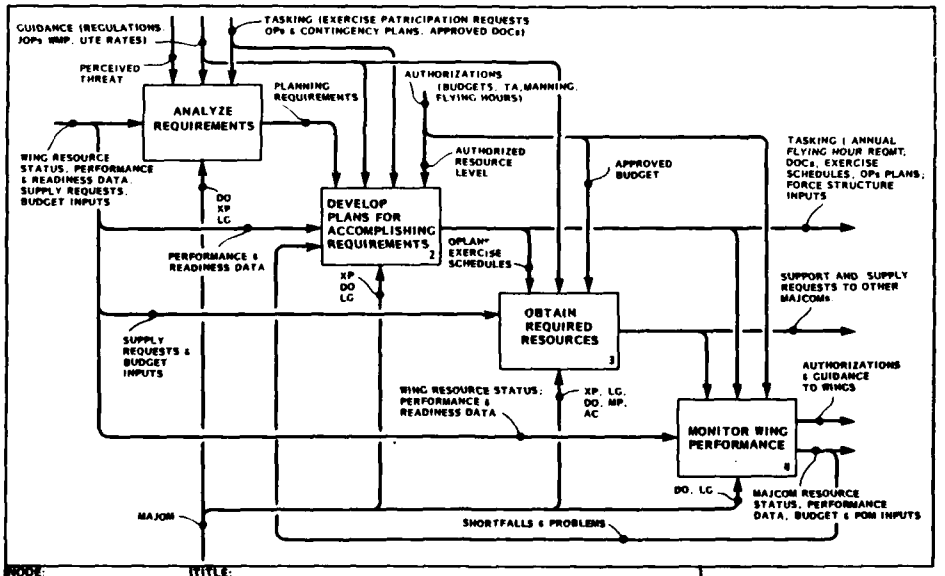
2.4.2 MAJCOM Decisions

The MAJCOMs control and monitor their Wings with assistance from the Numbered Air Forces (NAF). The MAJCOM is the requirements communication link between operational Wings and the Air Staff. Given the allocated resources, MAJCOMs must ensure that the readiness of their Wings, through NAF, does not decline because of insufficient resources or inefficient placement of resources.

The MAJCOMs require information on Wing resources daily (box 1) to ensure that exercises and training do not affect operational capability (box 4). When a problem arises, managers determine how the tasking requirements from higher headquarters are going to be met (box 2) and assist their units by obtaining necessary support from other areas.

The readiness measurement information requirement deals with impacts, or how many perturbations the Wings can tolerate before their capability is affected. Since the MAJCOMs must manage under the constraints of authorized resource levels (box 2) and budgets (box 3), managers must be aware of the impacts of reduced funds and changing resource levels.



ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIRE INFORMATION	P
ANALYZE REQUIREMENTS			
• Determine mission structure, training, and planning requirements • Select exercise participants	• Operations and contingency plans • War and mobilization plan • AF annual flying hour requirement • UTE rates • Approved DOC • Special Tasking • Exercise participation requests • Perceived threat • Wing resource data Type Condition Quantity	• Impact on Wing's readiness resulting from participation in exercises Diminished Wing readiness while squadrons are deployed to exercise location Increased readiness resulting from exercise participation • Wings' capabilities to perform proposed OPLANS or contingency plans Limiting factors (shortfalls) Additional resource requirements	• Mu • Mu ma sp • Mu ca
DEVELOP PLANS FOR ACCOMPLISHING REQUIREMENTS			
• Develop force structure inputs, component OPLAN inputs, exercise schedule, Wing training requirements, and resource use plan	• Wing resource status data • Planning requirements • Training status • Authorized resource levels UE Equipment Unit manning Supplies • Shortfalls and problems	• Projected capabilities based on varying schemes for allocating resources, e.g., Wings' capabilities to perform specific tasking based on varying levels of flying hours for training • Current and historical status of capability	• Mu • Mu det

Table 2-3

MANAGE TACTICAL FIGHTER WINGS (MAJCOM)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Impact on Wing's readiness resulting from participation in exercises Diminished Wing readiness while squadrons are deployed to exercise location Increased readiness resulting from exercise participation • Wings' capabilities to perform proposed OPLANS or contingency plans Limiting factors (shortfalls) Additional resource requirements	• Must have predictive capability • Must be capable of showing performance trends in exercises and specific mission success figures • Must allow comparison among Wings' capabilities
• Projected capabilities based on varying schemes for allocating resources, e.g., Wings' capabilities to perform specific tasking based on varying levels of flying hours for training • Current and historical status of capability	• Must be available as needed • Must be aggregated for all Wings, detailed by unit

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMEN INFORMATION	PROP
OBTAIN REQUIRED RESOURCES			
• Develop POM inputs • Determine other MAJCOM support required • Develop MAJCOM budget	• Wing budget inputs • Supply requests • MAJCOM OPLANS • Exercise schedule • Data on critical parts, equipment, AGE	• Readiness implications of varying resource allocation levels and priorities • Resource and dollar requirements to meet varying levels of capability, e.g., sortie surge	• Must resou • Must mance attri
MONITOR PERFORMANCE			
• Relate actual to expected performance • Determine shortfalls • Determine corrective action	• Wing resource status data • Requirement completion data • Wing requirements MAJCOM OPLANS Exercise schedule	• Aggregated capability at all flying squadrons; capability by MDS and general mission • Individual Wing/Squadron capability to meet DOCs and special tasking • Shortfalls and ETICs • Trends in readiness levels and reasons for decreases in overall readiness posture, e.g., break rates, supply delays, conversions	• Must varie suite • Must readi resou • Must probl

Table 2-3 (Continued)

MANAGE TACTICAL FIGHTER WINGS (MAJCOM)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Readiness implications of varying resource allocation levels and priorities • Resource and dollar requirements to meet varying levels of capability, e.g., sortie surge	• Must be expressed in dollars, resource type, and amount • Must be based on actual performance history, e.g., break rates, attrition rates
• Aggregated capability at all flying squadrons; capability by MDS and general mission • Individual Wing/Squadron capability to meet DOCs and special tasking • Shortfalls and ETICs • Trends in readiness levels and reasons for decreases in overall readiness posture, e.g., break rates, supply delays, conversions	• Must be accessible to a variety of users in formats suited to their needs • Must track history of wings' readiness based on actual resource levels and conditions • Must highlight deficiencies and problems

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2.4.3 Wing Decisions

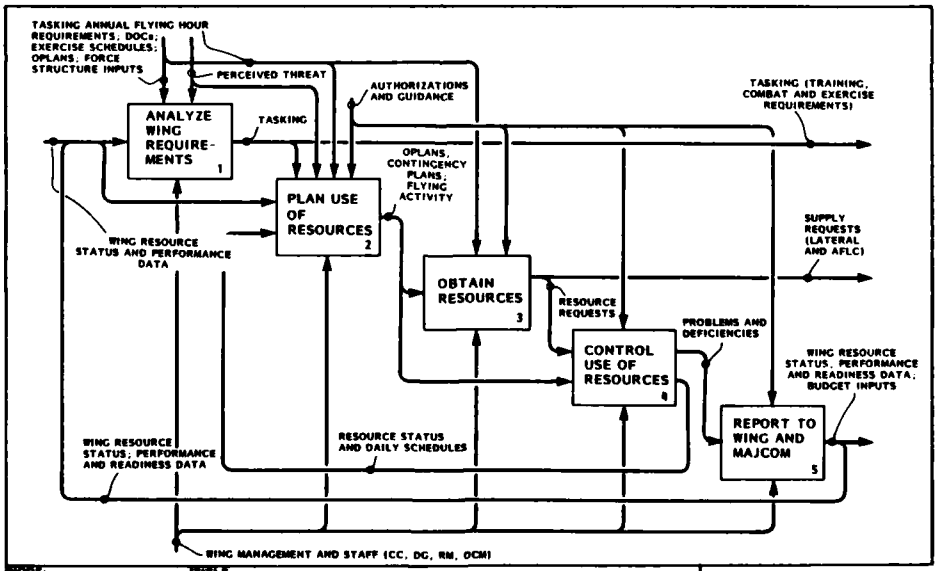
A flying Wing must continually operate in a state of readiness to respond to crisis. Its resources, training programs, exercises and inspections ensure that when a contingency or crisis occurs, the Wing can meet its commitments.

Tasking levied on a Wing by the MAJCOM is designed to ensure that units are capable of executing contingency and crisis requirements. In peacetime the tasking is designed to exercise the Wing in a simulation of its combat roles. Tasking imposes a sortie commitment on the unit. Wing management must analyze the tasking and translate it into specific training and exercise requirements to develop combat proficiency (box 1).

Long range plans to utilize allocated flying hours must be generated and operations plans and schedules must be formulated to structure and arrange flying activity. All this must be done within the limits of prescribed authorization and guidance from the MAJCOMs (box 2).

Adequate resource levels must be maintained to support the planned activity and Wing program. To ensure that the Wing maintains combat proficiency, managers must submit recommendations and requests for resource dollars, hard resources and support (box 3).

Without control within the Wing (box 4), the components of the Wing cannot be coordinated to generate sorties. How often and how well a Wing produces sorties is determined by available resources and management efficiency (leadership, motivation). This efficiency must be supported by information that reveals to management the health and readiness posture of the Wing (box 5).



ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIRE INFORMATION	
ANALYZE WING REQUIREMENTS • Determine Wing's capability to satisfy MAJCOM requirements • Determine shortfalls in TA, manning, fuels, benchstock, WRSK, MR aircrews • Develop alternatives and changes in Wing program to meet tasking • Determine number of training sorties required to meet tasking • Determine support requirements for other MAJCOMs	• Wing historical resource data • Previous UTE rates, sorties required to perform mission and accomplish training • DOC, contingency plans and OPLANS, WMP, flying hours required • Current training and exercise requirements • Known taskings, commitments (JCS directed)	• Limiting factors to meet tasking Aircraft Aircrew training Supplies for mission capability Manning skills Support Equipment Facilities at employment base • Impacts or limiting factors on Wing capability • Effects of resource usage rates • Impacts of modifications • Impacts of other tasking • Impacts of scheduled maintenance • Impacts of joint scheduled exercises • Shortfalls	• Mu • Mu fo • Mu ma ti • Mu av • Mu • Mu ch • Mu re as

Table 2-4

MANAGE WING OPERATIONS (WING)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Limiting factors to meet tasking Aircraft Aircrew training Supplies for mission capability Manning skills Support Equipment Facilities at employment base • Impacts or limiting factors on Wing capability • Effects of resource usage rates • Impacts of modifications • Impacts of other tasking • Impacts of scheduled maintenance • Impacts of joint scheduled exercises • Shortfalls	• Must have predictive capability • Must contain statement of tasking for computation of readiness • Must be capable of showing performance trends in exercise and training modes • Must be current and immediately available • Must be consistent • Must be flexible to accommodate changing tasking • Must reflect actual operational resources, not authorizations or assignments

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENT INFORMATION	PROPE
PLAN USE OF RESOURCES • Determine how many sorties present resources can generate and support to perform given tasking • Determine how many flying hours are required to meet tasked training levels • Determine what maintenance skills are needed to meet tasking • Determine what resources are required for planned joint exercises • Determine current tasking priorities • Determine adequacy of support resources to meet flying and maintenance schedules • Determine how to allocate resources to meet requirements	• DOC (tasking) • Current training and exercise requirements • Wing OPLANs and contingency plans (checklists and procedures) • ORI results and deficiencies • Current skill levels of maintenance units • Previous Wing schedules and activity • Condition of aircraft, available maintenance skills, aircrew grades and levels, equipment and supply status • Judgement and experienc	• Tasking in the form of training requirements, OPLANS, Operations Order • Training sorties required for each pilot to maintain proficiency stated in DOC • Aircraft generation required to to support flying activity • Maintenance skills required by unit • Shortfalls in maintenance • Shortfalls in supplies • Current proficiency levels of aircrews, remaining requirements not met • Predicted capability	• Must b month • Must a plans the cr exerci • Must a change • Must p • Must b • Must p

Table 2-4 (Continued)

MANAGE WING OPERATIONS (WINGS)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Tasking in the form of training requirements, OPLANS, Operations Order	• Must be aggregated daily, weekly, monthly, quarterly, yearly
• Training sorties required for each pilot to maintain proficiency stated in DOC	• Must accommodate changes in plans and schedules to include the crisis mode for planned exercises and major deployments
• Aircraft generation required to to support flying activity	• Must accommodate unscheduled change to crises mode of operation
• Maintenance skills required by unit	• Must provide complete detail
• Shortfalls in maintenance	• Must be immediately accessible
• Shortfalls in supplies	• Must provide projections as needed
• Current proficiency levels of aircrews, remaining requirements not met	
• Predicted capability	

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMEN INFORMATION	PROP
OBTAIN RESOURCES			
• Determine current available aircrews	• Unit inventory and status of resources	• Status of available maintenance units	• Must histo
• Determine which additional supplies must be requisitioned and sustained to meet tasking	• Authorized stock, supplies and manning	• Status of available equipment and supplies to support missions	• Must and a infor
	• Other MAJCOM support available	• Break rates, trends from use of equipment	
	• Unit tasking and requirements	• Performance criteria for mission critical resources	• Must index
• Determine which budget category authorizations are below Wing resource requirements to meet tasking	• Unit performance history	• Consumption rate of supplies and equipment (peacetime and projected wartime)	• Must codes vario
	• Previous budgets	• Augmentation inventory, status, and performance criteria	• Must autho state disti and a shown
• Determine what lateral support should be requested and when	• Previous requests	• Sister Wing resources available to support Wing program	
		• Thresholds shown in terms of ability to meet projected wartime commitment	• Must resou
		• Commitments to provide support to sister Wings, Guard and Reserve units	
		• Must provide ANG and AFRES information comparable to active resources	
		• Maintenance AFSC by name, skill level, unit and special abilities	
		• Aircrew proficiency levels and currency	

Table 2-4 (Continued)

MANAGE WING OPERATIONS (WING)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Status of available maintenance units • Status of available equipment and supplies to support missions • Break rates, trends from use of equipment • Performance criteria for mission critical resources • Consumption rate of supplies and equipment (peacetime and projected wartime) • Augmentation inventory, status, and performance criteria • Sister Wing resources available to support Wing program • Thresholds shown in terms of ability to meet projected wartime commitment • Commitments to provide support to sister Wings, Guard and Reserve units • Must provide ANG and AFRES information comparable to active resources • Maintenance AFSC by name, skill level, unit and special abilities • Aircrew proficiency levels and currency	• Must provide readily accessible historical files • Must provide readily accessible and accurately computed trend information • Must have consistent structure, indexing, ordering and arrangement • Must be in a unified language, not codes, easily understood by various functional area users • Must be easily compared to authorized resources, always stated as actuals; a sharp distinction between authorized and actuals (assigned) must be shown • Must be expressed in dollars, resources, and sorties

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENTS INFORMATION	PROPERTIES
CONTROL USE OF RESOURCES			
• Determine the sortie schedule that best uses flying hours • What kind of sortie training is best to achieve a specified capability • Determine how daily activity affects war reserves • Determine the daily commitments that cannot be met, given current resources • Determine shortfalls in current Wing resources that could cause delays and detract from desired capability • Determine how the best cooperation and coordination among Wing components or support from outside Wing can be achieved	• Flying hour allocation per year • UTE Rates (use of sorties) • Sortie duration; number of sorties per month to be flown; sorties by mission • Known taskings, commitments (JCS directed) • Maintenance down days • Weekly takeoff times • Flying schedule • Maintenance schedule • Functional check flights • TCTO's, preventive maintenance required • Check rides • Resources available/required from other MAJCOMs • Training accomplishments	• Availability of aircrews, maintenance crews, and support personnel • Current level of proficiency for each crew member • Current skill level of maintenance technicians • Training requirements outstanding for each crew member and technician • Accomplishments in maintenance and flying activity • Shortfalls in flying and maintenance training • Status of equipment in repair • Scheduled maintenance and flying activity (daily, weekly, monthly, yearly • Shortfalls in meeting commitments and daily schedule • Supply shortfalls and expected fill date or replenishment of stocks • Alternative scheduling possibilities	• Must be ava commanders • Must be ava • Must be cu • Must clear (detailed t • Must allow communicat to outside • Must allow higher comm sister Wing • Must provi line items, • Must have predictive • Must be re decison mak

Table 2-4 (Continued)

MANAGE WING OPERATIONS (WING)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Availability of aircrews, maintenance crews, and support personnel	• Must be available to all commanders and staffs
• Current level of proficiency for each crew member	• Must be available as needed
• Current skill level of maintenance technicians	• Must be current
• Training requirements outstanding for each crew member and technician	• Must clearly pinpoint shortfalls (detailed to resource)
• Accomplishments in maintenance and flying activity	• Must allow rapid decisions and communications within Wing and to outside support
• Shortfalls in flying and maintenance training	• Must allow simple transmission to higher command levels and to sister Wings
• Status of equipment in repair	• Must provide access to inventory line items, when needed
• Scheduled maintenance and flying activity (daily, weekly, monthly, yearly	• Must have projection and predictive capability
• Shortfalls in meeting commitments and daily schedule	• Must be reliable for compressed decison making
• Supply shortfalls and expected fill date or replenishment of stocks	
• Alternative scheduling possibilities	

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENTS INFORMATION	PROPERTIES
CONTROL USE OF RESOURCES (CONTINUED)			
• Determine how much capability to meet tasking commitment will be degraded as result of budget cuts • Determine what significant changes should be requested in budget inputs	• Airspace for training • Supply status (parts, spares, key parts) • Repair status (equipment - both major and support) • Job control status (on board); CP status (on board) • Expediter communications at parked aircraft • Dispatcher communications to Job Control of discrepancy reports at flight line from pilots, weapons officer, or maintenance chief	• Crew rest status of aircrews, load crews, and other critical personnel • Location of Wing resources (worldwide) • Overages - manpower/material; excess capabilities by function, multi-use equipment, and cross-training opportunities	
REPORT TO WING AND MAJCOM			
• (Not a management activity or a decision) • (A function of CP)	• (Not relevant) • (CP is the information exchange for Wing resource data; day-to-day CP relays information)	• (Not relevant; controllers do not make decisions for commanders)	• (As required regulation)

Table 2-4 (Continued)

MANAGE WING OPERATIONS (WING)
(DAY-TO-DAY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Crew rest status of aircrews, load crews, and other critical personnel • Location of Wing resources (worldwide) • Overages - manpower/material; excess capabilities by function, multi-use equipment, and cross-training opportunities	
• (Not relevant; controllers do not make decisions for commanders)	• (As required and according to regulation)

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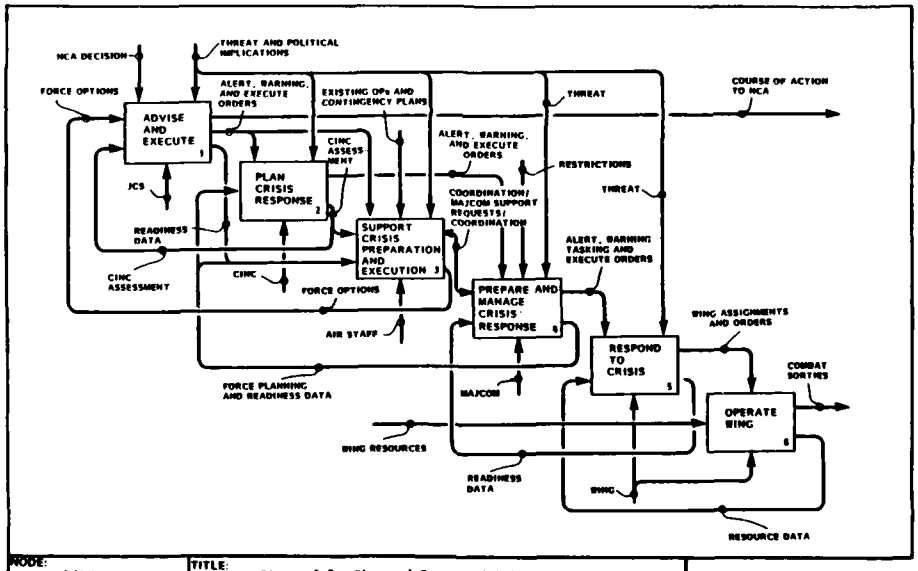
2.5 Air Force Crisis Management (Summary)

The combat responsibilities of the Air Force are carried out by specified commands or component commands of unified commands. Orders are issued by the Joint Chiefs of Staff to the Commander in Chief (CINC) of a Unified or Specified Command (box 1). The CINC (box 2) in turn orders the Air Force Component Commander (box 4), who issues orders to individual units (box 5).

The Air Staff (box 3) has no command authority. It does provide advice and recommendations to the Air Force Chief of Staff and coordinates with Air Force Major Commands (MAJCOM). The MAJCOM's primary activities are to plan and control the deployment of operational units. The Wings must plan and execute assigned combat missions. Responsibilities include mobilization, deployment, and employment of combat ready forces.

The three levels of Air Force management have similar functions and require similar readiness information (in varying degrees of detail and currency). The scope of this analysis deals with boxes 3, 4, and 5 which represent Air Staff, MAJCOM, and Wing Management. JCS and CINCs (boxes 1 and 2) are beyond the scope of this FAR. Operate Wing (box 6) is not covered since the required level of detail would necessitate a breakdown to individual MAJCOMs.



NODE: A0/SUMMARY

TITLE: Figure 2-8. Plan and Execute Crisis Response (Summary)

Table 2-5

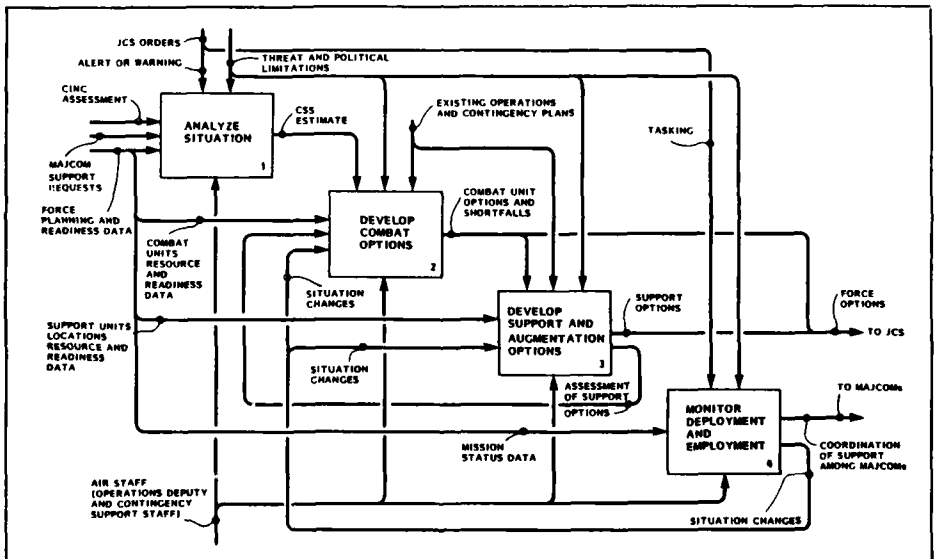
SUMMARIZED CRISIS (CONTINGENCY) MANAGEMENT REQUIREMENTS

CONTENT	TIMING	FORMAT
• Must relate readiness (capability) to specific tasking i.e., must be scenario sensitive • Must depict the inter-dependencies of resources that are required for successful accomplish-ment of tasking • Must identify and quantify shortfalls (limiting factors) • Must specify assumptions on which which assessments are made • Must be presented at a level of detail appropriate to the decision being made	• Must be available for formulating options and preparing for decisions • Must have near real-time currency of unit capability information	• Must provide a quick grasp of situation • Must represent a coordinated picture of Air Force units

2.5.1 Air Staff Decisions

The Air Staff has no command authority; however, the Headquarters Air Force Contingency Support Staff (CSS) has an advisory and coordinating role in a crisis situation. It supports the Air Force Chief of Staff by developing combat options (box 2) and support and augmentation options (box 3), and by providing information on the status of deployment, employment, and engagement (box 4).

The Air Staff CSS must gather and analyze a great deal of readiness information quickly (box 1). Consequently, the CSS needs near real-time information in a format that permits quick assessment so that vital decisions can be made. To develop feasible options, the CSS does not require up to the minute reports on the status of specific aircraft by tail number; however, it does require current information on unit readiness to perform tasking. It must be able to quickly determine the unit(s) that can best perform or support the mission(s) being considered.



NODE:	TITLE:	NUMBER:
A3	Figure 2-9. Support Crises Preparation and Execution (Air Staff)	

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMEN INFORMATION	
DEVELOP COMBAT OPTIONS • Determine missions required which will best meet objective • Select weapons system most capable of performing required mission • Identify available units with required weapons system(s) most capable and prepared to perform specified mission	• Probable threat • Objective of mission • Employment location Terrain Weather • Range (Distance) • Munitions capability • Employment site data Airfield status Logistics support • Units' Capability DOC Special capabilities Priority list of training • Readiness of units C-Rating % Resource fill Shortfalls	• Condition of employment site Available NAV aids Runway condition • Available support equipment and maintenance equipment • Units' capability expressed as a function of tasking; e.g., launch X type sorties in Y hours to perform Z mission • Computed capability based on actual or anticipated tasking • Prediction of capability at anticipated launch time • Shortfalls by resource and amount • Location of resources to augment shortfalls • Overages • Complete matching of all expressions of capability (DOC, special capabilities, actual training levels) to specific requirements of mission	• I • I • I • I • I • I • I • I

Table 2-6

SUPPORT CRISES PREPARATION
AND EXECUTION (AIR STAFF)
(CONTINGENCY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Condition of employment site Available NAV aids Runway condition • Available support equipment and maintenance equipment • Units' capability expressed as a function of tasking; e.g., launch X type sorties in Y hours to perform Z mission • Computed capability based on actual or anticipated tasking • Prediction of capability at anticipated launch time • Shortfalls by resource and amount • Location of resources to augment shortfalls • Overages • Complete matching of all expressions of capability (DOC, special capabilities, actual training levels) to specific requirements of mission	• Must be concurrent with mission required • Must be detailed enough to distinquish best-suited units from others • Must present complete information in a single format • Must be continuously available • Must present information on primary capability (DOC) sorted by command, location, and special capability • Must be verifiable • Must track to performance during ORI, exercises and crises within reason • Must synchronize capture of information for all units to permit comparison and selection of units

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMEN INFORMATION	
DEVELOP SUPPORT AND AUGMENTATION OPTIONS			
• Determine the required support and means to provide it	• Transportation requirements • Refueling requirements • Other probable threats • Restrictions Overflight rights Political implications • Resource status data • Weather	• Available resources at employment site • Resources required but not possessed by units • Airlift capability expressed in terms of airlift support to be supplied: e.g., provide X tons capacity at candidate locations in Y hours to be carried Z miles • Refueling capability expressed in terms of refueling support to be supplied: e.g., provide X pounds at Z location at P time • Shortfalls of supporting units Type of resources Amount deficient Location of additional resources	• Must ex in term amount and req • Must be enough • Must ha and cur are act • Must pr informa threat

Table 2-6

SUPPORT CRISES PREPARATION
AND EXECUTION (AIR STAFF)
(CONTINGENCY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Available resources at employment site • Resources required but not possessed by units • Airlift capability expressed in terms of airlift support to be supplied: e.g., provide X tons capacity at candidate locations in Y hours to be carried Z miles • Refueling capability expressed in terms of refueling support to be supplied: e.g., provide X pounds at Z location at P time • Shortfalls of supporting units Type of resources Amount deficient Location of additional resources	• Must express support readiness in terms of type of resource, amount required, time needed and required location • Must be accurate and current enough to establish feasible c tions • Must have improved accuracy and currency when unit(s) are actually tasked • Must present near real-time information to accommodate threat changes during contingency

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENT INFORMATION	
MONITOR DEPLOYMENT AND EMPLOYMENT			
• Compare situation to plan • Remedy shortfalls • Decide additional units needed, solve problems, and resolve deficiencies	• Type of aircraft • Command • Location • Mission capability • Total number of units • Total number of aircraft • Status of support resources from functional area briefings • SITREPs and message updates from Major Commands (attritions, problems, threat changes, transferred equipment, accomplishments)	• Distinction between committed and uncommitted units and aircraft • Identity of units and aircraft that may be tasked to fill shortfalls • Consequences of committing additional units to meet threat changes or additional threats • Update of capability to accomplish mission	• Must pro data cap comparis • Must dep compositi units are and engag

Table 2-5

SUPPORT CRISES PREPARATION AND EXECUTION (AIR STAFF) (CONTINGENCY)

	READINESS MEASUREMENT REQUIREMENTS	
	INFORMATION	PROPERTIES
	• Distinction between committed and uncommitted units and aircraft • Identity of units and aircraft that may be tasked to fill shortfalls • Consequences of committing additional units to meet threat changes or additional threats • Update of capability to accomplish mission	• Must provide synchronized data capture for valid comparison • Must depict the changing composition of forces as units are deployed, employed, and engaged in combat

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2.5.2 MAJCOM Decisions

Upon receiving notional tasking in the form of a JCS Alert or Warning Order, the MAJCOM must specify what must be done and who will be ordered to do it (box 1). The employment location, and location and readiness of candidate units drive the selection of the Wings that will be tasked.

The MAJCOM has command authority to order combat units to mobilize, deploy, or employ, depending on the location. The specific activities of the MAJCOM are a function of the crisis situation. If deployment is required, plans must be made to get the selected unit to the employment site and to ensure that enough resources are taken along to sustain that unit as an operational force for a specified period of time. The MAJCOM must ensure (or request) that all necessary resources not processed by the selected unit are provided at the time required. This could include support from other units within the MAJCOM and support from other MAJCOMs (box 3).

At the time the final execution decision is made (box 4), the MAJCOM Commander must know exactly how ready the tasked units are to carry out the tasking. It is critical that this go/no-go decision be based on timely and accurate readiness assessment.

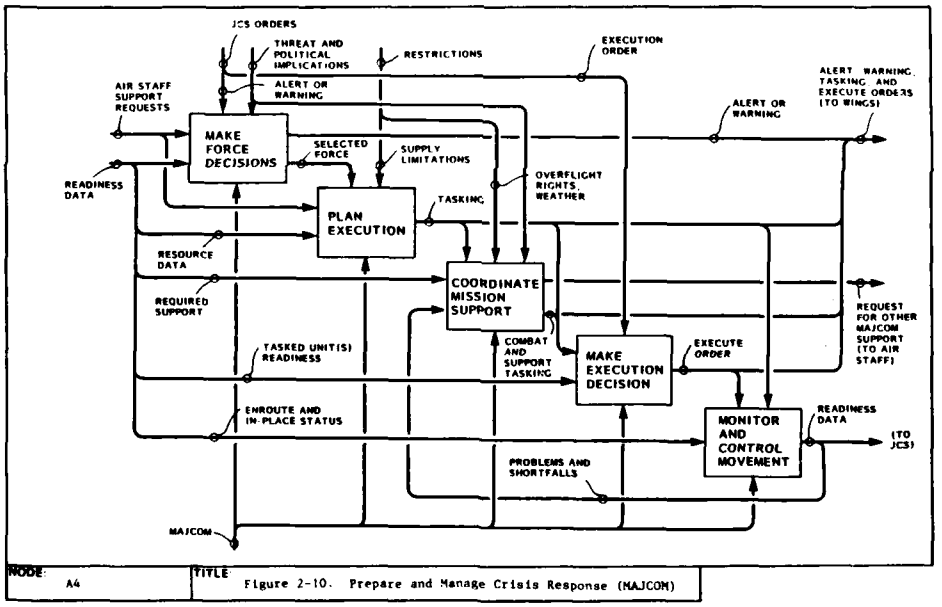

Figure 2-10. Prepare and Manage Crisis Response (MAJCOM)

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENT: INFORMATION	
MAKE FORCE DECISIONS			
• Determine unit(s) most capable of performing required mission	• OPLANS and Contingency Plans • Intelligence • Employment site assets • Squadron resource and readiness data • Unit Locations • Logistics resource status reports • WRM reports	• Flying squadrons ranked by specific mission capabilities (DOC, special capability, actual training levels) • Accurate prediction of unit's capability based on launch time of anticipated tasking • Units' readiness expressed in terms of actual tasking: e.g., Launch X sorties (by type) in Y hours to perform Z missions • Timely assessment of resources available at employment site	• Must be enough s that can are sele • Must be units to ranking • Must be resource
PLAN EXECUTION			
• Develop and issue combat and resource support tasking within the MAJCOM	• OPLANS and Contingency Plans • Selected Wing resource data • Other Wings' resource data • Wing identified shortfalls • Weather	• Complete profile of selected unit's resource status as applies to performing anticipated tasking • Resource shortfalls • Resource data for uncommitted units • Coordinated plan and schedule of events for mission accomplishment • Assessment of all tasked unit(s)' readiness to perform tasking	• Must be • Must hav data to fill sho • Must be sorted b status a

Table 2-7

PREPARE AND MANAGE CRISES
RESPONSES (MAJCOM)
(CONTINGENCY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
ng squadrons ranked by ific mission capabilities , special capability, actual ning levels)	• Must be accurate and current enough so that only units that can perform tasking are selected
rate prediction of unit's ibility based on launch : of anticipated tasking	• Must be synchronized for all units to allow comparison and ranking of units
:s' readiness expressed in ns of actual tasking: e.g., ach X sorties (by type) in ours to perform Z missions	• Must be based on accurate resource counts
ely assessment of resources ilable at employment site	
iplete profile of selected unit's ource status as applies to per- rming anticipated tasking	• Must be current • Must have detailed resource data to identify sources to fill shortfalls
ource shortfalls	
ource data for uncommitted ts	• Must be quickly accessible and sorted by resource type, status and location
rdinated plan and schedule of nts for mission accomplishment	
essment of all tasked unit(s)' diness to perform tasking	

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENTS INFORMATION	P
COORDINATE MISSION SUPPORT			
• Specify and request resource support from other MAJCOMs and agencies	• Resource information • Shortfalls • Transportation and fuel requirements • Supply and beddown requirements • Overflight requirements • Loading requirements	• Air refueling data • Load requirements • Supplies required and not possessed	• Must be r to compar available required
MAKE EXECUTION DECISION			
• Decide GO or NO GO	• Tasked unit readiness NOW • Support unit readiness NOW • Combat and support tasking	• Yes or No: Can tasked squadrons meet tasking? • If "no", what are problems and alternative solutions	• Must prov assessmen ability t at the sp • Must prov data on s and aircr
MONITOR AND CONTROL DEPLOYMENT			
• Provide maintenance, supply support, and command and control	• Enroute status of squadrons • Enroute support team updates • Supplies (status) • In-place unit status • Problems, aborts	• Incomplete deployments (aborts, etc.)	• (Not kn w

Table 2-7 (Continued)

PREPARE AND MANAGE CRISES
RESPONSES (MAJCOM)
(CONTINGENCY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
Air refueling data Load requirements Supplies required and not possessed	• Must be readily available to compare known quantity available to known quantity required
Yes or No: Can tasked squadrons meet tasking? If "no", what are problems and alternative solutions	• Must provide very accurate assessment of tasked unit(s)' ability to perform tasking at the specified times • Must provide near real-time data on squadron mobilization and aircraft generation
Incomplete deployments (aborts, etc.)	• (Not known)

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2.5.3 Wing Decisions

The primary job of an operational Wing is to execute combat operations in an assigned theater. As soon as an alert or warning condition follows an event, a squadron or unit receives orders to prepare to deploy, actually deploy, or ultimately employ its flying units (box 1). Given the tasking, Wing and Squadron managers must see that squadron and unit resources are assembled, generated, and sometimes sustained (box 2). Management decisions require precise, error free information about what is happening in operations, mobility, and maintenance (box 3) in order to coordinate and synchronize the functions of the Wing components.

Before a Wing Commander can commit his units to perform the mission, he must have a thorough knowledge of the capability of the available Wing resources to meet the specified tasking. This requires condition and status reports from the Wing including problems and shortfalls (box 1). When a commitment can be made, resources required to deploy are calculated, selected, and notified. Concepts and plans are immediately formulated to generate the aircraft and supporting resources required to accomplish tasking.

When the MAJCOM tasking order arrives, management can decide what resources will be used, formalize plans, and issue aircraft generation and launch orders (box 2). The MAJCOM then issues an execute order that activates the actual mobilization, deployment, or employment. If deployment is required and completed, units may regenerate and employ; or they may not employ. Whatever the situation may be, the unit must be sustained. Needs, problems, and accomplishments are constantly reported from the unit managers to the Commander and his staff and from the Wing to MAJCOM. In this way, constant awareness and response to needs are achieved.

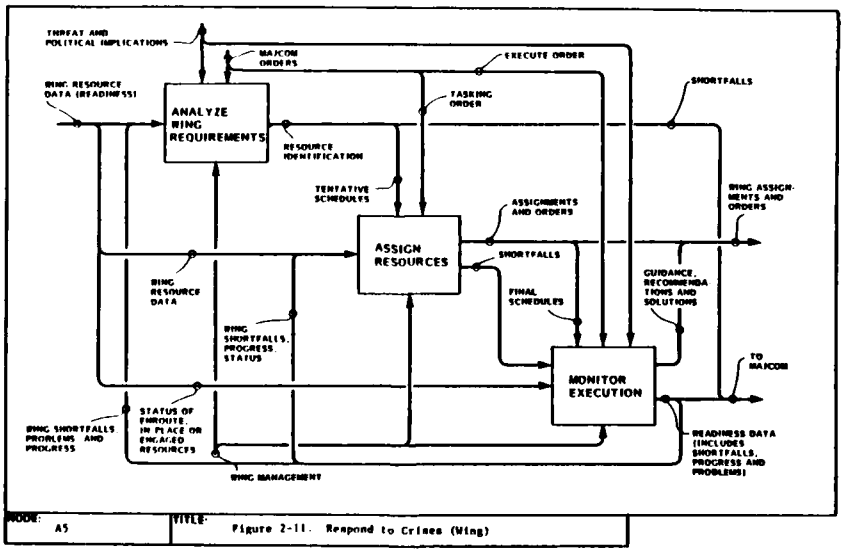

Figure 2-11. Respond to Crises (Wing)

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENT INFORMATION	
ANALYZE WING REQUIREMENTS			
• Determine if Wing can accomplish tasking • Determine what alternative tasking can be met • Determine how many weapons systems can be delivered given current status of Wing • Identify delays to launch caused by shortfalls • Decide if augmentation crews, aircraft, and equipment can meet tasking requirements • Specify how many weapons systems will deploy • Determine time of launch	• Aircraft required; time required to deploy • Threat assessments and intelligence data • Preplanned UTC data • Checklists of emergency action procedures • Wing contingency plans • Current training status and availability of aircrews • Current training status and availability of maintenance crews • Status of aircraft • WRSK and WRM status • C-ratings and % fill of units • Personnel status and availablity • Time required to deploy • Remaining resources not deployed: aircraft, aircrews WRSK, WRM, supplies, support personnel, maintenance crews and equipment	• Number of weapons systems that can be deployed and employed • Fastest possible launch time to meet tasking • Shortfalls which require additional support outside Wing • Shortfalls which can be resolved within the Wing • Shortfalls which are irreconcilable • Condition of aircraft, aircrews, maintenance units, and support equipment • Threat change impacts on mission and weapon system configuration • Capability to respond to additional tasking and sustain generation of aircraft • Time required to deploy augmentees • Status and shortfalls at deployment and employment sites • Location, condition, and amount of support available from sister Wings; time required to deliver to tasked Wing	• Must be allow a to taski • Must pro of probl • Must be availabl his imme and resp • Must be quick re among Wi • Must hav • Must be • Must be involved • Must pro updates assigned

Table 2-8

RESPOND TO CRISES (WING)
(CONTINGENCY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
Number of weapons systems that can be deployed and employed	• Must be immediately available to allow a "go", "no-go" response to tasking
Fastest possible launch time to meet tasking	• Must provide a detailed explanation of problem resolutions
Shortfalls which require additional support outside Wing	• Must be centralized and available to Wing Commander and his immediate staff for coordination and response
Shortfalls which can be resolved within the Wing	• Must be concise for easy and quick reporting to HQ and among Wings
Shortfalls which are irreconcilable	• Must have real-time currency
Condition of aircraft, aircrews, maintenance units, and support equipment	• Must be accurate
Threat change impacts on mission and weapon system configuration	• Must be available to all involved Wings and HQs
Capability to respond to additional tasking and sustain generation of aircraft	• Must provide immediate updates as resources are expended, assigned, employed, or attrited
Time required to deploy augmentees	
Status and shortfalls at deployment and employment sites	
Location, condition, and amount of support available from sister Wings; time required to deliver to tasked Wing	

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREM INFORMATION	
ASSIGN RESOURCES • Decide which crews, personnel, and equipment will be deployed to satisfy MAJCOM execution order • Determine if Wing resources are prepared to deploy or employ on time and are fully equipped • Determine if limiting factors will prohibit departure of tasked unit	• Status of available aircrews and maintenance crews • Status of ANG, AFRES, mobility personnel and supplies • C-ratings and % fill data for major equipment, training, personnel, and supplies • Status of available aircraft • Flight plan and schedules for launch and flow • Air traffic control clearances • Coordination with other MAJCOMs	• Mobility posture of Wing • Employment posture of Wing • Shortfalls resulting from other tasking • Current status of resources selected for deployment or employment • Actual aircrews and aircraft ready to launch • Limitations, delays, updates, and perturbations • Shortfalls weighted and pinpointed that inhibit or delay any launch or take-off	• Must be a of resourc supporting alert to d employment • Must be sc his orient at hand (R • Must be cr among func among leve • Must be im and curren launch unt or employm • Must be av managers s

Table 2-8 (Continued)

RESPOND TO CRISES (WING)
(CONTINGENCY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Mobility posture of Wing • Employment posture of Wing • Shortfalls resulting from other tasking • Current status of resources selected for deployment or employment • Actual aircrews and aircraft ready to launch • Limitations, delays, updates, and perturbations • Shortfalls weighted and pinpointed that inhibit or delay any launch or take-off	• Must be a composite status of resources of Wing and supporting MAJCOMs from alert to deployment or employment • Must be sorted by user and his orientation to tasking at hand (RM, DO, MA) • Must be cross-referenced among functonal areas and among levels of command • Must be immediately updated and current throughout a launch until enroute (deployment or employment) • Must be available to all managers simultaneously

ACTIVITY OR DECISION	DATA CURRENTLY USED	READINESS MEASUREMENT REQUIREMENT INFORMATION	
MONITOR EXECUTION • Identify shortfalls that require immediate resolution • Determine what modifications are necessary to maintenance or flying schedule • Decide whether or not to abort mission • Determine how much time is required to satisfy tasking if modification are ordered • Determine the severity of any impact on aircraft generation or mobilization • Identify the best choice of support that may be required external to the Wing	• Aircraft launched, time, status • Problems, delays, discrepancies • Mission status and crew status • Progress and accomplishments against commitment • Arrival times, schedules, flow • Air fueling completion, aborts • Resources accounted for • Condition of resources at deployment (employment) site	• Location and status of all aircraft deployed or employed • Augmentation required • Shortfalls: delays, aborts, unpredicted problems, damages • Non-usable equipment and supplies • Alternatives available • Time required to solve problems • Alternatives available to compensate for decision or resource changes	• Must be user com • Must hav access • Must be occur an status c • Must be crew mem skill le • Must sho • Must be or prepl • Must be

Table 2-8 (Continued)

RESPOND TO CRISES (WING)
(CONTINGENCY)

READINESS MEASUREMENT REQUIREMENTS	
INFORMATION	PROPERTIES
• Location and status of all aircraft deployed or employed • Augmentation required • Shortfalls: delays, aborts, unpredicted problems, damages • Non-usable equipment and supplies • Alternatives available • Time required to solve problems • Alternatives available to compensate for decision or resource changes	• Must be highly accurate for user comprehension • Must have immediate user access • Must be reported as events occur and updated for status changes • Must be detailed to tail number, crew member, assigned personnel, skill level, item identifier • Must show impacts on mission • Must be actual, not planned or preplanned • Must be verifiable at source

Section 3

ASSESSMENT OF READINESS MEASUREMENT METHODS

3.1 Historical Perspective

Since 1947, Air Force managers have realized that some method of assessing Air Force capability is essential. Simple inventory counts of resources were all that was available early in the history of the Air Force. The realization of the need for a more meaningful expression of Air Force capabilities led to the development of "C" ratings in the mid 1950's. This began a continuing quest for improved capability assessment which resulted in refinements to existing systems and in the development of new systems. Such systems as the Force Status and Identity Report (FORSTAT), Unit Capability Measurement System (UCMS), and the Unit Status and Identity Report (UNITREP) are all outgrowths of this evolution. Most of these systems follow the same tack of measuring available resources versus authorized resources. Although this is an improvement over simple resource counts, the increasing complexity of weapon systems, variety of wartime scenarios, and decreasing response times have strained the utility of this approach. The Air Force has responded by developing more sophisticated modeling techniques for performing capability assessment and force structure analysis; however, each model is designed for specific analysis and cannot be used for routine day-to-day management of resources or crisis response. With the emphasis on readiness NOW, the Chief of Staff of the Air Force has recognized the need and directed the development of a responsive readiness assessment system.

3.2 Current Readiness Concepts

Although there are many notions of readiness, the most widely understood and used concepts are embodied in the FORSTAT, UCMS, and UNITREP systems. In these systems, resources are divided into four "measured" areas: equipment/ supplies, training, personnel, and aircraft. The authorized types and quantities of resources for a unit are determined by the Designed

Operational Capability (DOC) statements of a particular unit. In other words, the unit is configured to best support notional mission tasking such as air to air, air to ground, air interdiction, etc., according to its DOC. As a measure of unit readiness, the percent fill is computed as: available resources divided by authorized resources. This computation is made for each resource area at unit level, the unit generally meaning wing or squadron. The percent fill is then translated to "C"-ratings of C1 through C4: C1 - Fully Combat Ready; C2 - Substantially Combat Ready; C3 - Marginally Combat Ready; and C4 - Not Combat Ready.

The basic data for these systems is collected by the units. A C-rating is assigned by the unit commander and forwarded through the MAJCOM to HQ USAF and the JCS. Although the system cannot be accessed from the lowest level (other than for data input and correction), some benefits are derived at the lowest level from collecting and preparing the data. Primarily, it forces a regular and disciplined review of unit resource status.

The data base created from these reports is used at the Major Commands and at Headquarters Air Force. Uses are essentially the same at both levels. Daily reports are reviewed by area specialists to determine if adverse trends are developing. During crisis, units are reviewed by DOC to determine which may be able to respond to the crisis. Those units having the required DOCs are then screened for C1 or C2 status. The data are also used to make periodic force readiness presentations to senior staff members at both MAJCOM and HQ USAF. For these presentations, aggregates of the data are made over an interval of time to show the percent of time a unit or weapon system has maintained C1 or C2 status. The presentation is divided into the categories of weapon system, resource area, and Major Command to allow a variety of comparisons. The emphasis is on long term trends.

3.3 Limitations and Deficiencies of Current Methods

The preceding concept of readiness is not the only one. A quick review of Current Readiness Definitions in Appendix B reveals numerous and often inconsistent connotations and definitions of readiness existing in the Department of Defense including the Air Force. The confusion created by this situation is compounded by the methods used to compute readiness. Each system or technique used today to compute readiness is unable by itself to fully evaluate capability, whether it is individual, unit, or force capability.

Determining what is specifically wrong with this situation is not an easy exercise. Insight may be gained by examining some readiness measurement considerations such as the utility of the readiness metric and the fidelity and coherence of the measurement.

3.3.1 The Metric

The resource areas reported - equipment/supplies, training, personnel, and aircraft - do not adequately reveal the specific combat capability of a weapon system. Treated independently, one resource area is one part of the complete readiness profile of a weapon system. A commander needs to know exactly how many combat ready weapon systems he has and whether or not they can perform the sorties required for a specific type of mission. Today, this sortie metric is not directly available.

The four resource areas, graded C1 - C4 and percent fill, do not necessarily indicate or take into consideration the specific mission or tasks that are required to respond to a specific ongoing crisis or other residual capabilities. Although the primary and secondary DOCs are clearly defined, the units also possess a wide variety of capabilities to perform other missions. Therefore, if a unit is judged solely by a general standard rather than what it may be specifically tasked to do at a given time, the C1 - C4 or percent fill may not be enough to evaluate the unit's ability to respond to this crisis. Since the DOC is not always what is asked for in actual tasking, it also may not address the generation time required in the actual tasking.

Measurement based on a DOC does not allow for situations when a unit may not be tasked exactly according to its DOC. Only by consulting individual Wing Commanders may a determination be made that a unit that is C4 or C3 according to its DOC can carry out the immediate task in "C1" fashion. This alternative is not always possible or timely, as in cases where limited participation and visibility are desired in exploring alternatives.

The percent fill expression obscures the details that a commander should know when he must commit a unit to perform a task. What concerns a commander is whether or not what he has can do the job, not the relationship of his actual resources to his authorized resources.

Measuring the percent fill of each resource area may produce a very low C-rating because the unit may be deficient in one area. For instance, a wing which measured low in equipment and supplies but measured high in all other areas may have several possible capabilities. The available equipment and supplies may be used to generate 24 aircraft, each 98% ready or 22 aircraft each 100% ready and 2 aircraft each 80% ready. The determination of what capability actually exists under these circumstances is not an easy one to make and depends on a substantial degree of subjectivity.

Readiness measurements are also required for other uses. To develop and defend the Program Objective Memorandum and the Budget, the Air Staff requires readiness information that would show the impact of budget decisions and resource allocation decisions on Air Force readiness. In preparing reclamas to the Office of Secretary of Defense, Office of Management and Budget, and Congress, the Air Staff should show specific readiness implications of changing funding levels. For example, if budget cuts occur causing a mandatory 10% reduction in flying hours for training, what is the readiness impact? On the other hand, how much would an increase allowing 10,000 additional training flying hours improve readiness?

Current readiness measurements do not reflect the impacts of such decisions on the resources involved. It would be difficult, if not impossible, to correlate trends in C-ratings or percent fill to changes in funding levels.

We have seen that these measurements are being used to answer the question - what can I do with what I have? The previously discussed measures only provide indirect inputs to the answer. There is no directly measured force output metric such as sortie.

3.3.2 Fidelity

Another set of problems associated with current readiness measurements is centered on the unpredictable fidelity of the readiness measurements. (For the purpose of this discussion, fidelity includes the properties of completeness, precision, timeliness and synchronization.) Current readiness measurements only address the four major areas of aircraft, personnel, training, and supplies and equipment. There are many resources critical to sortie production not addressed in these measurements. Additional resources include such things as munitions; petroleum, oil, and lubricants; and facility oriented resources such as ramp space, static maintenance facilities, navigation aids, and communications. This list is only representative of the additional data required to determine sortie production; it is not complete.

The precision of readiness data may be established by reviewing actual data and the data collection process. Review of the data reveals occurrences of impossible or unlikely situations. Data collection depends on the collection criteria established in a large set of complex decision tables. Personnel must assemble the raw data and then make judgements based on the decision table criteria. This process is subject to many errors for several reasons. The person calculating the input may or may not have been on duty over the period the data were collected. Therefore, he may not have the necessary information to correctly make all the decision table judgements. In the best of circumstances, this process is time consuming and complex. There is not always sufficient time or motivation to do a thorough job. The opinions and attitudes of most Wing personnel about readiness reporting is that it is "up-channel" in nature; that is, there is not a two-directional flow of information.

Some data producers at Wing can prepare readiness information while they are generating other reports and simply make copies of the same data on an additional form. For the majority, however, readiness reporting and calculations are work in addition to regular reporting, such as preparing the standup briefings and documentation required within a functional area.

The timeliness of data is related to its use. A Wing or Squadron Commander and management staff require detailed information about the present situation. Current readiness measurements offer these people no support because of the data base age. The age of the current data base is suitable for observing historical performance and for assessing long term trends, but these can only be done at the Major Commands and Air Staff. This readiness data base is of questionable value during crisis not only because completeness and precision are lacking but also because the data do not reflect the real-time readiness status. The data may be as much as three days old. Most crisis decisions require the availability of detailed, timely data.

Synchronization must be addressed in terms of: readiness measurement data; other resource data available in the functional areas of logisitics, personnel, and operations; and tasking. Attempts to use these data sources to corroborate each other or to extend the usefulness of each are made very difficult or impossible because no synchronized timing criteria are present.

3.3.3 Coherence

Finally, there is no capability to present a coherent readiness picture at any level in the Air Force. There is no visible method presently being used to bring together all the facets of readiness to reveal their interdependencies and combined effect on readiness. If this capability exists, it is something that is done in the minds of commanders and managers. When subjective judgements are dominant, as in the example of a low C-rating in equipment and supplies, coherency is lost. If the Wing Commander makes the judgement of changing the computed C-rating, would he consistently arrive at the same rating given the same inputs at different times? Would several different Wing Commanders arrive at the same answer given the same information? Since there is very little formal structure to these decisions,

it is unlikely that the answers are yes. Therefore, it is difficult to predict the repeatability of the readiness measures and the believability of trend information based on them. The current readiness measurements and functional areas reporting provide very weak support to a coherent understanding of Air Force readiness.

3.4 Readiness Measurement Needs

Readiness measurement needs may be determined by comparing the information requirements of readiness information users (described in Section 2) with the assessment of readiness measurement methods presented thus far in this section. A study of these sections reveals the need for a set of methods, procedures, and supporting facilities that will eliminate or reduce the existing limitations and deficiencies and provide the needed capabilities. A method of deriving all levels of tasking (i.e., force structure, Operations Planning, and Air Tasking) in terms of sorties is required so that the readiness measurement $\frac{\text{current capability}}{\text{required capability}}$ can be made. This measurement becomes the core of readiness measurement. Combined with associated information, it can be used to support the decisions outlined in Section 2.

To achieve this kind of readiness measurement, certain procedures, methods, or processes must be improved or provided. First, a change in source data collection methods is required. Methods should be used that can be made timely and accurate and that present the least inconvenience to the person or activity responsible for reporting the data. Second, capability should exist to transform the data into useful readiness information that presents a coherent picture of Air Force readiness, using an objective criteria such as production of a specific type of sortie. This will require facilities to filter, mask, synchronize, correlate, collate, integrate, and calculate on the data. Third, methods should be defined to represent the data and information to the user in a form that is most meaningful for this purpose.

Section 4

CONCLUSIONS

The existing Air Force methods of measuring readiness must be improved to satisfy the current needs of readiness information users. Improvements in data collection, readiness computation, information presentation, information quality and usefulness, and timeliness are greatly needed. Although Air Force readiness measurement has been constantly refined over the years, rapid advances in weapon sophistication and time compression in war scenarios have heightened the demand for readiness information products. As a result, the current readiness information methods have become seriously deficient in their ability to accurately and coherently indicate force readiness as well as unit readiness. Principal deficiencies are:

1) Current methods are not tasking-based. A readiness information system does not exist that states the ability of a unit to perform a specific task or specific mission.

2) Data inaccuracies occur because data producers do not have the proper tools, motivation, nor the capability to audit their inputs.

3) The timeliness of readiness information does not meet utility requirements. Delays in readiness information reaching users when they need it are caused by data inaccessibility, age, and lack of synchronization.

4) There is no uniformity among functional areas and their resources in the expression of readiness. The content of current readiness information is obviously not satisfactory to users. They are forced to supplement, verify, and validate by phone. They must also translate, convert, and modify data to satisfy individual requirements.

These deficiencies are of such a profound nature that they cannot be remedied by simply improving existing methods. To remedy these problems, the AFIRMS program must devise a uniform, commonly understood measure of unit readiness to perform specific tasking; it must also provide useful measurement tools and coherent informational products to both its users and data producers.

Preceding sections of this document have established the need for AFIRMS. Readiness information requirements, not solutions, have been derived from analyzing the management of the operational flying units of the Air Force as well as the decision-making process in response to a contingency. These readiness information requirements were contrasted with current readiness measurement concepts and methods, the differences discussed, and the needs enumerated.

The need for AFIRMS is real and immediate. What remains to be done is to establish the feasibility of providing more accurate and timely readiness information, to provide an accurate economic analysis of the operational AFIRMS, and then to proceed with development of an operational AFIRMS.

Section 5

RECOMMENDATIONS

Although the deficiencies of current readiness measurement methods have been presented and remedies postulated, certain questions remain unanswered: the feasibility of providing the necessary methods and supporting facilities; the relative value of varying degrees of completeness, precision, and timeliness; and a narrow bound on the cost of implementing a selected system. An approach to answering these questions before beginning the implementation of an operational AFIRMS is needed. It is recommended that a Learning Prototype Phase (LPP) that continues close interaction with the user and incorporates "hands-on" trials of alternative tools and products be used to answer those remaining questions.

The LPP approach would first demonstrate the feasibility of satisfying AFIRMS requirements and would then specify system and performance requirements before proceeding to develop an operational system. This preliminary learning period would reduce the cost, benefit and scheduling uncertainties associated with proceeding with full-scale development. The goal of this approach is to define an operational AFIRMS and then use that definition for the acquisition of an operational system.

The major LPP products should be: (1) a final, detailed Functional Description of AFIRMS, based on the most pragmatic kind of judgement by the user -- judgement based on "hands-on" experience; (2) a complete functional specification, independent of vendor product line; (3) a Data Requirements Document; and (4) an Implementation Plan describing the implementation strategy for the operational AFIRMS from IOC through FOC.

To develop these products, the AFIRMS LPP should proceed as follows:

1) Define specific AFIRMS readiness measurement products relying on user guidance and preference for form, content, and other attributes.

2) Derive prospective methods for collecting, processing, and presenting products based on product definitions.

3) Select, build, test, and evaluate alternative tools and products through user participation.

4) Introduce no cost improvements in existing methods or products where appropriate.

5) Evaluate cost, benefits, and uncertainties of alternative methods of providing products.

6) Select "best" alternative and develop specifications and performance requirements for an operational system.

The scope of the AFIRMS LPP should be limited to the level of effort, equipment, and facilities needed to answer the major feasibility, benefit, and cost questions that will be considered by the Air Force in selecting an "appropriate" operational AFIRMS configuration. All effort should be directed toward the application of existing technology to answer those questions. A period of twenty-seven months should be sufficient for accomplishment of the objectives of the LPP.

An experimental testbed distributed among HQ USAF, HQ USAFE, and one or more Wings will be required to support the "hands-on" test and evaluation of alternatives by users. The equipment requirements might consist of two or more geographically separated minicomputers with appropriate mass storage devices, user terminals, and various data entry devices. The complete hardware and software configuration will be dictated by the data collection, processing, and presentation alternatives developed during the LPP. All hardware and, to the extent possible, major software components (operating system, data base management system, etc.) should be off-the-shelf from reliable vendors. Once the feasibility and utility of AFIRMS is proven in the USAFE environment, and the specification documentation of the operational system is established, the analysis and implementation approach can be duplicated for all TAF units and, eventually, for all Operational MAJCOMS.

In summary, an AFIRMS Learning Prototype Phase, or limited "fly before buy," is pragmatic, feasible and essential to the attainment of an operational AFIRMS.

Appendix A

AFIRMS DEFINITIONS

The word "readiness" has numerous definitions and connotations within the Department of Defense and even within the Air Force. The definitions presented in this appendix are the ones adopted for the AFIRMS program. These definitions are constantly revised and comments from readers are welcome.

1. Readiness in Capability Terms

Readiness has meaning only in terms of the ability to perform a mission. Mission requirements are specified in assigned tasking. Tasking may be made in many forms (e.g., OPLAN, Frag Order, Flying Schedule). Capability is defined as the ability to perform assigned tasking. Capability can be expressed in units of measurement such as sorties. We define

$$\text{readiness as } \frac{\text{capability available}}{\text{capability specified}}$$

where capability specified is the capability required by the tasking, and capability available is the capability the assigned unit can actually deliver.

2. Effectiveness

Effectiveness is used to describe the capability of responding to a threat. Readiness, in the AFIRMS sense, does not directly consider threat. It is assumed that the threat has been considered in the tasking. We define

$$\text{effectiveness as } \frac{\text{capability available}}{\text{capability required}}$$

where capability required is the capability necessary to reach or maintain a designated condition - survivability of the unit, sustainability of the current level of operation, or superiority over the enemy - in consideration of the known threat. Effectiveness is more difficult to compute than readiness, and AFIRMS does not propose to include effectiveness estimation.

3. Sustainability

We define sustainability as the capability available for a duration of time under specified conditions (e.g., no resupply). The core of sustainability is the same as the core of readiness, namely the capability available. Readiness is closely related to sustainability. AFIRMS will support the estimation of sustainability, but will not directly measure sustainability.

4. Sortie

Earlier, capability was discussed in terms of sorties. A sortie is defined as a mission-ready aircraft with a qualified aircrew, properly configured, supported, and controlled to accomplish a stated mission (Letter of Agreement between CINC PACAF, COMTAC, and CINCUSAFE, 2 December 1976). The sortie type must be specified in the tasking. Thus, a sortie is a mission ready MDS appropriately configured with the necessary skills of a qualified aircrew and the appropriate mix of weapons and ordnance, complimented with the required ground support, equipment, and skilled personnel, and controlled to accomplish the assigned tasking.

5. Readiness Information

Based on our definition, capability can be expressed as the number of sorties available to perform a certain task. However, this capability is difficult to measure. We cannot easily count the number of close-air support sorties available. We can, however, measure the resources available or the aircrew skills available for specified, close-air support at a certain location and within a certain timeframe. A readiness product is the result of the measurement of resources, such as aircrews, maintenance crews, aircraft, air refueling support, or airlift support, in a certain posture. A product can contain raw data or information (processed data). From these products we can derive a readiness assessment of the capability available. This assessment is readiness measurement information. An estimate of capability available can be constructed using computational procedures (not yet defined).

6. Readiness Measurement vs. Resource Measurement

The following example gives a rationale for tasking-based readiness measurement rather than a resource count, or percent-fill measurement of readiness. Assume three resources, A, B, and C, must be present for a sortie to be possible.

LOCATION	DATA COUNT	TASKING-BASED READINESS MEASUREMENT	RESOURCE MEASUREMENT
FIRST BASE	A B, B C	1 SORTIE	1 A 2 B 1 C
SECOND BASE	A B C	1 SORTIE	1 A 1 B 1 C
THIRD BASE	A C	0 SORTIE LIMITED BY B	1 A 1 C
AGGREGATE REPORT		2 SORTIES, LIMITED BY B AT THE THIRD BASE	3 A's, 3 B's, 3 C's

As shown, the resource measurement not only fails to reveal the capability of three bases to meet the specified tasking, but also conceals base three's limitations. The tasking-based readiness measurement integrates the data into information that reveals the unit's ability to fly a specific number of sorties and identifies the shortfall that limits additional ability.

Appendix B

CURRENT DEFINITIONS OF READINESS TERMS

A sampling of readiness definitions and readiness-related terms used within the Department of Defense is presented to further emphasize the need for uniformity and understanding among users of readiness information. The second revision to the JCS Memorandum of Policy No. 172, 1 June 1982, has provided some unity by defining the term "military capability", including its four major components of readiness, sustainability, force structure, and modernization. These definitions are included on the next page.

Following the JCS MOP definitions is a wide range of readiness terms that have been used over the past several years. Examination of these terms will reveal the need that has existed for precision and clarity. This compilation was extracted from "Glossary of Readiness and Readiness-Related Terms and Definitions" office of the Assistant Secretary of Defense, 15 August 1978.

MILITARY CAPABILITY

The ability to achieve a specified wartime objective; e.g., win a war or battle, destroy a target set. It includes four major components as follows:

(a) Readiness: Ability of forces, units, weapon systems, or equipment to deliver the outputs for which they were designed (includes the ability to deploy and employ without unacceptable delays).

(b) Sustainability: The "staying power" of our forces, units, weapon systems, and equipment, often measured in numbers of days.

(c) Force Structure: Number, size, and composition of the units that comprise our defense forces; e.g., devisions, ships, air wings.

(d) Modernization: Technical sophistication of forces, units, weapon systems, and equipment.

JCS READINESS TERMS AND DEFINITIONS

AIR DEFENSE READINESS (DOD, INTER-AMERICAN DEFENSE BOARD (IADB))

An operational status requiring defense forces to maintain higher than ordinary preparedness for short periods of time (JCS Pub 1).

COMBAT READINESS (DOD, IADB)

Synonymous with "operational readiness," with respect to missions or functions performed in combat (JCS Pub 1).

COMBAT READINESS RATING CODES (C-RATINGS)

C-1 Fully Combat Ready: A unit possesses its prescribed levels of wartime resources and is trained so that it is capable of performing the wartime mission for which it is organized, designed, or tasked.

C-2 Substantially Combat Ready: A unit has only minor deficiencies in its prescribed levels of wartime resources or training that limit its capability to perform the mission for which it is organized, designed, or tasked.

C-3 Marginally Combat Ready: A unit has major deficiencies in prescribed wartime resources or training that limit its capability to perform the wartime mission for which it is organized, designed, or tasked.

C-4 Not Combat Ready: A unit has major deficiencies in prescribed wartime resources or training and cannot effectively perform the wartime mission for which it is organized, designed, or tasked.

C-ratings are computed and reported separately for each of the following four resource areas and additionally as a composite of the four areas.

PERSONNEL

This measured resource area rating will compare personnel assigned strength against the authorized strength of the organization being rated. Consideration should be given to the availablity of key and critical specialities and personnel distribution by categories and/or grades.

EQUIPMENT/SUPPLIES ON HAND

This measured resource area rating will compare equipment and supplies on hand (regardless of operational readiness) against the authorization for the organization being rated. Equipment and supplies to be considered are those determined by the cognizant Service to be necessary for the organization to perform its mission.

EQUIPMENT READINESS

This measured resource area rating will compare the equipment operationally ready against the authorization for the organization being rated. Equipment to be rated and standards of equipment operational readiness will be determined by the cognizant Service.

TRAINING READINESS

This measured resource area rating will compare the present level of training against the standard for fully trained organizations. Results of training inspections/tests, operational readiness inspections/tests, and technical proficiency inspections will be considered in the evaluation of the organization's training rating. An organization engaged in combat should not have the rating for this area reduced solely because it is unable to paraticipate in scheduled inspections/tests. (JCS Pub 6, pages 2-6-2 through 2-6-5.)

COMBAT READY (DOD, IADB)

Synonymous with "operationally ready," with respect to missions or functions performed in combat (JCS Pub 1).

EQUIPMENT OPERATIONALLY READY (DOD)

The condition status of an item of equipment in the possession of an operating unit which indicates it is capable of fulfilling its intended mission and in a system configuration that offers a high assurance of an effective, reliable and safe performance (JCS Pub 1).

EQUIPMENT OPERATIONALLY READY

(1) Army: Equipment Readiness. Army Equipment Status. Items of equipment which are Equipment on Hand assets, listed in TM 38-750, capable of performing primary mission, and free of factors which may curtail sustained performance.

(2) Navy: Equipment is available and in condition to perform the missions or functions for which designed or required.

(3) Air Force: The daily projection for equipment of which the status indicates that it is capable of safe use and that mission-essential subsystems, necessary for the performance of the primary missions of the organization to which assigned, are ready. Training is not considered a primary mission for combat and combat support organizations.

(4) Marine Corps: An item of equipment operationally ready to the degree that it can perform its assigned mission. Aircraft must be safely flyable and capable of performing one or more (but not necessarily all) of the primary missions of the organization to which assigned (JCS Pub 6, D-5).

MATERIAL READINESS (DOD, IADB)

The availability of material required by a military organization to support its wartime activites or contingencies, disaster relief (flood, earthquake, etc.), or other emergencies (JCS Pub 1).

OPERATIONALLY READY (DOD, IADB)

(1) As applied to a unit, ship, or weapon system -- capable of performing the missions or functions for which organized or designed. Incorporates both equipment readiness and perscnnel readiness.

(2) As applied to personnel — available and qualified to perform assigned missions or functions. (IADB)

(3) As applied to equipment — available and in condition for serving the functions for which designed (JCS Pub 1).

OPERATIONAL READINESS (DOD, NATO, IADB)

The capability of a unit, ship, weapon system, or equipment to perform the missions or functions for which it is organized or designed. May be used in a general sense or to express a level or degree of readiness. (JCS Pub 1).

WEAPONS READINESS STATE (DOD, IADB)

The degree of readiness of air defense weapons which can become airborne or be launched to carry out an assigned task. Weapons readiness states are expressed in numbers of minutes. (JCS Pub 1).

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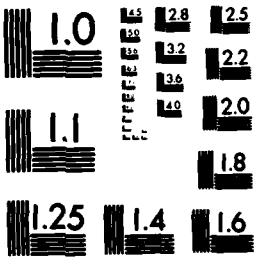

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AIR FORCE READINESS TERMS AND DEFINITIONS

COMBAT READY (CR)

A level of readiness which indicates the individual has been certified by the unit of permanent assignment as qualified to perform a specific duty at the necessary level of competence. CR is applicable to all duty positions. (ADCOMR 50-5, Vol II, 1-7).

FULL MISSION CAPABLE (FMC)

To be in this status, an aerospace vehicle must have the systems working to fly all missions under peacetime or wartime conditions (AFR 65-110, interim message change 77-1).

MISSION CAPABLE (MC)

Full Mission Capable and Partial Mission Capable rates combined (AFR 65-110).

MISSION READY AVAILABLE EQUIPMENT

MAJCOMs have set up minimum essential subsystem lists (MESLs) by MDS for each DOC mission or GCC level being measured in the UCMS. Weapon systems that are safely flyable under wartime conditions and have the systems on the MESL ... for a mission are "mission ready available" (MRA) for that mission.

NOT MISSION CAPABLE (NMC)

An aerospace vehicle in this status cannot fly any wartime mission. To be in NMC status, an aerospace vehicle with no wartime mission cannot fly any of its assigned missions. (NOTE: Inspections such as preflight and postflight and actions to prepare for flight such as servicing and drag chute installation, are not reported as NMC.) (AFR 65-110, interim message change 77-1).

NOT OPERATIONALLY READY, MAINTENANCE

A condition status of a major item of equipment or weapon system on which maintenance work must be accomplished to return it to an operationally ready condition. (AFM 11-1, 2 Jan 76).

NOT OPERATIONALLY READY, SUPPLY

A condition status of an aerospace vehicle or selected item of equipment that is not capable of performing all of its assigned mission(s) due to parts required from supply (AFM 11-1, 2 Jan 76).

OPERATIONALLY READY (OR)

A level of readiness which indicates the individual has been certified by the unit of permanent assignment as qualified to perform all the duties of a WD/WDT/FM/FMT/RICMO/RICMT/ASO/AST and AJO during daily operations without the direct supervision of an instructor (ADCOMR 50-5, Vol II, 1-7).

OPERATIONAL READINESS

The ability of a unit, weapon system, or equipment to perform the wartime mission or functions for which it is organized or designed. This term may be used in a general sense or to express a level or degree of readiness (AFR 123-6, 7 Apr 78).

PARTIAL MISSION CAPABLE (PMC)

To be in this status, an aerospace vehicle must be safely flyable under wartime conditions and have the systems working to fly at least one unit mission under wartime conditions but less than the systems to be FMC. Aircraft with no wartime mission must be able to fly any one mission to be in this status. (*Note:* Aircraft on alert may be in this status if it can fly the alert mission. In addition, aircraft in precautionary standdown directed by higher authority may be in this category.) (AFR 65-110, interim message change 77-1.)

READINESS

The state of preparedness of an individual, force, or organization for carrying out an operation, mission, task, or the like; combat readiness or operational readiness. Also said of equipment. (USAF Dictionary, 1956 (sic).)

OSD READINESS TERMS AND DEFINITIONS

MATERIAL READINESS

Material is considered ready when it is capable of safe use and the minimum number of subsystems, designated by a Military Department as mission-essential, are installed and operable for the performance of one or more of the primary missions. Mission-essential subsystems are those required to perform the primary-missions, e.g., fire control, sonar, bombing, communications, ECM, radar, etc. (DoDI 7730.25, 1 Feb 72).

NOT OPERATIONAL READY - MAINTENANCE (NORM)

A condition status of material indicating that it is not ready to perform any of its missions because of organizational or intermediate level maintenance requirements. Recording of NORM time shall start when it is first known that the condition exists except when caused by an in-flight malfunction. Then, the time will start at engine shutdown. Time shall stop when maintenance has been completed or is interrupted by work stoppage due to supply shortage. (The period of work stoppage due to supply shall be measured as NORS). NORM time shall resume when required supply items are delivered to the material being repaired (DoDI 7730.25, 1 Feb 72).

NOT OPERATIONAL READY - SUPPLY (NORS)

A condition status of material indicating that it is not operationally ready, because maintenance required to clear a NORM condition cannot be continued due to a supply shortage. Recording NORS time shall start one hour after:

(a) a supply demand has been made for an item(s) required for maintenance,

(b) the item(s) is not delivered to the material and

(c) maintenance work stoppage results (DoDI 7730.25, 1 Feb 72).

READINESS

The concept that integrates the diverse factors that affect the ability to deploy, engage, and sustain effective combat forces. (Annual Defense Department Report FY 1977).

REDUCED MATERIAL CONDITION (RMC)

A condition status of multi-mission material indicating mission-essential subsystem incapability because one or more are inoperative for maintenance or supply reasons. The Military Departments may further subdivide RMC into maintenance and supply categories, if desired (DoDI 7730.25, 1 Feb 72).

MISCELLANEOUS READINESS TERMS AND DEFINITIONS

READINESS

The capability of some specified force structure (or subset thereof) to do something, somewhere, with some amount of advance notification, and to continue doing it for some period of time. (The "something" for a specific unit is normally the mission(s) for which it was designed, organized, and equipped.) The "readiness" of Defense combat forces thus defined depends on a myriad of diverse and often interrelated factors (DoD Materiel Readiness Report, Feb 78).

READINESS

The quantitative availability and specific condition of personnel and materiel resources, the types and quantities of missions and units/forces are capable of performing in crisis, under what sets of circumstances and for how long.

At least the following information seems necessary ...:

- Availability (and condition) of materiel and personnel resources;
- Capability (kinds of activity and levels of performance in crisis, vs. normal peacetime);
- Deployability;
- Flexibility (capabilities other than primary);
- Survivability; and
- Sustainability

Thus, in addition to information (statistics) of static nature, dynamic information also is required -- the total reporting:

what resources do we have,

what can they do,

at what level,

under what circumstances, and

for how long.

(RAND Working Note, WN-9623-PR, Sept 76.)

READINESS

The difference between requirements and capabilities (CAA Study Report, CAA-SR-76-7. June 76).

TOTAL FORCE READINESS

From my view point, our state of readiness certainly determines how rapidly and with what effect peacetime configured forces can be brought to bear upon various crises or conflict situations. It also includes how long and to what degree our forces can be employed. It embodies the capability to successfully accomplish tasks within a specified time with current resources and management systems (General David Jones quoted in RAND working Note, WN-9632-PR, Sept 76).

JCS READINESS-RELATED TERMS AND DEFINITIONS

ASSIGNED STRENGTH

(1) Army -- The number of personnel permanently assigned to an organization except those in a PCS transient status. Personnel temporarily absent (e.g., leave, TDY) are included in assigned strength.

(2) Navy -- All personnel currently assigned to the organization for duty whether or not on board. This includes personnel from time of reporting to time of detachment from the organization, including those temporarily absent on temporary additional duty or leave. Since personnel transferred on temporary duty are considered a loss to the organization, they will not be included in assigned strength.

(3) Air Force -- The number of essential personnel (i.e., those personnel possessing skills that are designated essential to the direct accomplishment of the unit's mission) that are assigned and available to support the rated unit.

(4) Marine Corps -- The total number of personnel chargeable to an organization whether or not on board. MCS P1070.8 (IRAM) defines chargeable. USMCR - (0) - organizations assigned strength will include Class II Assigned, Class II Select, and Inspector-Instructor Personnel.

(5) Coast Guard -- Same as Navy.

(JCS Pub 6, D-1).

AUTHORIZED STRENGTH

(1) Army -- That portion of the required manpower which can be supported by allocated manpower and which is reflected in the authorized columns of current or projected authorization documents.

NOTE: For U.S. Army combat readiness reporting on card type K, the following definition applies:

> Authorized Strength. Army full TOE/MTOE or structure strength. The full Table of Organization and Equipment (TOE) strength for organizations organized under F and earlier series TOE; level 1 strength for organizations organized under G and later series TOE, as amended by modification TOE (MTOE), DA numbered changes, or other approved additions or deletions. For organizations organized under type B columns of TOE, the type B column is full TOE. For TDA organizations designed to report organization readiness, the authorized column is full TOE.

(2) Navy -- The current authorization of an organization as indicated in the Allowance column of the Unit Manpower Authorization (OPNAV Form 1000/2). In some instances, the structured strength and the current authorized strength will be identical.

(3) Air Force -- The number of essential personnel (i.e., those personnel possessing skills that are designated essential to the direct accomplishment of the unit's mission) that have been authorized by a Manpower Source Listing to support the rated unit.

(4) Marine Corps -- That portion of total Marine Corps strength approved by competent authority as the staffing objective for an organization; this will be the manning level unless otherwise specified. T/O strength will normally be reported as authorized strength for USMCR - (0) - organizations.

(5) Coast Guard -- The current authorization of an organization as indicated in the personnel allowance list (P-835).

(JCS Pub 6, D-2).

DEFENSE READINESS CONDITIONS (DoD)

A uniform system of progressive alert postures for use between the Joint Chiefs of Staff and the commanders of unified and specified commands, and for use by the Services. Defense Readiness Conditions are graduated to match situations of varying military severity (status of alert). Defense Readiness Conditions are identified by the short title (DEFCON (5), (4), (3), (2), and (1), as appropriate (JCS Pub 1).

DEPLOYABLE STRENGTH

This strength is an organization's present strength, less those personnel ineligible to deploy in an emergency or crisis situation, based on specific personnel deployment criteria determined in conjunction with the declaration of deployable alert (JCS Pub 6, D-3).

INDUSTRIAL PREPAREDNESS (DoD, IADB)

The state of preparedness of industry to produce essential material to support the national military objectives. (Synonymous with industrial readiness) (JCS Pub 1).

POSSESSED STRENGTH

(1) Army: The operating strength of an organization chargeable against the personnel authorization (TOE or TDA).

(2) Navy, Air Force, Marine Corps: Total Military personnel with an organization who are physically present at a specified location or embarked on board a ship (JCS Pub 6, D-8).

READINESS RATING LIMITATION

(1) Army: Army Authorization Level of Organization (ALO). The ALO of an organization is the ratio of authorized manpower spaces to the full MTOE structure spaces, against which an organization is authorized to requisition personnel and equipment. ALO may be expressed in numerical designated levels representing percentages of full MTOE structure spaces. Equipment resources are specified by item for each level of organization. Inherent in the DA approved ALO for an organization is the stated listribution objective based on programmed capability of the Army to provide assets at the designated level of personnel and equipment. HQDA may, in exceptional circumstances, approve an unbalanced organization in which the authorized level of personnel and the authorized level of equipment will differ. The lower of the two levels or organization will be the "unit readiness level" which is considered supportable with a matching readiness condition (REDCON). ALO-1 organizations do not report a readiness rating limitation.

(2) Navy: Restrictions or limitations imposed on allocated resources (personnel, materiel, funds, etc.) of designated organization by higher authority that will preclude the organization from attaining a status of being fully combat ready (C-1) to perform its wartime mission. (The Navy goal in readiness is normally C-1 in the measured resource areas of Equipment/Supplies on Hand, Equipment Readiness, and Training. However, an implicit limitation exists in the measured resource area of Personnel for those organizations in which a Ship/Aircraft Squadron Manning Document has not been implemented and for those of which the authorized allowance is less than 955 of complement (M+12).) (3) Air Force: The highest rating of composite readiness that an organization can be expected to attain due to a limitation imposed by higher authority (JCS Pub 6, D-9).

AIR FORCE READINESS-RELATED TERMS AND DEFINITIONS

AUTHORIZED STRENGTH

The number of essential personnel (i.e., those possessing skills that are designated essential to the direct accomplishment of the unit's mission) that have been authorized by a Unit Manpower Document (UMD) to support the rated unit (JCS Pub 6, D-2).

ASSIGNED STRENGTH

The number of essential personnel (i.e., those personnel possessing skills that are designated essential to the direct accomplishment of the unit's mission) that are assigned to support the rated unit (JCS Pub 6, D-1).

POSSESSED STRENGTH

Total military personnel with an organization who are physically present at a specified location .... (JCS Pub 6, D-8).

DLA READINESS-RELATED TERMS AND DEFINITIONS

MILITARY AND CIVILIAN PERSONNEL STRENGTH

This indicator is intended to compare authorized vs. assigned strength. It considers shortages in overall personnel strength, shortages within specific skill groupings or those involving key management or supervisory positions. Evaluate military and civilian strength separately.

MILITARY AND CIVILIAN PERSONNEL TRAINING

The basic consideration here is an assessment of the state of training in relation to the requirement of the duties to which personnel are assigned. The condition may be temporarily affected by skill imbalances or the institution of new equipment, systems or procedures which require a retraining program. Evaluate military and civilian training separately. (DSAR 3135.4 pg 3).

PERCENT STOCK AVAILABILITY

100 percent minus (Backorders/Direct Vendor Deliveries Established divided by Net Demands) multiplied by 100 (DSAM 4140.2, Ch 106, Vol II, Part III, 1 April 75).

STOCK AVAILABILITY AND MATERIEL OBLIGATION TREND

This is a key measurement of DLA's readiness to effectively support the Military Services. For example, a decreasing trend in the percent of stock availability or a rising trend in the number of materiel obligations indicate reduced materiel readiness for the Military Services (DSAR 3135.4, pg 3).

Appendix C

GLOSSARY

AAC	Alaskan Air Command
AC	Comptroller
AFCC	Air Force Communications Command
AFIRMS	Air Force Integrated Readiness Measurement System
AFLC	Air Force Logistics Command
AFR	Air Force Regulation
AFRES	Air Force Reserves
AFSC	Air Force Specialty Code
AFSC	Air Force Systems Command
AGE	Aerospace Ground Equipment
ANG	Air National Guard
ATC	Air Training Command
CC	Commander
CINC	Commander in Chief
CONUS	Continental United States
CP	Command Post
CSS	Contingency Support Staff
DLA	Defense Logistics Agency
DO	Deputy Commander for Operations
DOC	Designed Operational Capability
ESC	Electronic Security Command
FAR	Functional Area Requirement
FOC	Final Operational Capability
FORSTAT	Force Status and Identity Report
IADB	Inter-American Defense Board
IOC	Initial Operational Capability
JCS	Joint Chiefs of Staff

LG	Director of Logistics
LPP	Learning Prototype Phase
MA	Deputy Commander for Maintenance
MAC	Military Airlift Command
MAJCOM	Major Command
MDS	Mission, Design, and Series
MP	Manpower and Personnel
MR	Mission Ready
NAF	Numbered Air Force
NCA	National Command Authorities
OMB	Office of Management and Budget
OPLAN	Operational Plan
ORI	Operational Readiness Inspection
OSD	Office of the Secretary of Defense
PAA	Primary Authorized Aircraft
PACAF	Pacific Air Forces
POM	Program Objective Memorandum
RM	Deputy Commander for Resources
SAC	Strategic Air Command
SADT™	Structured Analysis and Design Technique
SECDEF	Secretary of Defense
SITREP	Situation Report
SOP	Standard Operating Procedure
TA	Table of Allowances
TAC	Tactical Air Command
TCTO	Time Compliance Technical Order
TOA	Table of Allowances

UCMS	Unit Capability Measurement System
UNITREP	Unit Status and Identity Report
USAFE	United States Air Force in Europe
UTE rate	Utilization Rate
WMP	War and Mobilization Plan
WRSK	War Readiness Spares Kit
XOOIM	Air Staff Readiness Assessment Group
XP	Deputy Commander for Plans

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