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**REVIEW OF STRATEGIC
MOBILITY PROGRAMS**

VOLUME 2: CIVIL RESERVE AIR FLEET

Report PL023R2

May 1991

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PREFACE

In this study, the Logistics Management Institute reviews the strategic mobility programs of the Department of Defense (DoD). The review encompasses Government-owned capabilities, programs augmenting Government capabilities with commercial airlift and sealift assets, and use of commercial ocean ports. It focuses on the DoD and commercial-carrier experience in satisfying the strategic lift requirements of the Persian Gulf War.

The results of this study are presented in four volumes. Volume 1 assesses the overall state of DoD's strategic mobility programs and presents a foundation for making needed improvements. It also calls forth, where appropriate, several of the principal findings and recommended management actions that are addressed in the other volumes. Volumes 2, 3, and 4 are stand-alone documents that examine, in detail, specific portions of DoD's strategic mobility programs. This volume, Volume 2, reviews the structure of the Civil Reserve Air Fleet and its activation and use during Operation Desert Shield/Storm. Volume 3 assesses DoD's policies and practices for augmenting its strategic sealift assets with commercial capabilities; it also reviews the use of commercial ocean ports during the recent deployment. Volume 4 concludes by examining the make-up of several Government sealift programs (Fast Sealift Ships, Afloat and Maritime Prepositioned Ships, and Ready Reserve Force) and their contribution to meeting the strategic sealift requirements of Operation Desert Shield/Storm.

Executive Summary**REVIEW OF STRATEGIC MOBILITY PROGRAMS****VOLUME 2: CIVIL RESERVE AIR FLEET**

The Civil Reserve Air Fleet (CRAF), a 38-year old program designed to augment the organic capability of the U.S. Military Airlift Command (MAC) with civil aircraft, was called into service for the first time ever on 18 August 1990. On that date, MAC activated the 38 cargo and passenger aircraft of Stage I to meet the initial surge requirements of Operation Desert Shield. The Secretary of Defense followed 5 months later, on 16 January 1991, by activating CRAF Stage II, adding more aircraft to meet the pressing sustainment requirements of Operation Desert Storm.

The commercial carriers responded promptly to both activations and proved invaluable in assisting MAC to satisfy surge, sustainment, and redeployment requirements of the Persian Gulf War. Flying in excess of 4,700 missions, they played a key role in moving units, equipment, and resupply materiel. The CRAF Program is clearly a Department of Defense (DoD) success story.

For several reasons, the call-up and utilization of commercial aircraft did not occur flawlessly. The procedures followed in both CRAF activations suggest that the steps leading to such action need better definition. We recommend that a new DoD Directive for CRAF, prepared by the Assistant Secretary of Defense (Production and Logistics), provide that definition by detailing the respective roles, responsibilities, and informational requirements of the Department of the Air Force, MAC, the U.S. Transportation Command, the Joint Chiefs of Staff, and the Office of the Secretary of Defense.

The activations also highlighted the inflexibility of the CRAF structure to accommodate real-world conditions. The call-up of aircraft by stages proved particularly troublesome for MAC (which did not always require all the capability provided in each stage) and the carriers (whose aircraft were not always fully utilized once activated). We recommend that DoD discard the use of staged activations; expand

the number of aircraft segments (separating cargo, passenger, and aeromedical); incorporate volunteer aircraft into the CRAF structure; and select, by lottery, only those capabilities needed to meet specific requirement levels by aircraft segment.

The extensive use of civil aircraft in meeting the strategic lift requirements of Operation Desert Shield/Storm surfaced a number of operational problems with the CRAF Program. Three are particularly noteworthy: the incompatibility between military and civil communications and navigational systems, the adequacy of the four crews assigned to each aircraft, and the need for better carrier-insurance provisions. As corrective actions, we recommend that MAC identify the communications and navigational features most needed by CRAF carriers and their associated cost. We also recommend that MAC reassess the use of the four-crew criterion for meeting long-distance contingencies and establish new criteria, as required. Finally, we recommend that the Assistant Secretary of Defense (Production and Logistics) encourage the joint DoD-Department of Transportation review of insurance for CRAF participants.

We believe that the management actions detailed in our report have the potential to enhance an already strong program and reaffirm the Government/industry partnership that has been the cornerstone of the CRAF Program since inception in 1952.

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REVIEW OF STRATEGIC MOBILITY PROGRAMS

VOLUME 2: CIVIL RESERVE AIR FLEET

This report examines the role of the Civil Reserve Air Fleet (CRAF) in meeting the Department of Defense's (DoD's) requirements for strategic airlift. It begins with a description of the CRAF Program, addresses the support that CRAF aircraft provided during Operation Desert Shield/Storm, and concludes with our assessment and recommendations for corrective action on a number of management issues.

OVERVIEW

Established in 1952, CRAF was sized and structured to meet the threat of a Soviet invasion of Europe. Its purpose is "to augment U.S. military airlift forces with civil air carriers to support emergency airlift requirements."¹ Under CRAF, U.S. air carriers voluntarily commit cargo and passenger aircraft to support airlift requirements that exceed MAC's capabilities. The carriers pledge specific aircraft by tail number to one of three stages of crisis escalation: Stage I – Committed Expansion; Stage II – Defense Airlift Emergency; or Stage III – National Emergency. The CRAF support is also divided into five functional segments: long-range international, primarily B-747s and DC-10s; short-range international, B-727s and B-757s; domestic, DC-9s and L-100s; Alaskan, B-727s and L-100s; and aeromedical, B-767s and MD-80s. Table 1 shows the number of aircraft currently committed to CRAF, by stage and segment. Although not shown in the table, the long-range international segment is comprised of 252 passenger and 141 cargo aircraft, while 28 of the 34 aircraft in the short-range international segment are passenger aircraft.

Carriers are obligated to provide up to four full crews for each aircraft committed. Once activated, the carriers continue to operate the aircraft and provide full support, including fuel, spare parts, and maintenance. MAC, however, assumes mission control. Several carriers also have agreed to serve as senior lodgers during

¹Military Airlift Command (MAC) briefing provided Logistics Management Institute personnel on 24-27 September 1990.

TABLE 1
COMPOSITION OF CRAF PROGRAM
(as of September 1990)

Segment	Stage I	Stage II	Stage III
Long-range international	38	113	393
Short-range international	-	23	34
Domestic	-	44	44
Alaskan	-	4	4
Aeromedical	-	-	31
Total	38	184	506

Source: MAC.

Note: The higher stages of CRAF include all lower stage aircraft.

Stage III. In that capacity, they provide expanded ground support services to all aircraft and their crews, using designated commercial airports.

Once DoD determines the size and composition of CRAF, the Department of Transportation (DOT) allocates the aircraft to MAC, taking into consideration civil airlift requirements. DOT, through the Federal Aviation Administration (FAA), provides operation support to CRAF aircraft, monitors flight times for CRAF crews, issues nonpremium Title XIII hull and liability insurance coverage for activated aircraft, and ensures that the carriers meet operations and safety standards, among other responsibilities.²

STRUCTURE

This section describes the steps for activating CRAF stages, the incentives offered to participate in the program, the process used by MAC to establish rates for airlift services, the underlying contractual arrangements, and the insurance coverage available to carriers.

²Memorandum of Understanding Between the Department of Defense and the Department of Transportation Concerning the Civil Reserve Air Fleet Program, 7 May 1981.

Activation Procedures

Each stage of CRAF is designed to meet the increased airlift requirements of escalating levels of emergency. The Commander-in-Chief (CINC) MAC can call up Stage I aircraft on 24-hour notice to meet crisis requirements. The Secretary of Defense can activate Stage II aircraft, also on 24-hour notice, during an emergency that is less than a full mobilization. The Secretary of Defense also can activate Stage III aircraft, under either of the following conditions: one, the President or Congress declares a Defense-oriented national emergency, or, two, in a national Defense-oriented situation short of a declared Defense-oriented national emergency. In Stage III, the air carriers have 48 hours to make their aircraft available to MAC.³

Incentives

Although principally aimed at augmenting organic airlift capabilities during wartime, the CRAF Program is also used to allocate some of MAC's peacetime workload, both passenger and cargo, among its participants. Access to that workload is the primary incentive for carriers to join the program. MAC awards mobilization values to carriers that commit aircraft to, for example, the long-range international segment of CRAF, based upon aircraft type (cargo or passenger), payload, block speed, and range, among other factors. MAC then uses the mobilization values to establish "entitlements," expressed in annual dollar shares of its cargo or passenger business.

The "joint venture" concept provides another incentive for carriers to join the CRAF Program. Under this concept, carriers are not required to convert the mobilization values associated with their commitment into peacetime business. Instead, they can trade those mobilization values to their joint-venture CRAF partners that want to augment normal commercial business with military movements. The concept was established to induce carriers, particularly small-package carriers, to join CRAF that may not do so otherwise.

Rates

The rates that MAC pays for airlift services under the CRAF Program are constructed from the carriers' actual fixed and variable direct costs, indirect costs, and capital investments in the commercial marketplace. MAC uses those costs to

³MAC Regulation 55-8, *Operations: Civil Reserve Air Fleet (CRAF)*, 28 June 1988.

develop separate passenger-seat-mile and ton-mile rates for each carrier. Next, it computes weighted averages of the individual passenger and cargo rates, based upon the revenue that each carrier received from MAC in the prior year. Those weighted passenger and cargo averages become the official rates paid to all carriers, for both peacetime support and wartime augmentation, during the next fiscal year. Once the aircraft are activated, carriers are paid for the actual services provided.

During the early years of the CRAF Program, MAC paid carriers for their airlift services using competitively bid rates. That practice was later discarded because the carriers' rates frequently were aimed at expanding market share at the expense of recovering costs, and the quality of service often was unacceptable and beyond MAC's control. Between 1962 and 1980, MAC used a variety of uniform rates developed under the guidance of the Civil Aeronautics Board (CAB). After deregulation of the transportation industry in the late 1970s, MAC, following many of those same CAB practices, instituted its current method of setting rates.

Figures 1 and 2 show MAC's actual cargo and passenger rates, respectively, since 1980. The lower line in both figures excludes the cost of fuel from the rates.

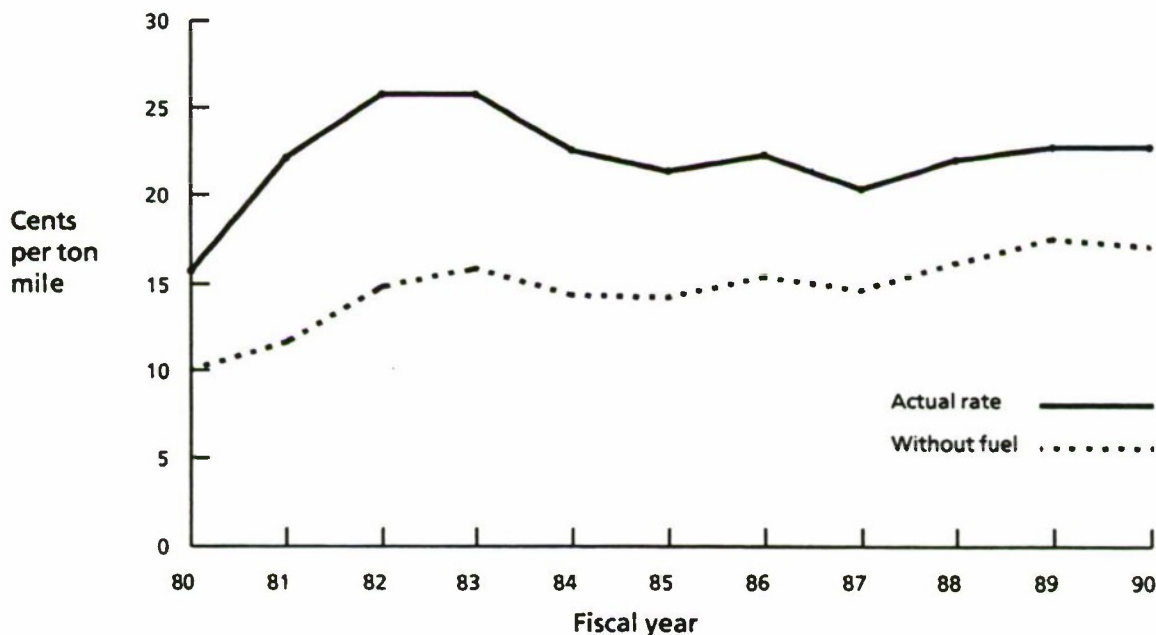


FIG. 1. MAC CARGO RATE HISTORY

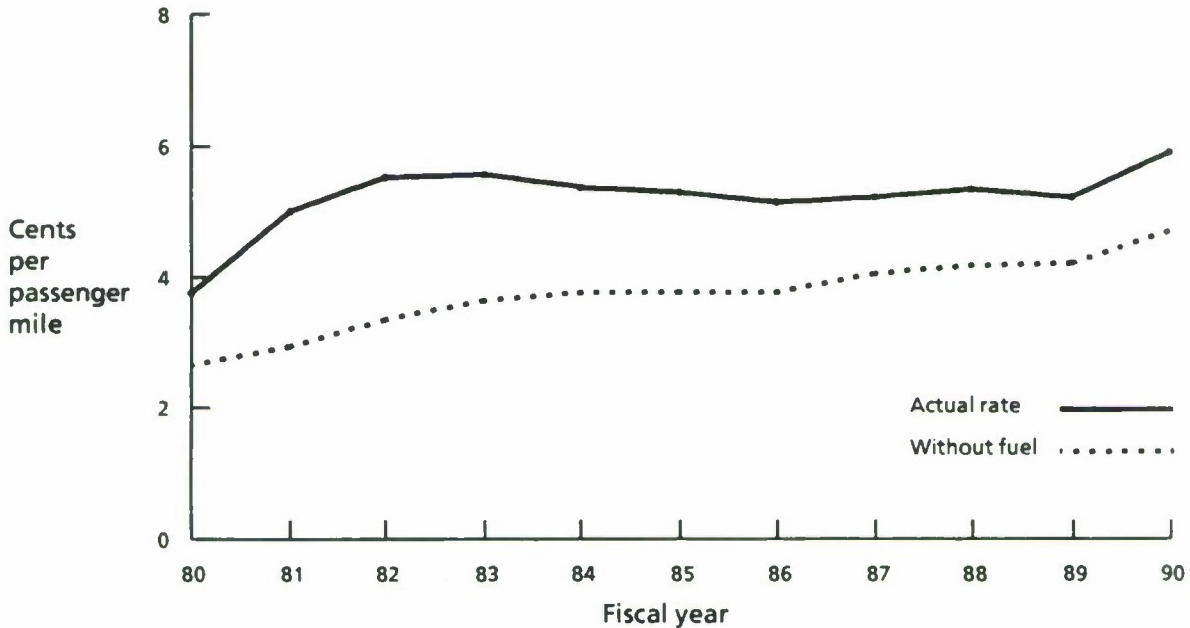


FIG. 2. MAC PASSENGER RATE HISTORY

Contracts

The Air Force's Annual Airlift Services Contract is the primary vehicle tying MAC to the CRAF participants. The current contract covers a 3-year period beginning 1 January 1990 and details the terms under which air carriers commit their aircraft to CRAF, including call-up procedures, crew and support requirements, and rates for services. It further identifies the carriers serving as senior lodgers and their associated airports of responsibility. MAC also uses a CRAF Call Contract with those carriers that do not want any military business during peacetime but still desire to participate in CRAF, only at Stage III, however.

Although the rates for airlift services are updated annually, both the Annual Airlift Services and CRAF Call Contracts provide for MAC and the carriers to adjust the rates in response to fluctuations in fuel costs.

Insurance

Once their aircraft are activated under the CRAF provisions, carriers can receive nonpremium, full-liability insurance coverage through the FAA under Title XIII of the Federal Aviation Act of 1958 and Public Law 85-726. The latter statute also stipulates that DoD must reimburse DOT for all losses incurred as a

result of this coverage. The statute further empowers the Secretary of Transportation to offer air carriers that continue to provide commercial services within a "war zone" premium insurance against loss of or damage to their aircraft, provided the President determines that the continuation of those services is vital to the foreign policy of the United States and the carriers cannot obtain similar coverage from private sources at reasonable rates. Additionally, Public Law 85-804 provides for DoD to indemnify the carriers for all losses not fully covered by the Title XIII insurance.

ROLE DURING OPERATION DESERT SHIELD/STORM

Shortly after the President's decision to launch a military response to Iraq's invasion of Kuwait, U.S. air carriers voluntarily began supporting the airlift requirements of Operation Desert Shield through a MAC "expansion buy." They moved their first passengers on 7 August 1990; by the 17th, they had completed in excess of 100 passenger and cargo missions (i.e., international flights) involving more than 30 aircraft.⁴

On 18 August 1990, MAC activated all 38 aircraft from 16 carriers in CRAF Stage I. Through 17 September, those aircraft flew 391 missions (179 passenger and 212 cargo) in support of Operation Desert Shield. The number of CRAF missions increased to 665 (305 passenger and 360 cargo) by 18 October; to 890 (423 passenger and 467 cargo) by 19 November; to 1,218 (582 passenger and 636 cargo) by 17 December; and to 1,903 by 16 January 1991 (975 passenger and 928 cargo).⁵ During the period 17 September through 15 January, CRAF carriers averaged 12.6 missions per day (6.6 passenger and 6.0 cargo).

Because MAC required additional cargo airlift the Secretary of Defense authorized, on 16 January 1991, the activation of CRAF Stage II only for that capability. By 1 February, the number of CRAF missions had increased to 2,249 (1,126 passenger and 1,123 cargo), and by 12 February to 2,534 (1,248 passenger and 1,286 cargo). Between 16 January and 12 February, CRAF carriers averaged 23.4 missions per day (10.1 passenger and 13.3 cargo) to meet the airlift requirements

⁴Testimony before the Subcommittee on Investigations and Oversight, Committee on Public Works and Transportation, U.S. House of Representatives, by Major General Vernon J. Kondra, Deputy Chief of Staff for Operations, Headquarters MAC, 10 October 1990.

⁵*Operation Desert Shield Lift Status Reports*, Deputy Assistant Secretary of Defense (Logistics).

of Operation Desert Storm, an 86 percent increase over support for Operation Desert Shield.

MANAGEMENT ISSUES

In this section, we present a number of issues associated with the CRAF Program that warrant management attention. For each issue, we provide some background material, an assessment, our conclusions, and, when appropriate, recommendations on how to resolve the issue.

Activation Procedures

Background

The current process for CRAF activation begins when the war-fighting CINCs specify their requirements, expressed in a variety of terms (military units, equipment end-items, ammunition, resupply materiel, etc.), and the date they are needed. The Joint Chiefs of Staff (JCS) approves those requirements, and the U.S. Transportation Command (USTRANSCOM) translates the requirements into time-phased deployment data and designates them for movement by either airlift or sealift. USTRANSCOM provides the airlift deployment data to MAC to develop detailed lift requirements and the flight schedules necessary to meet them. After programming its organic lift capability, MAC determines the civil augmentation necessary, taking into consideration the amount currently available through expansion buys. MAC also assesses, as warranted, the CRAF stage that best meets the unsatisfied airlift requirements, notifies the carriers of possible CRAF activations, and either activates CRAF Stage I (with USTRANSCOM approval), or sends a message to JCS (through USTRANSCOM) requesting declaration of an airlift or national emergency to activate either Stage II or III. JCS then notifies the Secretary of Defense, who, if he concurs with JCS's position, apprises the Secretary of Transportation of his intent to activate CRAF. Once activated, JCS assigns airlift priorities to meet the CINCs' requirements.

Assessment

The activation of any CRAF stage begins with airlift requirements. When those requirements exceed MAC's capability (comprised of its organic fleet of C-5s and C-141s and commercial aircraft available through expansion buys) then MAC looks to activate one of three CRAF stages. To meet the airlift requirements of Operation

Desert Shield/Storm, however, MAC faced two distinct but interrelated impediments to executing smooth and timely CRAF activations: constantly changing airlift requirements and an inflexible CRAF structure. In this study, we examine the latter impediment in detail.

The military units deployed to the Persian Gulf grew from an initial show of strength, to a substantial defensive posture, to a fully capable military force. Such frequent and significant changes in force structure objectives made MAC's positioning of the right number and type of aircraft at the aerial ports of embarkation extremely difficult. Consequently, when MAC saw that its organic fleet could not satisfy early deployment requirements, it activated CRAF Stage I on 18 August. Those 38 commercial aircraft, along with MAC's organic fleet, were then used over the next several weeks to move units and their air-transportable equipment.

Unit movements absorbed a growing proportion of airlift assets from 17 August 1990 through 15 February 1991, straining MAC's ability to move sustainment cargo. Consequently, major backlogs of sustainment cargo resulted during this 6-month period: between 26 November and 12 December 1990, and again between 6 and 21 January 1991 (Figure 3).

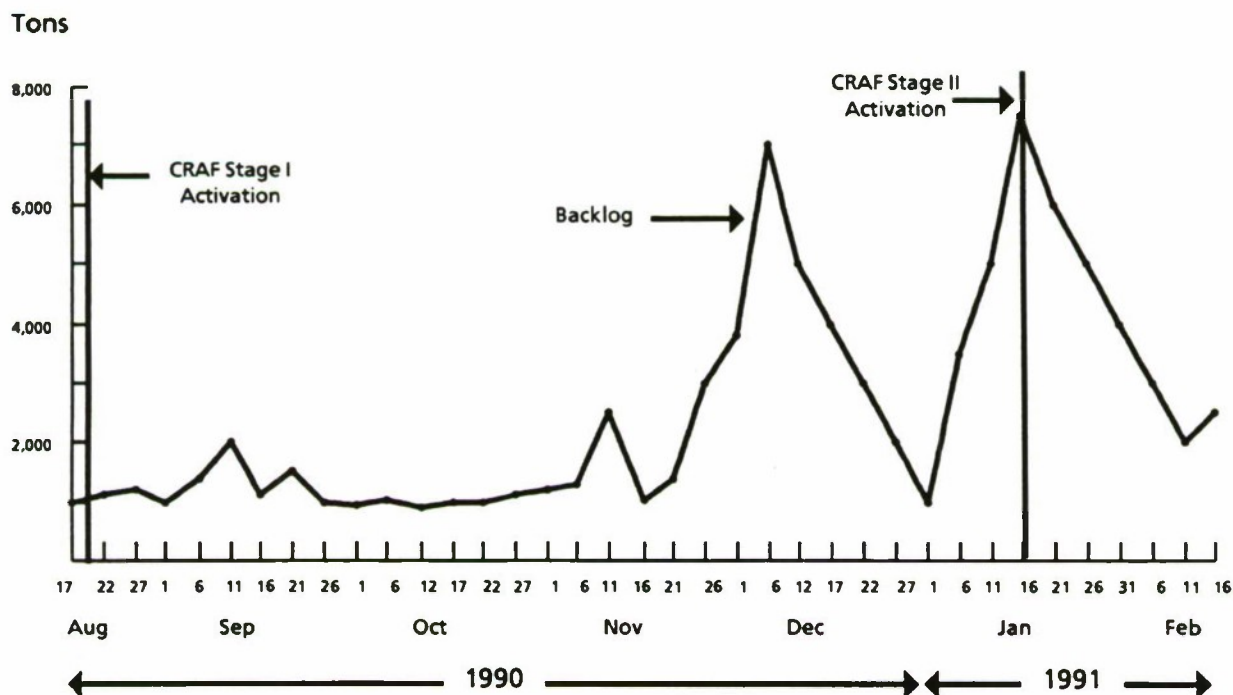


FIG. 3. SUSTAINMENT CARGO BACKLOG

Significant shortages in passenger airlift also occurred between 23 December and early January as MAC moved increasing numbers of troops into the theater to “marry-up” with unit equipment arriving by sea. To meet these requirements, MAC converted a number of C-141 aircraft to passenger configurations, which further contributed to sustainment cargo backlogs. (Figure 4 shows the increasing passenger movements.)

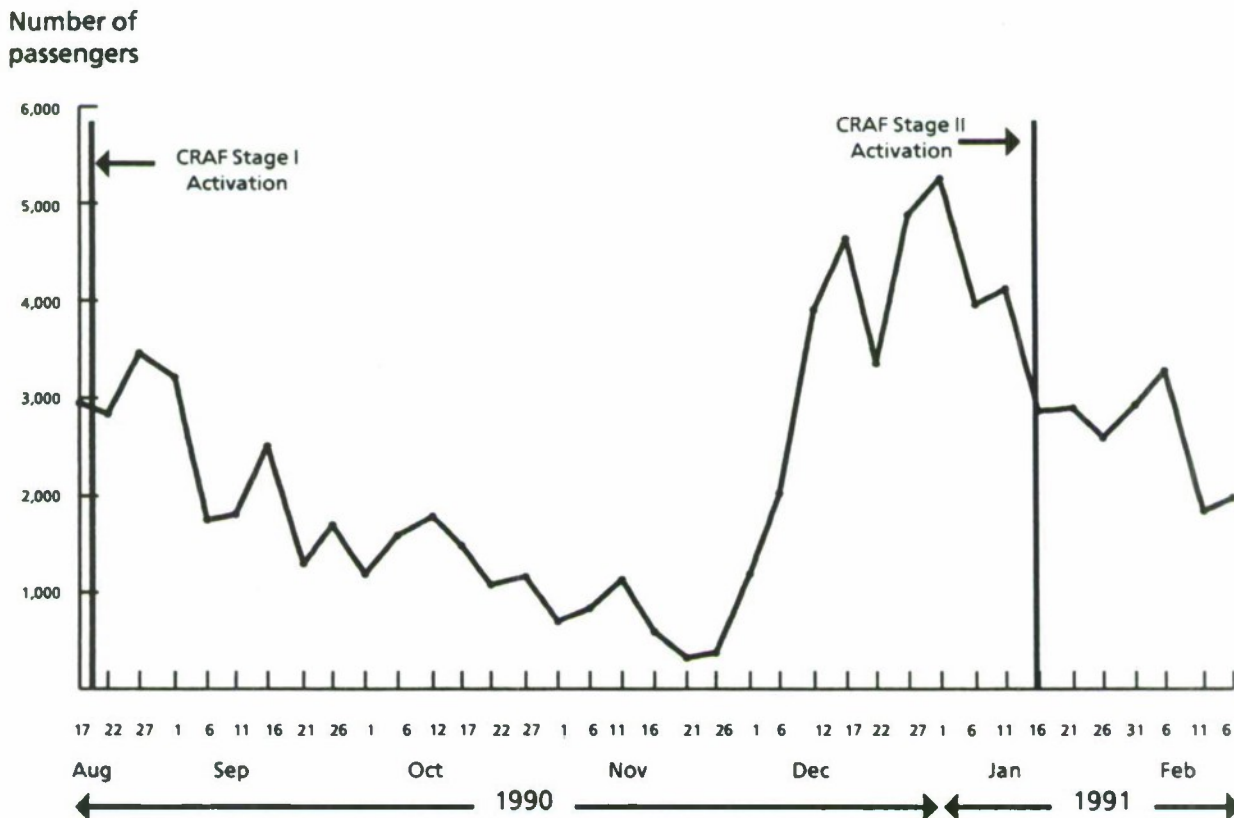


FIG. 4. PASSENGER MOVEMENTS FOR OPERATION DESERT SHIELD/STORM

Figure 5 illustrates that there was a continuous build-up of airlift missions, starting with the President’s order on 21 November 1990 to deploy an additional 250,000 troops and continuing through 16 January 1991, the beginning of the war. MAC was able to improvise airlift arrangements for meeting the December build-up of sustainment cargo and passenger movements by using C-141 aircraft to carry passengers and passenger aircraft to haul cargo. Those actions helped avoid the call-up of CRAF Stage II. Additionally, a slow down in high-priority unit deployments during the December holiday period “freed up” airlift assets for sustainment cargo

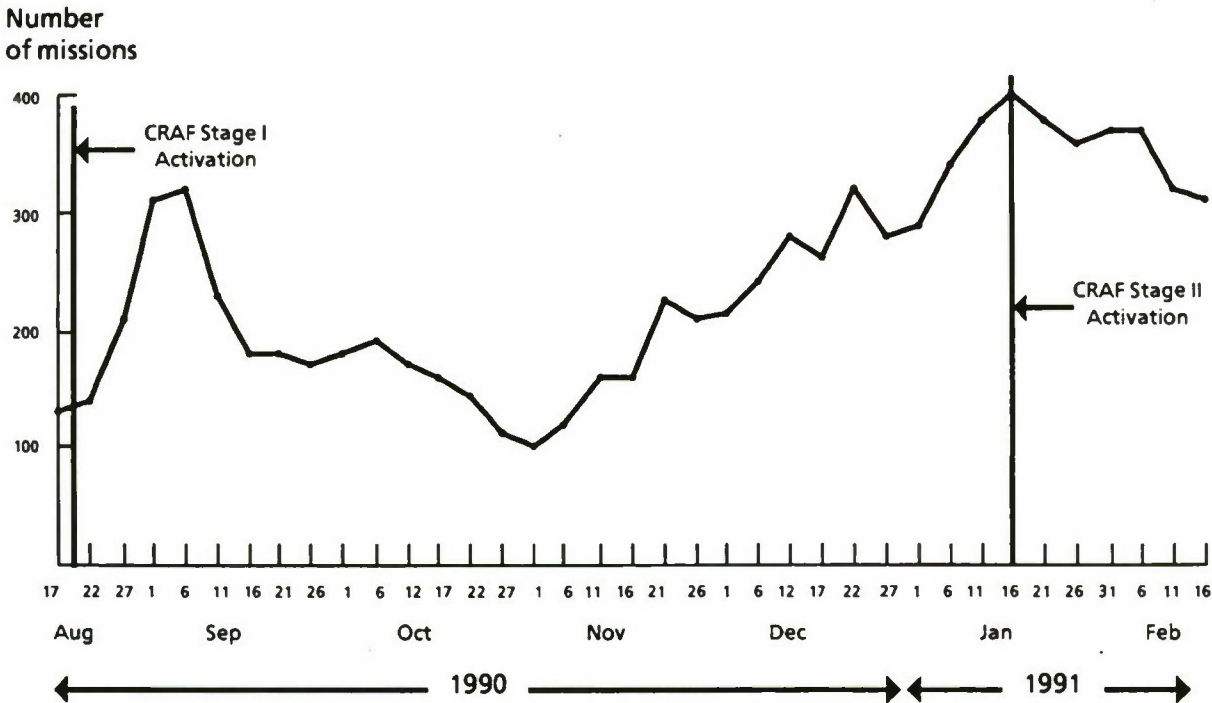


FIG. 5. MISSIONS IN SUPPORT OF OPERATION DESERT SHIELD/STORM

and passengers. After the holidays, increased numbers of civil passenger aircraft were volunteered as commercial traffic decreased.

The second sustainment cargo backlog was more difficult to overcome given the urgent need to close combat units in the theater by 15 January 1991. Consequently, on 16 January, at the peak of the backlog, USTRANSCOM requested the activation of CRAF Stage II. That request was granted. As shown in Figure 3, the backlog then began to decrease immediately. To illustrate, between 17 September 1990 and 16 January 1991, MAC averaged 49.9 cargo missions per day. But that average jumped to 76.9 missions per day between 16 January and 12 February.

During both of these build-ups in sustainment cargo, the JCS Crisis Action Center did not confer formally with the Office of the Secretary of Defense. Additionally, JCS was not given sufficient time to validate the requirements prior to the request to activate Stage II. Two days after Stage II activation, on 18 January, JCS provided a review of the activation decision to the Secretary of Defense. This informal approach did not provide decision makers with sufficient advance notice of

an impending airlift emergency. Consequently, not all alternatives could be adequately considered.

The structure of the CRAF Program and particularly the inflexibility of the three discrete stages, hampered MAC's ability to satisfy effectively the airlift requirements of Operation Desert Shield/Storm. Following MAC's activation of all Stage I aircraft (17 passenger and 21 cargo) on 18 August, the cargo aircraft were immediately in high demand, with passenger aircraft needed to a lesser degree. Later in Operation Desert Shield, the cargo-passenger priorities were reversed. Such mismatches between airlift requirements and available aircraft placed unusually difficult scheduling problems on MAC and the CRAF participants. In some instances, the mismatches prevented some carriers from achieving high aircraft utilization rates.

In mid-December, MAC believed that it needed more than the 21 cargo aircraft in Stage I but fewer than the additional 19 in Stage II. MAC solved this problem, thus avoiding CRAF activation, by increasing its use of KC-10s and converting some passenger aircraft to a cargo configuration. Additionally, CINC U.S. Central Command decided to slow down the deployment of troops and equipment to the theater, thereby reducing the airlift requirement. (Efforts to obtain additional NATO aircraft were unsuccessful.)

The current CRAF structure places one additional, but important, restriction on MAC's access to specific types of capability. During the early phases of Operation Desert Storm, but prior to the launch of the ground war, MAC perceived the need for aeromedical support. However, all 31 aeromedical aircraft (primarily B-767s) are in CRAF Stage III. MAC solicited a separate contract for aeromedical support, but that effort was not fully supported by the CRAF carriers. Ultimately, these aircraft were not required because of the successes enjoyed by coalition ground forces.

Conclusions

The CRAF Program played a key role in meeting the airlift requirements of Operation Desert Shield/Storm. The commercial carriers responded promptly to these first-ever CRAF activations, and they proved invaluable in assisting MAC to satisfy both the surge and sustainment requirements of the Persian Gulf War. Notwithstanding these successes, the CRAF Program can be improved.

We believe that airlift requirements in December 1990 and January 1991 may have warranted an earlier activation of CRAF Stage II. If Stage II aircraft (particularly cargo) had been called up in December 1990, the January build-up of sustainment cargo might have been avoided. Further, JCS failed to formally advise the Office of the Secretary of Defense of the cargo backlogs and airlift shortfalls.

Most importantly, we believe that the current CRAF structure, particularly its emphasis on staged call-ups, inhibits MAC's ability to use commercial aircraft effectively and efficiently to augment organic capabilities. During both CRAF activations, MAC was provided access to more aircraft than it needed. Additionally, when MAC needed a specific lift capability (such as aeromedical), the structure did not provide for access to those aircraft.

Recommendations

Goals. The introduction of expanded flexibility into the CRAF Program could take a variety of forms. We propose three goals for guiding any changes.

Recommendation. That the following goals be adopted for the CRAF Program:

- Improve DoD's ability to gain and use the most suitable commercial aircraft capability to satisfy airlift requirements
- Minimize the negative effects on carrier operations when air carriers participate in CRAF
- Strengthen relationships between the Government and air carriers in meeting future mobilization requirements.

CRAF Directive. Although in existence since 1952, DoD needs to formalize the provisions of the CRAF Program. It also needs to clarify the roles, responsibilities, and information requirements of DoD Components in executing those provisions.

Recommendation. Assistant Secretary of Defense (Production and Logistics), ASD(P&L), should prepare a DoD Directive establishing a revised CRAF Program, addressing its purpose, structure, aircraft-selection procedures, activation authority, management, and oversight.

The Directive should provide for

- Department of the Air Force, through MAC, having primary responsibility for making CRAF an operational program
- USTRANSCOM providing regular transportation assessments to JCS during future deployments
- JCS supplementing those assessments with appraisals of transportation issues that require concurrence, approval, or policy direction from the Secretary of Defense
- ASD(P&L) shouldering more oversight responsibility for the CRAF Program.

Proposed CRAF Segments. During Operation Desert Shield/Storm, MAC found that the three rigid stages of CRAF (providing increments of 38, 146, and 322 aircraft) inhibited the activation of only the number and type of aircraft needed to meet specific requirements.

Recommendation. The existing aircraft stages of CRAF should be discontinued and several new aircraft segments tailored to specific airlift requirements created. The following segments are recommended:

- Long-range international, passenger
- Short-range international, passenger
- Long-range international, cargo
- Short-range international, cargo
- Long-range aeromedical evacuation
- Short-range aeromedical evacuation
- Continental United States
- Alaskan.

The DoD can size each segment to match the requirements of emerging scenarios, not only the "reinforcement of Europe" that the current CRAF structure was designed to satisfy. By partitioning passenger, cargo, and other aircraft, DoD could tailor all future CRAF activations to the requirements, and MAC could initiate, as required, contracts of different lengths for those aircraft.

Mobilization Values. The use of mobilization values to encourage air carriers to participate in the CRAF Program and to allocate peacetime business among carriers should be retained; however, in concert with a retailoring of the CRAF structure, their use should be adjusted to accommodate the expanded number of aircraft segments.

Recommendation. That the actual values awarded carriers for volunteering specific types of aircraft should be based upon the airlift requirements for each segment, considering DoD-approved deployment scenarios.

Volunteer Aircraft. Throughout Operation Desert Shield/Storm, U.S. air carriers made a number of aircraft available to MAC on a volunteer basis under expansion buys. Such aircraft presented MAC with a number of difficult questions concerning priority of use, length of availability, and adherence to CRAF procedures, among others. However, they also offered a substantial and timely airlift capability that MAC appropriately did not discourage.

Recommendation. MAC should formally incorporate volunteer aircraft into a revised CRAF structure and select them before formal activation of the committed aircraft within each aircraft segment. If the volunteer capability exceeds the requirements, then MAC should select the specific aircraft needed from among those volunteered (through the use of a lottery as explained below). If additional capability beyond that volunteered is required, then MAC should select the aircraft needed by segment. MAC should also deactivate specific CRAF aircraft when they are no longer needed.

Lottery. The use of a lottery would remove any bias in aircraft selections. This would assure carriers that any financial benefits and operational burdens would be allocated in an impartial manner.

Recommendation. When selecting volunteered aircraft, nonvolunteered CRAF aircraft, or aircraft for deactivation, use a random process or lottery.

Activation Authority. With the elimination of CRAF stages, DoD needs new procedures for activating aircraft.

Recommendation. That MAC, through USTRANSCOM, have authority to call up the first 15 percent of capability in each segment, which provides them with somewhat more call-up authority than at present. The Secretary of Defense, with the advice of the ASD(P&L), would authorize all subsequent call-ups.

Recommendation. That the JCS continue to serve as worldwide validator of the individual CINC's airlift requirements and the need for commercial augmentation and that validation be provided by JCS to the Secretary of Defense or his staff.

Memorandum of Understanding. As a consequence of the CRAF Program changes, the Memorandum of Understanding between DoD and DOT needs to be updated.

Recommendation. ASD(P&L) should initiate revision of the Memorandum of Understanding between DoD and DOT to reflect proposed changes to the CRAF Program.

Table 2 shows how the current composition of CRAF (as of September 1990) would fit with our proposed aircraft segments and call-up authorities. Note that USTRANSCOM/MAC would, under our proposal, have expanded authority to meet future airlift requirements.

TABLE 2
PROPOSED CRAF STRUCTURE

Segment	Call-up authority ^a		
	USTRANSCOM/ MAC ^b	Secretary of Defense ^c	Total
Long-range international, passenger	38	214	252
Short-range international, passenger	5	23	28
Long-range international, cargo	22	119	141
Short-range international, cargo	1	5	6
Long-range aeromedical evacuation	5	23	28
Short-range aeromedical evacuation	1	2	3
Continental United States	7	37	44
Alaskan	1	3	4
Total	80	426	506

^a Applies only if volunteer aircraft cannot meet the requirement for each aircraft segment; numbers in table assume equal aircraft capabilities.

^b USTRANSCOM/MAC has authority to call up the first 15 percent of capability within each segment (numbers shown are rounded up to next whole aircraft).

^c The Secretary of Defense has authority to call up the remaining 85 percent.

Such highly flexible activations would ultimately permit DoD to formulate a general CRAF structure that could be applied to any particular scenario.

Rate-Setting Process

Background

MAC bases its cargo and passenger rates upon each carrier's experience in the private marketplace. The resulting weighted-average rates reward lower cost carriers and provide higher cost carriers with an incentive to improve profits by reducing their costs.

Assessment

By building its rates upon the carriers' actual costs of doing business, MAC reaps the full benefits of the worldwide, competitive marketplace in which U.S. air carriers operate – a marketplace that is the economic lifeblood of most CRAF participants. The stability of MAC's rates since 1980 (shown previously in Figures 1 and 2) provides ample proof of those benefits.

Even during FY80 through FY83, the most volatile period depicted in those figures, MAC's rates out-performed the marketplace, as observed in a 1983 study:

... Since the last international rates set by the CAB in 1977, the MAC rates have increased an average of 8.5 percent per year up to FY83. During the same period, the ATA [Air Transport Association] composite index on airline costs has increased an average of 12.3 percent per year and the Wholesale Price Index on coach air fare has experienced average annual increases of 17.1 percent. . . .⁶

By not opening either its peacetime or wartime business to direct competitive bidding, MAC has advanced a good working relationship with those very air carriers upon which DoD depends during peacetime and that are vital to meeting its strategic lift requirements during times of crisis or emergency. (Approximately 32 percent of MAC's total cargo airlift capability and 93 percent of its passenger capability reside

⁶*Airlift Management in a New Era*, MAC, July 1983.

in the CRAF Program.⁷⁾ The appropriateness of that relationship is evidenced by the following guidelines:⁸⁾

- Executive Order No. 11490, as amended, directs the Secretary of Defense to "... develop time-phased military requirements ... and supporting requirements for ... transportation and other services needed to carry out specified Department of Defense current mobilization procurement. ..."
- 10 United States Code 2304(a) 16 further authorizes, with some restrictions, the Secretary of Defense to negotiate, as opposed to advertising, for services, provided they are judged to be in the national interest.

The Secretary of Defense has authorized MAC to negotiate directly with civil air carriers in structuring and updating the program, and using their assets, as needed.

Conclusions

Based upon MAC's stable rates and success in augmenting its organic capability with CRAF aircraft to meet the surge and sustainment requirements of Operation Desert Shield/Storm, we believe that MAC's approach to rate setting is highly effective, is in the national interest, and warrants broader application within other modes of Defense transportation.

Senior Lodger

Background

The responsibilities of senior lodgers are mentioned briefly in the Annual Airlift Services and CRAF Call Contracts and detailed in MAC Regulation 55-8. The regulation states that senior lodgers are to

... support all carriers of the CRAF and U.S. allies flying in support of MAC operating through their station after CRAF activation ... act as the primary agent for any services required whether specifically providing them or acquiring them through alternative sources. ... Senior lodger services consist of ground support for all civil aircraft and crews participating in U.S. military operations. ...

In addition to these responsibilities, each senior lodger must conduct a site survey to obtain information that may be useful to CRAF operations during a

⁷⁾MAC briefing provided Logistics Management Institute personnel on 24 - 27 September 1990.

⁸⁾*Passenger Airlift Policies and Procedures Review, Volume II, Appendix W*, Department of Defense, March 1986.

national emergency. All surveys, to be updated every 2 years, should include such information as availability of ground support equipment, fuel storage capacities, and nearby facilities that may be potentially useful.

Assessment

In examining the senior lodger concept, we note four principal shortcomings:

- *Senior lodgers are not used during Stages I and II.* During the early days of Operation Desert Shield, some air carriers reported that their aircraft had to wait 7 or 8 hours before off-loading, while military aircraft were given priority service. Since senior lodgers are not used in Stage I, the civil carriers had nobody to represent their interests on the ground. More importantly, that extra ground time could have been translated directly into additional CRAF mission time during the early, critical phase of Operation Desert Shield.
- *Carriers are unsure of their senior lodger responsibilities.* Although MAC Regulation 55-8 enumerates senior lodger responsibilities, air carriers are not fully aware of the nature and extent of their commitment because the contracts they sign with MAC provide only general guidance. They also question their ability to provide ground services at foreign airports, where they are essentially guests of the host country, as are the other CRAF participants. They further question whether they are to be "providers" or "coordinators" of ground-support services.
- *MAC cannot verify the capability of senior lodgers to meet their wartime responsibilities.* Since contracts provide only general guidance on the carriers' responsibilities, MAC has no basis for assessing their capability to carry them out. Given MAC's dependence upon CRAF to meet its strategic lift requirements, ground support of civil aircraft, particularly in Stages II and III, may be vital to the success of some deployments.
- *Senior lodger concept does not apply to all geographical areas.* By tying senior lodger responsibilities to specific airports, MAC establishes artificial and narrow boundaries to CRAF support. Operation Desert Shield/Storm clearly illustrates that point. MAC does not have a senior lodger on the Arabian Peninsula; Trans World Airways, the closest, is located several hundred miles away in Cairo, Egypt. Senior lodgers do not fill this void for any stage of CRAF.

In addition, one large international carrier with a substantial commitment to CRAF states that it does not need the services of a senior lodger. It has the necessary business contacts to provide all the services required during any CRAF deployment.

However, many of the regional and supplemental carriers do not have such an infrastructure upon which they can rely for ground-support services.

The above shortcomings essentially call into question the viability of the senior lodger concept. We see a number of alternatives for improving ground support of CRAF aircraft.

One alternative would be to retain the current structure, but make several improvements:

- Extend the use of senior lodgers to all CRAF activations
- Clarify the role of senior lodgers
- Expand the responsibilities of senior lodgers to encompass geographical areas
- Specify the services to be provided by senior lodgers in the MAC contracts
- Develop a formula for paying carriers for planned and actual services
- Review senior lodger plans for providing those services.

A second alternative would be to supplement the reliance upon individual CRAF air carriers for ground-support services with a third-party firm or organization, in addition to making some of the above improvements to the basic structure. A third-party service could be used when air carriers are neither staffed nor organized to provide the full range of senior lodger responsibilities. Such a service also would make it easier to expand senior lodger responsibilities from specific airports to geographical areas.

One of the trade associations representing several U.S.-flag cargo and passenger carriers, has a wholly owned subsidiary that already provides senior-lodger-type services for member airlines. This corporation coordinates and expedites ground-support services at airports throughout the United States and other countries. MAC may be able to build upon these capabilities, and those of other similar organizations, to replace its current, single airline-oriented senior lodger concept.

A third alternative would be to use the joint services of a number of carriers and MAC, much like a consortium, to provide the required ground support. Under such an arrangement, the carriers would provide normal airlift services (including fueling, weight and balance, and airfield coordination); MAC would provide classified

briefings and any special equipment required such as gas masks and military maps. MAC would pay the carriers for their services. This arrangement could embody many features of MAC's Airlift Control Element.

Another alternative would be to build upon existing business relationships that many CRAF participants already have established with fixed-base operators, foreign carriers, or other U.S.-flag carriers at foreign airports. One association, for example, believes that MAC could designate "parent carriers" at foreign airports to coordinate the provision of ground-support services through those business relationships on an as-needed basis.

Conclusions

We believe that senior lodgers would have difficulty providing the support potentially required by civil air carriers during major crises or emergencies.

Recommendations

The shortcomings of the senior lodger concept principally derive from the difficulty of translating the underlying concept into concrete actions. Even though MAC Regulation 55-8 lists a number of senior lodger responsibilities, they are so open-ended and general that most carriers would have difficulty carrying them out.

Recommendation. MAC should detail the responsibilities assigned to senior lodgers, prescribing minimum services required at all airports used by activated CRAF aircraft.

Recommendation. MAC should extend senior-lodger-type services to all CRAF activations.

The key question that needs to be answered is whether individual air carriers, third parties, or multiple carriers through some type of consortium are best suited to provide senior-lodger-type services. We believe that the concept of multiple carriers jointly being responsible for ground-support services for CRAF aircraft has considerable merit. Additionally, two airline organizations, ATA and the National Air Carrier Association, are well structured and positioned to augment the CRAF carriers in providing worldwide senior-lodger-type services. However, a detailed assessment of the full merits of these and other alternatives remains to be made.

Recommendation. MAC should evaluate the use of multiple carriers, third parties, and the Airlift Control Element concept to provide needed ground services to activated CRAF aircraft; in these evaluations, MAC should embrace the practice of paying carriers for their services.

Crews

Background

The CRAF Program requires carriers to provide four crew members per crew position for every aircraft committed to the program. All crew members must be U.S. nationals, eligible for secret security clearances, and not committed to a Reserve Component program.

Assessment

The ability of carriers to meet the four-crew criterion has been examined a number of times. If one looks only at the total available crew personnel, then just a few carriers (Evergreen, Reeve Aleutian, Southern Air Transport, Tower, and Zantop) would have difficulty meeting the requirement. Table 3 provides such an overview. The Air Force Audit Agency, using December 1988 data, concluded that the potential for conflict exists between the carriers' CRAF crew commitment and the crew members' Reserve/Guard duty.⁹ This potential conflict could render those carriers (whose CRAF commitment equals, or nearly equals, their total number of available crews) incapable of meeting their CRAF requirement. Therefore, MAC needs a better accounting of the total number of available crew members and their Reserve/Guard commitments.

A second factor that affects the four-crew requirement is the growing number of foreign crew members, none of whom can obtain the mandatory U.S. secret clearance for CRAF operations. Again, the personnel totals in Table 3 do not account for this factor.

In addition to the number of crews specified in the CRAF contracts, the specific deployment also plays a major role. During Operation Desert Shield/Storm, for example, four crews were found to be inadequate because of the great distances involved. The distances to be flown caused some carriers to add more crews and

⁹Command Summary Report of Audit 730-0-1, *Civil Reserve Air Fleet (CRAF) Crew Commitments*, Air Force Audit Agency, 2 October 1989.

TABLE 3
TOTAL CREW AVAILABILITY AND CRAF REQUIREMENTS

Carrier	Total available crew personnel	CRAF crew requirement		
		Stage I	Stage II	Stage III
Air Trans International	a	12	24	48
Aloha	155	-	-	48
American	6,089	24	232	504
American Trans Air	a	12	84	168
Connie Kalitta	a	12	24	106
Continental	3,856	24	72	312
Delta	a	-	-	48
Eastern	849	-	-	84
Emery/Rosenbalm	a	48	84	264
Evergreen	239	24	144	228
Express One	a	-	24	24
Federal Express	1,946	96	168	492
Hawaiian	258	-	-	132
Key	85	-	48	48
Northern Air Cargo	50	-	24	24
Northwest	4,761	60	204	720
Pan Am	1,350	36	120	660
Reeve Aleutian	21	-	24	24
Southern Air Transport	195	12	216	216
Sun Country	95	-	-	12
Trans Continental	a	-	-	84
Trans World	2,091	24	144	480
Tower	51	12	12	48
TPI International	a	-	72	72
United	4,352	48	252	744
United Parcel	825	24	48	156
World	185	12	48	144
Zantop	166	-	156	156

Source: MAC.

Note: All crew data as of 31 December 1989.

a Carrier did not submit crew data.

others to fly circuitous routes to the Persian Gulf to minimize the effect of distance on crews. The FAA also extended permissible crew flying hours from the 110 hours for international flights to 150 hours per month for 30 days. (MAC had requested a 90-day period.) For cargo carriers, this waiver was also extended for a 90-day period by raising the limit from 300 to 340 hours. All waivers were subsequently canceled effective 31 March 1991.

Conclusions

We believe that the ability of CRAF participants to meet their four-crew requirement needs to be examined more regularly and thoroughly. The importance of flight crews to the success of the CRAF Program dictates that this issue receive immediate attention.

An important first step in addressing the crew-member issue is the routine collection of citizenship and reserve-commitment information from crew members by aircraft type from every air carrier participating in the CRAF Program. Such information should be a requirement in MAC contracts; it also should be assembled and evaluated annually.

If the annual tabulation suggests that not enough crew members will be available, then MAC would need to take additional actions. It should explore, with the air carriers, how to obtain additional crew members and whether to accelerate crew-training programs.

Recommendations

Although the contracts specify that participating air carriers are to provide four crews for every aircraft committed to the program, MAC lacks the information necessary to validate routinely that crew members are U.S. nationals, eligible for security clearances, and without reserve obligations.

Recommendation. MAC should revise its contracts to require that all participating carriers submit detailed crew-level information.

Such information should include the total number of qualified U.S. national crew members with and without reserve obligations and the number being trained, by aircraft type. Only then can MAC assess the potential effect of crew availability on CRAF performance.

As a result of carrier experience during Operation Desert Shield/Storm, MAC's use of the four-crew criteria may not be appropriate for long-distance deployments.

Recommendation. MAC should evaluate the adequacy of the four-crew criteria for all aircraft committed to CRAF and establish new criteria, as required.

National Defense Features

Background

Public Law 97-86 authorizes the Secretary of the Air Force to expand the cargo capability of CRAF by contracting for the modification of civil passenger aircraft to make them more useful in a cargo capacity. Such modifications include reinforced floors, side cargo doors, and rollers and rails to accommodate palletized military cargo. Under this initiative, known as the CRAF Enhancement Program or CEP, DoD pays the additional cost of incorporating cargo features into new aircraft or the full cost of modifying aircraft already in service. It also pays any increased operating costs for using the modified aircraft in passenger service and, to a lesser degree, when used in a cargo capacity. All such modified aircraft are committed to the CRAF Program for 12 to 16 years. Moreover, contracts require that carriers with aircraft must reimburse DoD should these aircraft be withdrawn from CRAF or otherwise become unavailable for DoD use. Similar repayments must be made when enhanced aircraft are used for non-DoD cargo traffic.

The Air Force made its first CRAF enhancement award in 1979. Its largest award was to modify 19 Pan American World Airways B-747 passenger aircraft at \$30 million per aircraft; the last of those modified aircraft was delivered in 1990. Altogether, the Air Force contracted with four airlines – United, Pan American, Federal Express, and Evergreen – to modify 23 aircraft (2 of which were new) at a total cost exceeding \$600 million. Moreover, financial difficulties experienced by Pan American in recent years caused them to sell and lease-back several enhanced aircraft. During Pan American's recent Chapter 11 Bankruptcy-reorganization, several of these aircraft were taken over by another carrier (a member of CRAF) as a claim against debt. Should that other carrier not wish to assume the remaining years of the Pan American commitment to CRAF, Pan American must repay a significant sum of money to the DoD. Although the DoD is a secured creditor with top priority for repayment, it is not likely that DoD would get full credit for this obligation.

Since the provisions of Public Law 97-86 restricted CEP to only passenger aircraft, the Air Force, in March 1989, requested that it be amended to also permit modification of cargo aircraft and installation of communications and navigational equipment on both cargo and passenger aircraft. The former would improve the cargo-delivery capability of some CRAF aircraft, while the latter would strengthen the compatibility between civil and military systems in such areas as secure communications and identification friend-or-foe capability, to cite two. Congress amended Public Law 97-86, as per the Air Force's request, on 29 November 1989.

Assessment

The 1987 National Airlift Policy directs DoD and DOT to jointly "... promote the incorporation of national defense features in commercial aircraft..." Although the CEP preceded that charge, CEP and the recent modification initiated by the Air Force are DoD's responses. Judging from the commercial carrier's experience during Operation Desert Shield/Storm, the expansion of CEP provisions to communications and navigational equipment was on target but not timely. Two commercial carriers, both major participants in Operation Desert Shield/Storm, reported that incompatibility between military and civil communications systems hampered their performance. Member airlines of ATA experienced similar problems.

DoD's long-standing priority in national defense features clearly has focused on expanding the cargo capability of CRAF, principally through the modification of passenger aircraft to function in a cargo configuration. That priority emanates directly from DoD plans to meet the massive lift requirements of a rapid reinforcement of Europe scenario. Public Law 97-86 further reinforced that priority. Although four major carriers already have modified several of their passenger aircraft under the provisions of CEP, others have declined to participate because they believe that such modifications place them in a noncompetitive situation within the commercial marketplace, notwithstanding the operating subsidy. Four CRAF-enhanced aircraft were used during Operation Desert Shield/Storm.

Conclusions

Based upon commercial carrier experiences during Operation Desert Shield/Storm, we believe that DoD needs to reexamine its priorities on the incorporation of national defense features in civil aircraft. If system-compatibility problems occurred during Operation Desert Shield/Storm, which was conducted under nearly ideal

deployment conditions, then more fundamental communications and navigational problems appear to underlie the CRAF Program.

The recent modification of Public Law 97-86 certainly constitutes the first step toward correcting those problems, but DoD also needs to plan, program, budget, and carry out the required communications and navigational upgrades. Also, there is a need to secure enhanced aircraft so that these aircraft remain as part of the CRAF Program.

The definition of requirements should be the starting point for any revitalization of national defense features in the CRAF Program. Once defined, MAC could establish the priorities of those requirements, based on their military usefulness and cost and, in concert with the ASD(P&L), support their funding through the budget process. MAC also could revise the allocation of mobilization values to encourage carrier participation by giving priority to enhanced aircraft.

Recommendations

In light of the preceding, we believe that the following actions would substantially improve the national defense features of the CRAF Program.

Recommendation. Air Force should assess the requirements, priorities, and costs of prospective national defense enhancements, with emphasis on communications and navigational systems that improve civil and military compatibility.

Recommendation. Air Force, upon completion of that assessment, should submit to the ASD(P&L) a proposed funding profile for incorporating national defense features into CRAF aircraft.

Recommendation. Air Force should review CEP provisions to assure that they provide for financial reimbursement and availability of aircraft, and determine if a contract change or new legislation is required.

Insurance Coverage

Background

Public Law 85-726 charges the FAA, acting for the Secretary of Transportation, to make available both nonpremium and premium insurance coverage to air carriers operating within a war zone.

The nonpremium insurance coverage is provided, under Title XIII of the Federal Aviation Act of 1958, for all activated CRAF aircraft, although carriers are required to pay a \$200.00 registration fee for each aircraft. The DoD, through two separate indemnification agreements, reimburses DOT for losses incurred from such insurance and CRAF carriers for losses not fully covered by the Title XIII insurance (under the provisions of Public Law 85-804).

Premium insurance may be offered to commercial carriers provided they satisfy the following conditions:

- The President determines that the continuation of commercial air services is necessary to carry out the foreign policy of the United States.
- The aircraft operation is in foreign air commerce or between two or more points, all outside the United States.
- The carrier cannot obtain loss or damage insurance on reasonable terms from any company authorized to provide insurance within the United States.

Carriers seeking such insurance must complete an application and submit a letter describing the operations in which the aircraft will be engaged, the type of insurance desired, and why. All premiums are based upon the amount of risk anticipated.

Assessment

Shortly after Iraq invaded Kuwait, Lloyd's of London declared the Middle East a war zone. That action forced air carriers operating in the Middle East to either cease operations or purchase supplemental insurance (their commercial insurance policies contained clauses suspending coverage under such circumstances). For those carriers that were supporting MAC (through an expansion buy) prior to the activation of CRAF Stage I, nonpremium insurance was available, but only on a flight-by-flight basis and then for inbound flights only. That practice resulted in flights periodically being launched before insurance commitments were completed. It also reduced the number of volunteer aircraft made available to MAC because some carriers were unwilling to fully shoulder the associated risks. However, nonpremium insurance became available to all CRAF participants once CRAF was formally activated, although its administration proved difficult, resulting in some flights being delayed and others rescheduled.

Even with the extra coverage offered by Public Law 85-804, CRAF carriers operated numerous flights to the Middle East with gaps in coverage, unlike the protection offered by their commercial insurance. According to the ATA, the principal air-carrier lesson learned from the Persian Gulf War was the need to strengthen "war-risk insurance."

The availability of premium insurance for the continuation of commercial, non-CRAF flights into and out of the Middle East, or for flights that were either directly or indirectly supporting Operation Desert Shield/Storm, was a different matter. (Direct flights included, for example, delivery of oil spill clean-up equipment, civilian and military material destined for Kuwait or Saudi Arabian interests, and U.S. Government-owned aircraft engine test equipment; indirect flights consisted of secondary carriers that supplement the capability of primary carriers.) For all of those, the FAA had to obtain approval from DOT, Department of State, Office of Management and Budget, and DoD, and then for every flight individually. The results were, as one would expect, not responsive to important airlift requirements.

From some of the carriers' perspectives, the FAA was not organized to provide timely support; it also appeared to lack sufficient knowledge of insurance practices. The Office of Management and Budget questioned the adequacy of some premiums; in others, it questioned the accounting of the premium cost: Operation Desert Shield/Storm (not included in the Gramm-Rudman-Hollings budget deficit) or normal Government activity (included in the deficit). Additionally, the nature of the flights and whether they met the eligibility criteria were routinely questioned.

Some of the carriers also were concerned because Title XIII policy language does not address situations when the loss (either hull or liability) cannot be assigned to either "war-risk" or "all-risk" peril. (Commercial coverage typically employs a 50/50 claims allocation procedure.) They further questioned the coverage of spare parts and engines not carried aboard an aircraft as well as the absence of a ticketing process for passenger flights, which could be cause for losing protection under the Warsaw Convention. Finally, they expressed concern about who would conduct the investigation if an accident occurred: FAA? Air Force? The carrier's commercial insurer? If the latter, would the findings be proprietary? Again, prevailing legislation and contracts are either silent on these issues or unclear.

Conclusions

Although the provision of Title XIII insurance to U.S. air carriers supporting military engagements is primarily a DOT responsibility, DoD provides the indemnification of extraordinary losses. Given the experience of commercial carriers during Operation Desert Shield/Storm, however, DoD needs to examine the full range of insurance coverage provided air carriers in support of future deployments.

Recommendations

A joint DOT/DoD review of air carrier experience during Operation Desert Shield/Storm, with subsequent modification of current insurance practices is required.

Recommendation. ASD(P&L) support the FAA review of the war-risk insurance program for U.S. air carriers.

Because the Title XIII insurance legislation expires on 30 September 1992 and the current MAC contract 3 months later, this is an ideal time to implement the lessons learned in the area of war-risk insurance.

SUMMARY

The CRAF Program proved to be a success for Operation Desert Shield/Storm. CRAF Stages I and II were activated and the carriers responded promptly, even volunteering significant numbers of aircraft to meet or exceed requirements. CRAF contributed one-fifth of all of the unit and sustainment airlift missions.

The purpose of the CRAF Program is to augment organic airlift forces with civil passenger, cargo, and aeromedical airlift capabilities in meeting crisis situations. To achieve this purpose, we have proposed three goals for organizing and managing the CRAF Program:

- Improve DoD's ability to gain and use the most suitable commercial aircraft capability to satisfy airlift requirements
- Minimize the negative effects on carrier operations when air carriers participate in CRAF
- Strengthen relationships between the Government and air carriers in meeting future mobilization requirements.

Recommendations

We recommend the following actions:

1. **CRAF Directive.** ASD(P&L) should prepare a DoD Directive establishing a revised CRAF Program, addressing its purpose, structure, aircraft-selection procedures, activation authority, management, and oversight.

The Directive should provide for

- a. Department of the Air Force, through MAC, having primary responsibility for making CRAF an operational program
 - b. USTRANSCOM providing regular transportation assessments to JCS during future deployments
 - c. JCS supplementing those assessments with appraisals of transportation issues that require concurrence, approval, or policy direction from the Secretary of Defense
 - d. ASD(P&L) shouldering more oversight responsibility for the CRAF Program.
2. **Proposed CRAF Segments.** The existing aircraft stages of CRAF should be discontinued and several new aircraft segments tailored to specific airlift requirements created. The following segments are recommended:
 - a. Long-range international, passenger
 - b. Short-range international, passenger
 - c. Long-range international, cargo
 - d. Short-range international, cargo
 - e. Long-range aeromedical evacuation
 - f. Short-range aeromedical evacuation
 - g. Continental United States
 - h. Alaskan.
 3. **Mobilization Values.** That the actual values awarded carriers for volunteering specific types of aircraft should be based upon the airlift requirements for each segment, considering DoD-approved deployment scenarios.
 4. **Volunteer Aircraft.** MAC should formally incorporate volunteer aircraft into a revised CRAF structure and select them before formal activation of

the committed aircraft within each aircraft segment. If the volunteer capability exceeds the requirements, then MAC should select the specific aircraft needed from among those volunteered (through the use of a lottery as explained below). If additional capability beyond that volunteered is required, then MAC should select the aircraft needed by segment. MAC should also deactivate specific CRAF aircraft when they are no longer needed.

5. **Lottery.** When selecting volunteered aircraft, nonvolunteered CRAF aircraft, or aircraft for deactivation, use a random process or lottery.
6. **Activation Authority.** With the elimination of CRAF stages, DoD needs new procedures for activating aircraft.
 - a. That MAC, through USTRANSCOM, have authority to call up the first 15 percent of capability in each segment, which provides them with somewhat more call-up authority than at present. The Secretary of Defense, with the advice of the ASD(P&L), would authorize all subsequent call-ups.
 - b. That the JCS continue to serve as worldwide validator of the individual CINC's airlift requirements and the need for commercial augmentation and that validation be provided by JCS to the Secretary of Defense or his staff.
7. **Memorandum of Understanding.** ASD(P&L) should initiate revision of the Memorandum of Understanding between DoD and DOT to reflect proposed changes to the CRAF Program.
8. **Senior Lodger.** Although the services of senior lodgers were not required during Operation Desert Shield/Storm, a number of CRAF participants could benefit from such services.
 - a. MAC should evaluate the use of multiple carriers, third parties, and the Airlift Control Element concept to provide needed ground services to activated CRAF aircraft; in these evaluations, MAC should embrace the practice of paying carriers for their services.
 - b. MAC should detail the responsibilities assigned to senior lodgers, prescribing minimum services required at all airports used by activated CRAF aircraft.
 - c. MAC should extend senior-lodger-type services to all CRAF activations.
9. **Crews.** All CRAF contracts specify that carriers will provide four full crews (excluding reservists and foreign nationals) for every activated aircraft. Some of the carriers participating in the CRAF Program may have

difficulty meeting that criterion, but MAC lacks the information necessary to identify them.

- a. MAC should evaluate the adequacy of the four-crew criteria for all aircraft committed to CRAF and establish new criteria, as required.
- b. MAC should revise its contracts to require that all participating carriers submit detailed crew-level information.

10. National Defense Features. The recent experience of a number of CRAF carriers verified the need for improvements.

- a. Air Force should assess the requirements, priorities, and costs of prospective national defense enhancements, with emphasis on communications and navigational systems that improve civil and military compatibility.
- b. Air Force, upon completion of that assessment, should submit to the ASD(P&L) a proposed funding profile for incorporating national defense features into CRAF aircraft.
- c. Air Force should review CEP provisions to assure that they provide for financial reimbursement and availability of aircraft, and determine if a contract change or new legislation is required.

11. Insurance. ASD(P&L) support the FAA review of the war-risk insurance program for U.S. air carriers.

These actions collectively have the potential to yield a CRAF Program that possesses all of its current strengths and none of its weaknesses. Additionally, they would retain the strong Government/industry partnership that has been the cornerstone of the CRAF Program since its inception in 1952.