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Assured Air Line of Communications: A Light Corps in a Middle East Setting

U.S. Army Command and General Staff College
Fort Leavenworth, Kansas 66027

6 June 1975

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The purpose of the study was to develop, in broad terms, a proposed logistic system capable of supporting a newly deployed force entirely by an ALOC until the SEALOC is established. Included in the study is an examination of the requirements for logistical units and supplies which must be moved by the ALOC to provide combat service support to the deployed force.

The study discusses changes in the concept of combat service support, including organizations, control mechanisms, automated management procedures/systems, and supporting communications that would be required to sustain a deployed force by an air line of communication (ALOC). The study confines the total support by ALOC to the period of D+1 through D+25. Following D+25 the bulk of support will be provided by the sea line of communication (SEALOC).

The current support concept envisions a phased build-up of support units and stocks of supplies in the theater of operations (TO) to support combat units. The build-up of units and supplies requires that facilities be built requiring additional materials. These requirements compete for the limited available airlift. A reduction in the requirements for support units, supplies, and facilities in the TO would significantly reduce the requirements for airlift.

The goal then is to eliminate from the TO all combat service support not required for minimum support. It is recognized that there are many definitions of what support is needed versus what support is nice to have. However, by providing only the essential support, the commander's responsibilities for securing and managing the logistical organization are greatly reduced. Specific areas addressed are supply, maintenance, medical and administrative services.

a. Supply support is oriented to maintaining the supply loads of organizations, particularly divisions, by a responsive ALOC and by throughput transportation directly to organizations. The only stocks located in the corps area would be a safety level of critical supplies. This would eliminate a requirement for general support (GS) supply units. Reducing the requirements for units and supplies allows associated airlift to be used to support combat units. If the need for additional units and supplies exists, it could be programed for movement by SEALOC.

b. Maintenance support is limited to direct support (DS), supplied primarily by contact teams operating in forward areas. GS maintenance support would not be provided in the TO. The emphasis will be on making minimum repairs, deferring other maintenance and evacuating nonreparable items to CONUS or other area for repair. Control of class VII and class IX supplies is essential.

c. Medical support is restricted to providing lifesaving stabilization and evacuation. The theater evacuation policy is established at 5 days. While this policy will double personnel replacement requirements, it will reduce the requirements for medical organizations and facilities by two-thirds with a corresponding reduction in airlift requirements.

See attached.

d. Theater administrative support is provided by contact teams. The administrative organizations and personnel and finance records will remain at the CONUS installation. Only the required elements of administrative staff sections would be deployed to the TO. Personnel replacements would be consolidated and programed into the TO at CONUS installations. The personnel airlift requirements should not have a significant impact upon the ALOC.

Providing minimum essential combat service support in the TO places a heavy reliance on the responsive support that must be provided by CONUS installations. The proposed system identifies specific areas; i.e., supply and transportation, which require detailed management supported by automated systems.

Additionally, a communication system which exceeds the capabilities of tactical systems is required. The tactical communications system must be expanded to provide a long range communication capability which will interface with communication and automated management systems used by supporting organizations.

The study concludes that:

a. The proposed logistic system for an AALOC appears both sound and workable.

b. The proposed system can be incorporated into the present logistic system with only minor modifications or changes.

c. Further research and refinement of the proposed system are required prior to testing and evaluation.

d. If the proposed system proves to be feasible, it will provide significant savings in both materiel and support unit requirements.

e. The proposed system should be utilized at Department of the Army and Department of Defense levels in evaluating concepts for logistic support of contingency operations.

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INTRODUCTION

1. General

The attached study, "Assured Air Line of Communications: A Light Corps in a Middle East Setting," discusses changes in the concept of combat service support, including organizations, control mechanisms, automated management procedures/systems, and supporting communications that would be required to sustain a deployed force by an air line of communication (ALOC). The study confines the total support by ALOC to the period of D+1 through D+25. Following D+25 the bulk of support will be provided by the sea line of communication (SEALOC).

2. Purpose

The purpose of the study was to develop, in broad terms, a proposed logistic system capable of supporting a newly deployed force entirely by an ALOC until the SEALOC is established. Included in the study is an examination of the requirements for logistical units and supplies which must be moved by the ALOC to provide combat service support to the deployed force.

3. Discussion

a. The current support concept envisions a phased build-up of support units and stocks of supplies in the theater of operations (TO) to support combat units. The build-up of units and supplies requires that facilities be built, requiring additional materials. These requirements compete for the limited available airlift. A reduction in the requirements for support units,

supplies and facilities in the TO would significantly reduce the requirements for airlift.

b. Minimum Essential Combat Service Support in the TO.

(1) The goal is to eliminate from the TO all combat service support not required for minimum support. It is recognized that there are many definitions of what support is needed versus what support is nice to have. However, by providing only the essential support, the commander's responsibilities for securing and managing the logistical organization are greatly reduced. Specific areas addressed are supply, maintenance, medical and administrative services.

(2) Supply support is oriented to maintaining the supply loads of organizations, particularly divisions, by a responsive ALOC and by throughput transportation directly to organizations. The only stocks located in the corps area would be a safety level of critical supplies. This would eliminate a requirement for general support (GS) supply units. Reducing the requirements for units and supplies allows associated airlift to be used to support combat units. If the need for additional units and supplies exists, it could be programed for movement by SEALOC.

(3) Maintenance support is limited to direct support (DS), supplied primarily by contact teams operating in forward areas. GS maintenance support would not be provided in the TO. The emphasis will be on making minimum repairs, deferring other maintenance and evacuating nonreparable items to CONUS or other area for repair. Control of class VII and class IX supplies is essential.

(4) Medical support is restricted to providing lifesaving stabilization and evacuation. The theater evacuation policy is established at 5 days. While this policy will double personnel replacement requirements, it will reduce the requirements for medical organizations and facilities by two-thirds with a corresponding reduction in airlift requirements.

(5) Theater administrative support is provided by contact teams. The administrative organizations and personnel and finance records will remain at the CONUS installation. Only the required elements of administrative staff sections would be deployed to the TO. Personnel replacements would be consolidated and programed into the TO at CONUS installations. The personnel airlift requirements should not have a significant impact upon the ALOC.

c. Providing minimum essential combat service support in the TO places a heavy reliance on the responsive support that must be provided by CONUS installations. The proposed system identifies specific areas; i.e., supply and transportation, which require detailed management supported by automated systems.

d. Providing minimum support in the TO and relying on responsive support from CONUS requires a communication system which exceeds the capabilities of tactical systems. The tactical communications system must be expanded to provide a long range communication capability which will interface with communication and automated management systems used by supporting organizations.

4. Conclusions

a. The proposed logistic system for an AALOC appears both sound and workable.

b. The proposed system can be incorporated into the present logistic system with only minor modifications or changes.

c. Further research and refinement of the proposed system are required prior to testing and evaluation.

d. If the proposed system proves to be feasible, it will provide significant savings in both materiel and support unit requirements.

5. Recommendations

That the proposed system be utilized at Department of the Army and Department of Defense levels in evaluating concepts for logistic support of contingency operations.

ASSURED AIR LINE OF COMMUNICATIONS:

A LIGHT CORPS IN A MIDDLE EAST SETTING

USACGSC 1974-75

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AIR LINE OF COMMUNICATIONS FOR A CONTINGENCY FORCE
(Light Corps, Middle East Scenario)

1. PROBLEM. To examine the current system for providing airlift to the Army element of a contingency force and recommend improvements or modifications which will provide an assured air line of communications for such a contingency force.

2. ASSUMPTIONS.

a. Airlift Forces. Airlift forces outlined in Annex J, Joint Strategic Capabilities Plan, FY 1975, will be considered the airlift force available for this study. This capability will be reduced by 10 percent.

b. Personnel Strength. The light corps strength will be the total used in the Middle East I (ME I) Scenario (approximately 100,000).

c. Attrition of Airlift and Aerial Ports. There will be no enemy-induced attrition of airlift capability (numbers of aircraft available). Major contingency area airfields will not be interdicted.

d. Class III Support for Airlift. Class III supply for airlift will be sufficient.

e. En Route Refueling. Aircraft may be refueled in the Azores and Moron AFB. KC-135 support for C5A will be available.

f. Intercountry Agreements. Diplomatic agreements permitting US overflights and airfield usage will not change.

g. Duration. The contingency will last approximately 60 days.

h. Water Terminals. Host country seaports will be available and will become operational by D+17.

i. Theater-Oriented Depots Complex,(TODC). Maximum use will be made of the theater-oriented depot systems.

j. ISSA's. Inter-service support agreements now in effect will remain in effect.

k. Priorities. Movement priorities will be established by the JTF Commander.

l. Funds. Funds will be available to conduct the operation.

m. Intensity. Non-nuclear environment will exist.

n. Maintenance Level in Theater. Minimum essential maintenance will be performed in-country.

o. Labor Supply. Civilian and indigenous-type labor will be available to meet requirements.

p. Water Supply. Potable water supplies will be adequate with purification unit augmentation.

q. MEDEVAC. Five-day MEDEVAC policy. Airlift capability will not be adversely affected by changes in MEDEVAC policy.

r. JTF Airlift Composition. JTF airlift system will consist of three squadrons of C-130's.

s. Personnel Movement. Personnel will move by air.

t. Strategic Airlift Distances. General air distance assumption, east coast (Dover AFB) to Moron - Middle East Airfield. Backhaul will be from Middle East Airfield - Lajes - Dover.

u. Resupply Origins and Mode. All classes of supply through D+25 will be transported by air (75% from CONUS and 25% from EUCOM). After D+25, total will be from CONUS, 75% by surface and 25% (including all class IX) by air.

v. Logistical Support to US Forces only.

w. Throughput. Throughput will be used to the maximum.

x. Related Assumptions. See pertinent annexes of this study.

3. DISCUSSION.

a. Importance of Airlift in Modern Contingencies. Airlift became a significant factor in combat service support to combat elements during World War II and has exercised an increasing influence in support of national goals in the international arena since that time. During the Vietnam War, airlift assumed its largest role to date, but the system as we know it today was never taxed beyond its maximum capability by an overwhelming daily or continuous requirement. The type of requirement which would tax the system beyond its present capability is that envisioned by the Middle East I Scenario which was developed by the Combined Arms Combat Developments Agency (CACDA) in 1974. This scenario describes the deployment of a light corps of approximately 100,000 men into a combat situation where it delays, defends, prepares for the offense and then conducts offensive operations. During the period D+1 to D+25, support of this force depends upon an air line of communications. Eventually, this study assumes that dependence upon the air line of communications is reduced to a point where only 25% of the resupply cargo is moved by air. This study examines the Army requirement for airlift, as well as the shortfalls which should be expected and the management structure which will be necessary to make the system sufficiently responsive to provide limited resources at the place and time required. The system can be adapted for joint operations.

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b. The Present Logistical System.

(1) Airlift. The National Security Act of 1947, as amended, gives the Secretary of Defense (SECDEF) the power to assign responsibilities within the DOD to improve efficiency and to take advantage of certain economies of scale which result from centralization. Under this authority, SECDEF has designated the United States Air Force as the DOD single manager for airlift. The Military Airlift Command (MAC) is the Transportation Operating Agency created by the Secretary of the Air Force to perform the airlift function. The Command responds to the air movement requirements of the Services and, in special cases, to the direction of the JCS. MAC can be augmented by the Civil Reserve Air Fleet (CRAF) in various increments, depending upon the level of emergency declared. These levels are detailed in the Joint Strategic Capabilities Plan (JSCP). (See Annex A - Airlift.)

(2) Supply and Movements. Movement of cargo within the Defense Transportation System is driven by the MILSTRIP/MILSTAMP systems with certain exceptions such as Project 999, NORS, etc. Under these procedures, requisitions are transmitted from overseas areas to the appropriate National Inventory Control Point (NICP) through the Defense Automatic Addressing System (DAAS). The NICP designates the depot to fill this requisition and transceives the requisition to that depot. The depot prepares the shipment and makes a cargo offering by transceiving an Advance Transportation Control and Movement Document (ATCMD) to the Shipper Service Control Office (SSCO) which verifies, edits or challenges the shipment. A shipment under 500 lbs is automatically verified for air shipment. For larger shipments, the next step is to transceive a copy of the ATCMD to the Military Airlift Clearance Authority Agency (MACAA) which may issue challenge or hold instructions or do nothing, which automatically clears the offering for shipment to the Aerial Port of Embarkation (APOE). MAC elements then process and load the shipment; upon arrival at destination, MAC elements coordinate with theater movement control agencies for further shipment to destination.

(3) Direct Support System (DSS). The recently implemented Direct Support System (DSS) provides responsive supply support to the United States Army, Europe through the use of Theater-Oriented Depot Complexes (TODC). Under this system, the Direct Support Unit (DSU) submits requisitions for items not in stock through the Materiel Management Center (MMC) to the appropriate CONUS NICP by means of the DAAS. The TODC for the European theater is New Cumberland Army Depot in Pennsylvania. Once prepared for shipment by the depot, the air cargo is forwarded to Dover AFB, Delaware, in accordance with pre-designated monthly tonnage allocations. Supply and transportation updates reflecting DSS activity are included in the Logistics Intelligence File (LIF) of the US Army Logistics Control Agency (LCA). (See Annex B - Supply and Transportation Management).

c. Air Support of the Middle East War of 1973. The logistical support of the Middle East War of 1973 was conducted almost entirely by air. In 30 days, MAC flew over 22,000 short tons of cargo to Israel. While MAC was not

taxed to its full capability by this contingency, there were certain problems which arose. Among these were the problems of overflight rights and the use of foreign bases for refueling stops. Long flight legs greatly reduce the productive capability of aircraft. (See Annex A - Airlift.)

d. Future Contingencies.

(1) Future contingencies are examined by CACDA using the Scenario Oriented Recurring Evaluation System (SCORES). SCORES is an evaluation technique for identifying improvements and addressing questions concerning organization, doctrine and materiel. As mentioned above, a light corps was examined in the ME I scenario. Common features of these future contingencies will be their high intensity and their envisioned short duration. Both of these features will strain the logistics system in relation to the availability of US support facilities in the contingency area and the capability of the transportation system to make up the difference. In the case of the ME I scenario, there are no existing US facilities, nor is a major logistics buildup contemplated in the contingency area. Thus, the need for extensive airlift support from deployment through completion of the action.

(2) An examination and analysis of requirements for deployment, build up and resupply in Annex E (Economic Analysis) indicates that there will be major shortfalls in the total tonnages which can be delivered by air to the contingency area by D+25. This obviously places the priority determination decision squarely on the desk of the battle captain -- the JTF Commander. He must address this question as it relates to accomplishing the JTF concept of operation. What are the minimum tonnages in each category of his daily requirement in order for him to successfully delay, defend, prepare for offensive operations and then move to the offense?

e. Proposal for an Assured Air Line of Communications.

(1) The JTF Commander can be greatly assisted in his "prioritizing" by improved supply and movements management both in CONUS and in the contingency area. This can be accomplished by using present logistical systems and agencies with modifications. The concept proposed below will assist the JCS by creating single points of contact for management information during the emergency.

(2) The concept for managing an AALOC is fully outlined in Annex B (Supply and Transportation Management). Two Movements and Materiel Control Centers (MMCC) are envisioned -- one in CONUS and the other in the contingency area. The CONUS MMCC (CMMCC) will be a jointly manned activity, possibly subordinate to JCS and responsive to both the desires of JCS and the JTF Commander. A JTF movement control element will become a part of the CMMCC. The second management center will be the Theater Movement and Materiel Control Center (TMMCC) which will be a jointly manned activity formed in the contingency area by the JTF Commander from organizations designated for deployment in the force package.

(3) Generally, both of these organizations will perform logistics management functions in support of the JTF. The CMMCC will, in coordination with the JTF Commander, exercise final materiel and distribution control into the contingency area. Under this concept, the CMMCC will practice management by exception through existing logistical systems and agencies. It will act as a single point of contact for information pertaining to the air distribution of materiel into the contingency area. Although the CMMCC could be located virtually anywhere, the most desirable points would be colocation with the LCA or HQ, Eastern Area, Military Traffic Management Command (EAMTMC). The TMMCC will manage and control overall logistical support for the contingency force in the contingency area. As such, it is the single point of contact in the contingency area for these matters. The TMMCC must be directly subordinate to the JTF Commander. Functions and liaison requirements are discussed in Annex B (Supply and Transportation Management).

(4) The use of the Movement and Materiel Control Centers will enhance logistical support of the contingency force. They provide the centralized control required and a single point of contact for both the JCS and the JTF, not to mention Army and Air Force logistics agencies and other support agencies. Increased responsiveness will result in a better informed JTF Commander and subsequently improved flow of supplies to the contingency area.

4. CONCLUSIONS

a. Airlift. In the short term, airlift will be a scarce resource and a flow of cargo must be intensively managed to ensure the most responsive support to a selected contingency force.

b. Supply and Transportation Management.

(1) The proposed system is fully cognizant of the realities of crisis management. It can bring the operational decision-making down from the policy making level, especially if the CMMCC is created under the auspices of the JCS and augmented by a JTF movement control element. The CMMCC could conceivably be the "single source of information" long sought by the JCS and DOD.

(2) The proposed system also meets the dictum of the Joint Logistics Review Board that supply and movement management agencies be created and control instituted early in a contingency to ensure that materiel flow management is exercised to avoid the chaos and congestion of past wars on the transportation system. An additional step would be to designate the level at which the TMMCC would be established for planning purposes. A mobilization Joint Table of Distribution (JTD) could be maintained at unified command level, activated and deployed in a contingency, and at some pre-designated time, control transferred to the Joint Task Force Commander. This would be a logical method since the joint operational planning tasks are assigned to the theater commander through planning directives and the JSCP. A similar method, using the Readiness Command as the planning agency, would be equally effective.

In either case, the supply and movement control TOE's mentioned in Annex B would remain as an integral part of the light corps force package.

(3) The CMMCC provides a single CONUS point of contact for the Joint Task Force Commander, regardless of the chain of command. If it is organized under the auspices of JCS, the placement of a JTF movement element with the CMMCC will ensure that materiel flow into the contingency area can be controlled in a way which lessens the chance of congestion at the aerial ports while concomitantly moving supplies so as to arrive in accordance with JTF established priorities. In addition, the CMMC provides a single point of contact for all supply and transportation aspects of the air line of communication.

(4) The CMMCC provides a CONUS based nucleus which can be expanded to assume movement and supply control of the contingency sealift support should this be required.

c. Logistics.

(1) As stated in Annex C, the vast amounts of supplies and materiel required will place great demands on present airlift assets. An austere environment and the use of an air line of communication should, however, permit modifications in the support base, reducing some requirements for support personnel and the associated support they require.

(2) Dedicated airlift would be required to provide the mission essential items in quantities to sustain the force until sea lines of communications (SEALOC) become operational. The priority for resupply should go to supply classes I, III, V, VIII and IX. The JTF Commander must decide how much will be moved in each category.

(3) The heavy demand on airlift may delay the buildup of reserve stocks until the SEALOC becomes operational, requiring units to place greater dependence on their accompanying load.

(4) Reduction in the number of general support supply units deployed should be considered due to the reduction in levels of supply and in the number of ASL lines carried.

(5) Reduction in the number of mess personnel and equipment should be considered with the use of combat rations.

(6) The elimination of general support maintenance will reduce the number of maintenance units deployed. The modified DS policies, such as no cosmetic repairs and more deferred maintenance, will reduce the number of DS maintenance personnel required.

(7) Extensive controlled cannibalization of non-reparable equipment will provide additional repair parts for the supply system and reduce the requirement from CONUS stocks.

(8) Reduction in field services and personnel services provided should reduce the number of personnel and units deployed to accomplish these tasks.

(9) The five-day medical evacuation policy should allow for reduction in medical personnel, supplies, and facilities deployed into the contingency area.

d. Communications.

(1) The AALOC concept places additional requirements on the tactical communications system that exceeds present capabilities. Due to this increased requirement, the Defense Communications Agency (DCA) must participate in contingency planning early.

(2) The DCA will be responsible for planning the communications means out of the contingency force area of operations, types of equipment needed, and general engineering to interface with the DCS.

(3) Early identification of valid requirements will allow for the assured operation of the AALOC concept.

(4) The AALOC concept does not reflect a need for change in the communications doctrine depicted in FM 24-1, Communications Doctrine. It does, however, show a need for dedicated circuitry in the AALOC operations centers.

(5) Major reliance for the smooth, orderly flow of supplies will be on the ability of the theater to communicate with CONUS on data links, voice, and computer interface circuits. The Tactical Communications System was not designed to handle long-haul, high quality, digital traffic.

(6) The AALOC concept will strain the strategic communications system. Early identification and proper engineering will be needed to assure the AALOC's operation.

5. RECOMMENDATIONS.

a. That a detailed supply study be conducted to define the daily tonnage by category and the daily airlift shortfall. Once developed, task the tactical planners in DTAC, DCOM and CACDA to establish priorities by day; i.e., war game logistical requirement against the tactical concept.

b. That future combat developments studies incorporate the logistics management techniques of the CMMCC and TMMCC developed in this study.

c. That the flow of cargo be intensively managed because airlift resources will be scarce.

d. That dedicated communications circuits be made available to the CMMCC and TMMCC and that efforts continue to improve and expand traffic capability.

e. That efforts continue to improve and expand airlift capability.

f. That the concept for austere combat service support elements and procedures developed in this study be considered in future contingency planning.

g. That currently existing management and information systems be utilized in future contingency operations.

ANNEXES

Annex A - Airlift
Annex B - Supply and Transportation Management
Annex C - Logistics
Annex D - Communications
Annex E - Economic Analysis
Annex F - References

Annex A (Airlift), Assured Air Line of Communications (ME-I Scenario)

1. PROBLEM: To briefly describe the evolution of airlift over the past quarter century; explain the conversion which the Air Force undertook for resupply; present the airlift capability for a set scenario; and project future developments that will enhance this capability.

2. DISCUSSION:

a. Airlift Evolution. As our national strategies have developed, our strategic airlift capability has attempted to keep pace with the dynamic needs. During World War II, the Air Transport Command met the need for airlift as it executed the vital short-range resupply mission. Shortly thereafter, the resupply of Berlin showed the value of airlift as an instrument of national power during peacetime. With the outbreak of Korean hostilities, the Military Air Transport Service could not meet our mobility needs because of our limited speed, range, and capacity. As the North Koreans employed ten divisions across the 38th Parallel, nearly two months passed before the first divisions arrived from the United States. By that time, we had to engage the enemy far to the South. We did not possess the necessary mobility and had to trade space for time.

Following the Korean conflict, our national strategy changed to massive retaliation, in which the primary mission of airlift was resupply. However, the succeeding concept of flexible response placed great demands on rapid long-range air deployment. The substantial deployment capabilities of the C-141, which entered in 1965, greatly enhanced the credibility of this concept.

The capability of strategic airlift becomes increasingly important because the present relative nuclear balance between the US and the USSR has placed greater emphasis on conventional forces. Moreover, reduced defense budgets coupled with the demands of US worldwide interests dictate that superior mobility become a key element of our national strategy. In response to overseas manpower reductions, we must devise an alternative to prepositioned garrisons. We need the capability to quickly deploy highly mobile conventional forces directly from the United States. Thus, we must have a strategic force capable of rapid, massive and responsive airlift to deploy and resupply fighting forces anywhere in the world. To fulfill this mission the Military Airlift Command (MAC) employs military and civil airlift resources.

The strength of the military force is derived from a modern fleet of C-130, C-141 and C-5 aircraft. The C-130, which possesses a limited strategic capability, is employed primarily for shuttles within and between theaters. The C-141 was designed to deploy troops, general cargo and smaller pieces of equipment while the C-5 was specifically designed to airlift outsized combat equipment. The unique design philosophy of these aircraft permits rapid

on-load and off-load of virtually every item required by our combat forces. However, it is neither practical nor possible for these aircraft to meet all airlift requirements.

To fulfill our tactical wartime requirements, the modern long-range jet aircraft of the Civil Reserve Air Fleet (CRAF) can be called into service in predesignated stages to meet varying levels of conflict. When activated, the CRAF would replace military airlift on the worldwide logistics routes and perform resupply in rear areas while the military aircraft would deploy to the forward areas.

From our perspective in history, it would be interesting to glance back at past events and speculate how we could have accomplished the mission with our present day capability. Almost 27 years ago, a city of over two million people found itself isolated from the free world. The Russians' tactic to seal off West Berlin had been well planned but it did not perceive the dogged determination of the West German Allies. For 13 months, the allies furnished over 4,500 tons per day to resupply the people of West Berlin. To accomplish this herculean task, more than 4,500 sorties were required on a daily basis.

As a sample, we have selected one route segment (Rhein-Main to Tempelhof) to compare the workhorse of the airlift, the C-54, to the present day capability of the C-5A. This route had to supply 3,100 tons per day to West Berlin. To accomplish this mission, over 300 C-54 sorties were required per day utilizing 168 aircraft. Had the C-5A been employed, only 38 sorties would have been required with a total of 11 aircraft. The introduction of the C-5A has even broader application when you consider maintenance, fuel consumption, aircrew requirements and traffic congestion. Moreover, had the Boeing 747 CF (convertible) aircraft been employed, only 32 sorties would have been required and 9 aircraft needed to support the task.

b. Resupply Conversion. Unfortunately, the appetite of modern warfare far exceeds the simple requirement of resupplying class I stocks, as was the case in Berlin. With today's sophisticated weapon systems, a high demand is present for ordnance, POL and repair parts. Following the Korean War, the Air Force began to study this problem and develop means to streamline the resupply channel. The first step was the elimination of overseas depots which completely removed one echelon of supply. Next, nine item managers and depot operations in CONUS were consolidated into five major activities. Each of these five commodity commands was tasked with all aspects of managing the items and/or weapons systems for which it had responsibility.

In late 1967, the USAF instituted real time asset visibility to improve efficiency and to allow a decrease in the depth of stockage at Air Force bases and depots. This was accomplished by streamlining the logistics organizations and procedures and by using improved Automatic Data Processing Equipment, fast transportation, and communications capabilities that had become available.

With these innovations, a high priority requisition would follow these channels:

(1) The servicing base supply would process the request and check their stocks for availability.

(2) That base supply would canvass the base supply units within the theater for the item (through communications and computer).

(3) An area search, i.e., Pacific, would be initiated for the item (same procedures).

(4) If the item is not available in the area, the servicing base supply places the demand on the appropriate depot.

(5) The depot ships the item, by routine commercial air, to the aerial port in CONUS.

(6) If the depot does not possess the item, it can canvass the units in CONUS or procure from the manufacturer.

(7) Item is airlifted to the theater aerial port.

(8) Item is transported by organic air to servicing base supply.

(9) Item transported to requestor.

This system has been so designed that it monitors approximately 9% of the Air Force line items, which accounts for 90% of the total inventory dollar investment (selective item management concept). Results of this concept have been most impressive. An estimated 7 billion dollars have been saved over an 8-year period due to the reductions in inventory. A prime example is in the area of jet engines. In 1961, the ratio of spare engines to installed engines was 3:4. Due to the selective management system, this ratio was improved to 2:5 by 1968. The total number of engines in the inventory remained fairly constant (70,000) from 1961 to 1968, yet in 1968 over 8,000 more engines were installed in operational aircraft.

c. Airlift Capability. At this point we move to the main thrust of this annex: to present the capabilities and limitations of a prescribed force for a set scenario. The routing selected was based upon bases most closely aligned to a direct route to our destination: Leg #1 Dover AFB -- Torrejon AB; Leg #2 Torrejon -- Middle East Airfield; Leg #3 Middle East Airfield -- Lajes AB (Azores); Leg #4 Lajes -- Dover AFB (appendix 1). A different airfield was selected for en route recovery on the return trip to reduce traffic congestion and to spread the maintenance load for the aircraft.

The C-5A is assumed to have air refueling and will require no en route stops, but will require refueling at the terminal base. The C-141 and the Civil Reserve Air Fleet (CRAF) aircraft will fly the prescribed routing as previously mentioned. The C-130 will shuttle stocks from depots in Spain to

the contingency area. The flying times per leg for each type aircraft are depicted in Appendix 2. The Block Speed has been extracted from AFM 76-2 and is predicated on distance flown. A 39 knot tail wind on the outbound legs (1 and 2) has been incorporated as a standard planning factor. (Reader should note that any wind will increase the total round trip flying time.) Since the en route recovery bases are so closely aligned to the direct route, only 200 miles is lost by en route stops for the total trip (11,400 - C5A vs 11,600 - C-141). Twenty-five minutes (or .40 hrs) has been added for each leg to allow for recovery and landing, again a standard planning factor.

The total daily capability is depicted in Appendix 3 (Military) and Appendix 4 (CRAF). Ninety percent of the available C-5A and C-141 aircraft are assumed employable for this scenario. Of the ten squadrons of C-130's, seven (112 aircraft) will shuttle stocks from Spain. The remainder will resupply intratheater. The utilization rate is based upon support manning and aircrews available. The ten-hour rate for the C-5A and C-141 is a maximum surge for 45 days (based on a seven-day work week). This utilization rate is the limiting factor in our computations. The round trip flying time is extracted from Appendix 2 and the aircraft capacity is derived from AFM 76-2, Airlift Planning Factors (U). Ton capacity has been reduced on each aircraft to allow for additional fuel for the longest leg of the route (critical leg). Since the C-5A will be air refueled, a reduction for this purpose was not required. However, since the C-5A will be used primarily for outsized cargo, a reduction is made for low density items (Air Force-wide experience indicates that due to variable cargo densities, stacking losses and restraint considerations, the average payload usually equates to approximately 75% of the aircraft capacity). A study is presently under way to correct this deficiency.

The CRAF resources have been extracted from the monthly Civil Reserve Air Fleet (CRAF) Capability Summary (1 April 1975) and assumes that Stage II is in effect (Appendix 5). These resources include both cargo and passenger aircraft. In two cases, the aircraft have a dual capability. On the CRAF side, the Boeing 747 can lift 14 tons of cargo while carrying the prescribed passenger load. In the military area, the C-5A can carry 70 passengers while lifting its prescribed tonnage. These additional benefits have been added to the subtotals in Appendix 4.

Earlier it was mentioned that the aircraft utilization rate was the critical aspect when we discuss capabilities. This becomes more apparent when you begin to compute your daily capacity. First, you must determine what percentage, on an average, of a type aircraft will be employed on a daily basis. To find this fraction, you divide the daily utilization rate for that aircraft by the round trip flying time (for the C-5A, that percentage is 34.48%). In other words, approximately 34% of the C-5A aircraft will deliver cargo on any particular day. The next step is to multiply this percentage by the number of aircraft of that type to be employed. Lastly, the result of that computation is multiplied by the cargo capacity of that aircraft (for the C-5A, 34.48% X 63 X 58.5 = 1,284 short tons/day).

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The computation for the military aircraft is shown in Appendix 3. The method for CRAF aircraft is identical for cargo. For the passenger aircraft, the number of passengers replaces the tonnage figure. The total daily capability is shown in Appendix 3 and it includes both CRAF and military capacities; 4788.3 short tons/day. The total passengers lift for one day is shown in Appendix 4.

These then are the capabilities; the limitations are numerous. First, as noted, the airlift is dependent on en route support bases. If these points were not available, the tonnages would have been severely reduced. Another bonus was the use of support bases close to the direct route. Had these bases been farther from the centerline, these tonnages would have to be reduced accordingly for the additional fuel.

Another consideration is the availability of fuel. Not only are we assuming that the en route bases can support these aircraft, but also that final destinations can refuel these assets.

Lastly, we must address the aircraft utilization rates. In the case of the C-5A, C-141 and CRAF assets, the aircraft can operate only 42% of the available time (on the average) based upon maintenance and aircrew manning (i.e., 10 hrs for any 24-hr period). For the C-130, the rate is much lower: 17%. Consequently, we cannot fully utilize our assets when the need arises.

Having discussed a few of the limitations, it is only appropriate to examine some programs to correct these deficiencies.

d. Airlift Enhancement. To overcome the main obstacles to strategic airlift, two programs are being considered: air refueling and increased utilization rates.

To reduce our dependence on foreign airfield facilities and support, two ingredients are necessary: a 100% air refuelable fleet and adequate tanker support for this fleet. Presently, only the C-5A can be air refueled. A program to modify existing C-141 aircraft with this capability is before Congress. The replacement for the conventional C-130, the Advanced Medium Short Takeoff and Landing Transport (AMST) will also possess this capability. If these programs are approved, our strategic ability will be greatly enhanced not only by reducing support requirements but also by increasing lift capacity. For instance, had the C-141 been air refueled for the Middle East Crisis of 1973, the tonnages would have been increased by 16% and the fuel consumption reduced by 12% which includes tanker fuel. This concept would ease the en route base support problem but the need for fuel at the recovery base still exists. However, if a form of "super tanker" was available, this mission could be accomplished solely with US resources.

In 1966, when the Strategic Air Command (SAC) and the Air Staff first considered a follow-on tanker for the KC-135, they concluded that an aircraft in the 1,000,000 pound weight class would be required. The wide-bodied

aircraft presently under consideration is very close to that target; for economic reasons, the Air Force is looking at an aircraft already in existence -- the Boeing 747. For example, if the latest version of the 747 was converted into a tanker, it could offload over 350,000 pounds of fuel after traveling 1,500 nautical miles. This capability exceeds that of the KC-135 seven fold!

The final element in improving strategic mobility focuses on aircraft utilization rates. This proposal calls for increasing aircrew ratios and maintenance manning, expanding global spares and acquiring additional simulators for aircrew training. By incorporating this proposal, we can better utilize existing assets to their full capacity. These changes would increae the present surge rate of ten hours per aircraft per day to 12.5 hours; a startling 25% increase or over 700 tons per day for this scenario.

Quite obviously, this discussion does not cure all the ills of strategic airlift. The CRAF fleet will still require en route support and the solution to this shortfall will be a long-term problem. Also, the CRAF fleet requires updating. The B-747C has a great capability, but at present there are only two available (Appendix 5). As more of these aircraft are manufactured, another aircraft, the DC-XX, is being studied as a future civilian cargo carrier that can transport twice the load of the C-5. Military planners are working closely with industry to incorporate military requirements.

3. CONCLUSIONS: In summary, airlift has made a tremendous impact upon the capability to respond to contingencies. Through a prescribed scenario, present day capabilities have been examined and future capabilities discussed. These developments, if approved, constitute another quantum jump in capability. In the short term, however, airlift will continue to be in very short supply. Use of airlift for aerial resupply will continue to be limited to high priority and other selected items.

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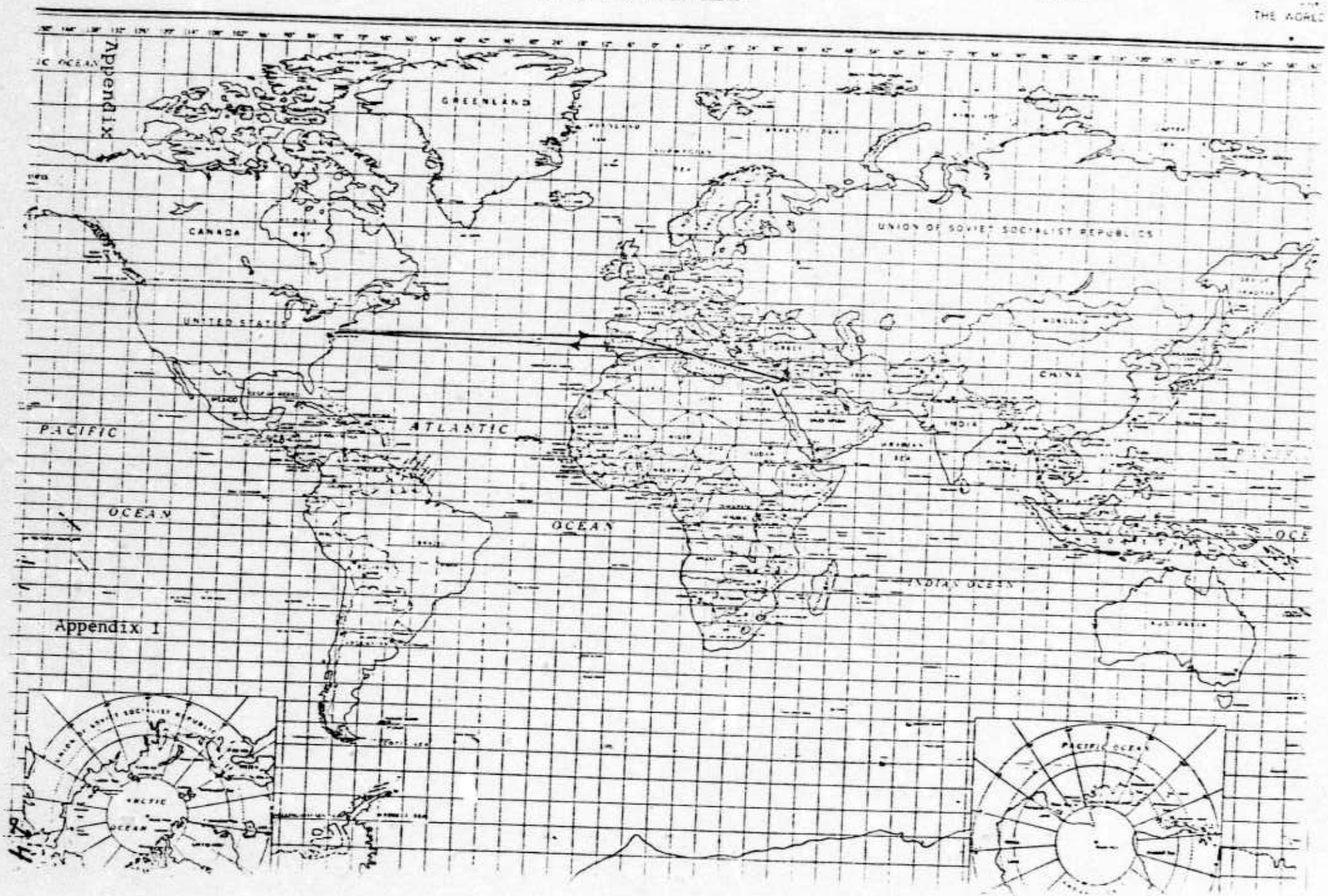
THE WORLD



FLYING TIME COMPUTATIONS

TYPE A/C	BLOCK SPEED	DISTANCE	FLYING TIME
C-5			
LEG #1	451.5	for 5700 = 12.62 + .40 = 13.02	
LEG #3	373.5	for 5700 = 15.26 + .40 = 15.66	
		Round Trip (RT) Flying Hours	28.68 hrs
C-141			
LEG #1	440.0	for 3300 = 7.43 + .40 = 7.83	
LEG #2	452.0	for 2500 = 5.53 + .40 = 5.93	
		Outbound Flying Time	13.76 hrs
LEG #3	368	for 3500 = 9.51 + .40 = 9.91	
LEG #4	370	for 2300 = 6.22 + .40 = 6.62	
		Inbound Flying Time	16.53
		Round Trip (RT) Flying Hours	30.29 hrs
C-130			
LEG #1	299	for 1950 = 6.52 + .40 = 6.92	
LEG #2	271	for 1950 = 8.82 + .40 = 9.22	
		Round Trip (RT) Flying Hours	16.14 hrs
B 747/DC 8			
LEG #1	487	for 3300 = 6.78 + .40 = 7.18	
LEG #2	479	for 2500 = 5.22 + .40 = 5.62	
		Outbound Flying Time	12.80
LEG #3	413	for 3500 = 8.47 + .40 = 8.87	
LEG #4	398	for 2300 = 5.78 + .40 = 6.18	
		Inbound Flying Time	15.05
		Round Trip (RT) Flying Hours	27.85 hrs
B 747/DC-10			
LEG #1	513	for 3300 = 6.43 + .40 = 6.83	
LEG #2	505	for 2500 = 4.95 + .40 = 5.35	
		Outbound Flying Time	12.18
LEG #3	437	for 3500 = 8.01 + .40 = 8.41	
LEG #4	421	for 2300 = 5.46 + .40 = 5.86	
		Inbound Flying Time	14.27
		Round Trip Flying Time	26.45 hrs

Appendix 2

Appendix 3

MILITARY AIRCRAFT CARGO CAPABILITIES

	TYPE AIRCRAFT	NUMBER	% UTILIZED	NUMBER AVAILABLE	UTILIZATION HRS/DAY	FLYING TIME (ROUND TRIP)	CAPACITY (PER AIRCRAFT)	CAPACITY (PER DAY)
1.	C-5A	70	90	63	*10	28.7	58.5	1284
2.	C-141	234	90	210	*10	30.26	24.0	1666
3.	C-130	160	70	112	4	16.14	17.5	486
				385	TOTAL Military Capability			3436
					CRAF Capability			1352.3
					TOTAL CARGO/DAY			4788.3

COMPUTATIONS

	(UTILIZATION (HRS/DAY) FLYING TIME)	X	AVAILABLE AIRCRAFT	X	AIRCRAFT CAPACITY	=	CAPACITY PER DAY
1.	10/28.7	X	63	X	58.5	=	1284
2.	10/30.26	X	210	X	24.0	=	1666
3.	4/16.14	X	112	X	17.5	=	486

*Indicates maximum surge capability for 45 days.

Appendix 4

CRAF AIRCRAFT

CARGO

TYPE	NO. AVAILABLE	UTILIZATION (HRS/DAY)	FLYING TIME (RT)	CAPACITY	CAPABILITY/DAY
B707-30DC&F	37	10	26.9	32.0	440.1
DC-8-50F&CF	6	10	26.9	32.0	71.4
DC-8-61CF	2	10	26.9	32.6	24.2
DC-8-63F&CF	30	10	26.9	36.0	401.4
DC-10-30CF	4	10	26.4	75.8	114.9
B747-100F(CF)	2	10	26.4	102.6	77.7
B747-200F&C	3	10	26.4	102.6	116.6
	84				1246.3
B747(PAX)	(20)	10	26.4	14.0	* 106.0
		TOTAL CRAF Cargo Capability (STON)			1352.3

PASSENGER

B707-300	2	10	26.9	165	123
B747-100	15	10	26.4	375	2130
B747-200	5	10	26.4	375	710
DC-10-40	4	10	26.4	303	459
	26				3422
C-5(PAX)	(63)	10	28.7	70	+1536
		TOTAL Passenger Capability			4958

*B747 Passenger Aircraft Can Carry 14 Stons In the Lower Bay While Transporting Personnel.
+70 Passengers Can be Transported In C-5 While Lifting Cargo.

MONTHLY CIVIL RESERVE AIR FLEET (CRAF) CAPABILITY SUMMARY

As of: MO MAC YPRC

DOMESTIC SEGMENT

AIRLINE AND CRAF STAGE / AIRCRAFT TYPE	AMERICAN (AAL) I	II	III	BRANIFF (BNF) I	II	III	EASTERN (EAL) I	II	III	TRANSCONTINENTAL (TCA) I	II	III	NATIONAL (NAT) I	II	III
B707-320C															
B727-200							2								
-DC-8-50F															
DC-8-50CF															
DC-8-61F															
DC-8-63F															
DC-10-30F															
DC-10-30C															
L-1011															
L-1011C															
L-188C															
TOTALS							2								

TOTAL I	II	III
	12	
7	1	
11	11	
4	9	
27	39	

ALASKAN SEGMENT

AIRLINE AND CRAF STAGE / AIRCRAFT TYPE	REEVE ALEUTIAN (RAA) I	II	III	HOUSTON ALASKA (HOA) I	II	III
B707-320C						
B727-200				4	4	
-DC-8-50F						
DC-8-50CF						
DC-8-61F						
DC-8-63F						
DC-10-30F						
DC-10-30C				5	5	
L-1011						
L-1011C						
L-188C						
TOTALS				9	11	

TOTAL I	II	III
4	4	
	2	
5	5	
9	11	

SHORT-RANGE INTERNATIONAL SEGMENT

AIRLINE AND CRAF STAGE / AIRCRAFT TYPE	ALASKAN (ASA) I	II	III	BRANIFF (BNF) I	II	III	EASTERN (EAL) I	II	III	PAN AMERICAN (PAA) I	II	III	WORLD (WOA) I	II	III
B707-320C															
B727-200	4			1			22	23		2	3	3			
-DC-8-50F															
DC-8-50CF															
DC-8-61F															
DC-8-63F															
DC-10-30F															
DC-10-30C															
L-1011															
L-1011C															
L-188C															
TOTALS															

TOTAL I	II	III
25	26	

CAPABILITY

TYPE	STAGES I	II	III
DOMEST C CARGO CAPAB L TY MTM			
DOMEST C PASSENGER CAPAB L TY MPM			
ALASKAN CARGO CAPAB L TY MTM			
SHORT-RANGE CARGO CAPAB L TY MTM			

LONG-RANGE INTERNATIONAL SEGMENT

AIRLINE AND CRAF STAGE / AIRCRAFT TYPE	AIRLIFT INTL (RID) I	II	III	AMERICAN (AAL) I	II	III	BRANIFF (BNF) I	II	III	CAPITOL (CAP) I	II	III	CONTINENTAL (CAL) I	II	III	FLYING TIGER (FTL) I	II	III	NORTHWEST (NWA) I	II	III	OVERSEAS NATL (ONA) I	II	III	PAN AMERICAN (PAA) I	II	III	*NATION (SUN) I	II	III	SEABOARD WORLD (SWA) I	II	III	*TRANS INTL (TIA) I	II	III	TRANS WORLD (TWA) I	II	III	UNITED (UAL) I	II	III	*UNITED (UA) I	II	III
B707-300F																			4	9	29				5	10	14																
B707-300C				13																																						
B747-100F				3																																						
B747-100C				2																																						
B747-200F																			5	7	7				1	6	7																
B747-200C																2	2	3							13	11	13																
DC-8-50F	2	2	2																																							
DC-8-50CF																															3	3	3									
DC-8-61CF										1	1	2																														
DC-8-62CF																																									
DC-8-63F	1	2	3							1																					2	3	3									
DC-8-63CF																																									
DC-10-10CF										2	3	3				8	12	12																								
DC-10-30CF																									2	3	3																
TOTAL	3	4	5	18				1	3	4	5								1	2	2																					
GRAND TOTAL	3	4	5	18				2	3	4	5		8			10	14	20	9	18	36	3	4	5	19	29	41	2	2	3	6	8	12	3	5	9	11	18	34		22			

AIRLINE AND CRAF STAGE / AIRCRAFT TYPE	*WORLD (WOA) I	II	III
B707-300F			
B707-300C			
B747-100F			
B747-200F			
B747-200C			
DC-8-50F			
DC-8-50CF			
DC-8-61CF			
DC-8-62CF			
DC-8-63F			
DC-8-63CF			
DC-10-10CF			
DC-10-30CF			
TOTAL			
GRAND TOTAL			

APPLICATION BY STAGE

	PASSENGER I	II	III	CONVERTIBLE I	II	III	FREIGHTER I	II	III	TOTAL EACH STAGE I	II	III
B707-300F												
B707-300C	1	2	7							1	2	7
B747-100F	7	13	84							7	13	84
B747-200F	2	3	5							2	3	5
B747-200C	2	4	14							2	4	14
DC-8-50F												
DC-8-50CF												
DC-8-61CF												
DC-8-62CF												
DC-8-63F												
DC-8-63CF												
DC-10-10CF												
DC-10-30CF												
TOTAL	12	26	90							12	26	90
B707-300F												
B707-300C				18	20	24	9	12	42	9	12	42
B747-100F							2	2	4	18	20	24
B747-200F				1	2	2	1	1	1	2	2	4
B747-200C										1	2	2
DC-8-50F				4	4	5	2	2	17	2	2	17
DC-8-50CF				2	2	3				4	4	5
DC-8-61CF						1				2	2	3
DC-8-62CF												1
DC-8-63F												
DC-8-63CF				18	28	36	1	2	10	1	2	10
DC-10-10CF						8				18	28	36
DC-10-30CF				4	4	5				4	4	5
TOTAL												
GRAND TOTAL	12	26	90	47	60	84	15	24	74	62	84	158

CAPABILITY

TYPE	STAGES I	II	III
LONG-RANGE CARGO CAPAB L TY MTM	5,202	6,976	11,732
WIDE-BODY PASSENGER AIRCRAFT LOWER LOBE CARGO CAPAB L TY MTM	1,267	1,339	2,726
TOTAL LONG-RANGE CARGO CAPABIL TY MTM	6,469	8,315	14,458
CONVERTIBLE PASSENGER CAPABILITY MPM	19,869	25,851	38,457
LONG-RANGE PASSENGER CAPABILITY MPM	8,367	10,298	13,211

SUMMARY OF SEGMENTS

	I	II	III
DOMESTIC		27	39
ALASKAN		9	11
SHORT-RANGE INTERNATIONAL		28	39
LONG-RANGE INTERNATIONAL (Pax)	18	28	40
LONG-RANGE INTERNATIONAL (Cargo)	62	84	158
TOTAL CRAF	74	110	287

REMARKS

CARRIER	QTY	TYPE ACFT	TAIL NO	ACTION
EAL	3	DC-10-10CF	08134, 08055, 08056	Add LTI Cargo
TWA	2	B747-31	53812, 53113	Drop LTI Passenger
EAL	2	B747-22	47201, 47231	Add LAC Passenger
WOA	1	B727-173C	19494A	Add SBI

NOTES

- * Indicates supplemental carriers
- # Call contract
- Capability in metric tons of 1000 ton-miles per day MTM or MPM per day
- Cargo capability based on CRAF wartime planning payload, ATW 70%
- ◯ Indicates changes since previous capability submission

Appendix 5

MAC MG [illegible] G-312 PREVIOUS EDITIONS ARE OBSOLETE

Annex B, (Supply and Transportation Management),
Assured Air Line of Communications (ME-I Scenario)

1. PROBLEM: To examine the supply and movement control tasks which will be required to effectively manage an Assured Air Line of Communications. Further, to identify existing automated systems used to provide supply and movements management functions. Finally, to propose a logistics management concept to meet a rapidly unfolding situation such as that depicted in the Middle East I Scenario.

2. ASSUMPTIONS: In addition to the assumptions of the basic study, the following assumptions will be used:

a. Military Airlift Clearance Authority Agency (MACAA) functions will be absorbed by Military Airlift Command (MAC) for the purposes of this study (ASD I&L Memorandum, dated 11 Oct 1974, Subject: Military Airlift Clearance Responsibilities) The Military Airlift Command Aerial Port Documentation and Management System (ADAM-II) will be fully operational and will provide the necessary data to agencies exercising management and control over cargo moving by air.

b. Requests for re-routings and diversions will not be honored unless dollar and weight criteria are met. (Data TBA)

c. ADP communications equipment of existing CONUS agencies will be utilized by personnel or a CONUS-based Joint Task Force logistics management and control organization.

d. Support of the contingency force will be considered to be JCS-directed and therefore automatically validated for air shipment until D+45.

e. ADP workload will not exceed that of ME I scenario.

f. Communications support will be adequate.

g. Priorities as established by the Uniform Military Movement and Priorities System (UMMIPS) apply unless modified by JCS directive.

3. DISCUSSION:

a. Current system for supply and movements management of air cargo.

(1) General.

(a) Movement of air cargo within the Defense Transportation System (DTS) is driven by the MILSTRIP/MILSTAMP systems with certain exceptions such as Project 999, NORS, etc. Requisitions transmitted from overseas destinations are directed to the appropriate National Inventory

Control Point (NICP) by the Defense Automatic Addressing System (DAAS). The NICP designates the depot to fill the requisitions and transceives the requisitions to that depot. The depot prepares the shipment and concurrently transceives the Advanced Transportation Control and Movement Document (ATCMD) to the Shipper Service Control Office (SSCO) (in the case of the Army, the Logistics Control Agency). The SSCO reviews, verifies, edits and challenges the shipment, if appropriate. This review is made to ensure compliance with MILSTAMP requirements. If the shipment is under five hundred pounds, it is automatically validated as air eligible and the SSCO transceives a copy of the TCMD to MACAA. If MACAA does not challenge the shipment or issue hold instructions through the SSCO, the shipment is automatically shipped to the Aerial Port of Embarkation (APOE). Validation is automatic when the shipment under consideration is the result of JCS-directed projects, or consists of items which were previously excluded from validation and challenge procedures (emergency supplies, etc.). The MACAA transceives the ATCMD to the APOE, which alerts aerial port activities to the forthcoming shipment. MAC elements process the shipment upon arrival and then load it on a designated aircraft. Upon arrival at the Aerial Port of Debarkation, MAC elements coordinate with the theater movements control agency for further shipment to the consignee.

(b) For shipments in excess of five hundred pounds, the SSCO coordinates directly with the requisitioning activity to confirm the requirement for air movement of the entire shipment. Certain exceptions such as 999, NORS, etc., are excluded from these challenge procedures.

(c) Presently, Defense Supply Agency (DSA) air cargo offerings are submitted directly to the MACAA for validation and direction.

(d) Functional military airlift clearance responsibilities by agency, upon disestablishment of the MACAA, are outlined in DOD Memorandum, dated 11 May 1974 (Appendix 1) and DAF Memorandum for ASD I&L, dated 3 Sep 1974 (Appendix 2).

(2) Direct Support System (DSS)

(a) The Direct Support System DSS) provides responsive supply support and reduces the requirement for high stockage levels in the theater or area of operations. Routine requirements are satisfied from direct support unit (DSU) operating stocks, which are replenished from CONUS. DSU requisitions are passed through the materiel management center (MMC) for editing and then transceived to CONUS where they are routed to the appropriate NICP by means of the DAAS. Requisitions are identified by project code to ensure control and identification through the system. Shipments are made directly from CONUS depots to the DSU, maximizing the use of throughput distribution. High priority requisitions can be filled from in-country safety levels, if available, then replenished from CONUS. The DSS concept eliminates the need for depots in the contingency area, and

3A

reduces general support supply company requirements to those necessary to maintain the safety level.

(b) All cargo requiring air movement is forwarded to the designated Theater-Oriented Depot Complex (TODC). For the European Theater, the TODC is New Cumberland Army Depot, PA. The TODC consolidates and palletizes the cargo for air shipment, and forwards the cargo to Dover Air Force Base, DE, in accordance with pre-designated monthly tonnage allocations. If additional space allocation is required, the Army LCA submits requests for additional allocation through HQ, AMC, to the MAC, who approves or disapproves the request. Documents reflecting supply and transportation status are transceived to the SSCO (Logistics Control Agency) to update and maintain the Logistics Intelligence File (LIF). Current status of a requisition can be obtained by querying the LIF using virtually any communications medium.

b. Air Support of the Middle East War in 1973. The control of logistical support during the 1973 Middle East War was very similar to other 'crash' activities which have occurred in the recent past. (Project ENHANCE is the most recent example.) A primary characteristic of these activities has been a circumvention of standard supply and transporation procedures. The overriding feature of this circumvention has been the creation of 'ad hoc' emergency procedures at the highest level and the control of operations at lower levels by DOD. Since emergencies are perceived by JCS as justifying creation of these 'ad hoc' relationships and control mechanisms, the assumed use of standard procedures in wartime may have to be questioned more closely than in the past.

(1) DOD/JCS Activities.

(a) Shortly after the renewal of hostilities in the Middle East, the Joint Chiefs of Staff created a task force which was designed to provide the 'overwatch' for this sensitive situation. Within the office of the Director for Logistics, J4, a Logistics Readiness Center (LRC) was activated to control the logistics activities directed at resupplying Israel. The LRC was to maintain a running estimate of the situation, recommend action, and gather information for timely decision making. Because of the intenseness of the situation, the LRC became an operational arm which issued shipment directions to AMC and Air Force Logistics Command (AFLC) activities, and in some cases initiated flight schedules to meet requirements as quickly as possible. Thus operations direction became centralized at the J4 level, and in many cases by-passed normal service logistical channels and procedures.

(b) Normal crisis management activities by the JCS call for the activation of the Logistics Readiness Center and the initiation of crisis monitoring and information gathering. It is also normal for the Deputy Director for Logistics (Strategic Mobility) to review the worldwide strategic mobility position and to coordinate with the single transportation managers to begin or update the planning necessary to support

the course of action which may be adopted by the National Command Authorities.

(2) Army Materiel Command Activities.

(a) The Army Materiel Command (AMC) conducts normal international logistics operations through the International Logistics Center (ILC) which is responsible for shipment status, receipt of lift information and actions to divert, frustrate, and the coordination of special projects such as ENHANCE or the Middle East War situation. The ILC is responsible for transmitting requisitions to the designated item manager for fill.

(b) Because of the 'pressure-cooker' type situation and the speed required, the normal procedures were, in many cases, disregarded, as mentioned earlier. In these cases, requirements were passed directly to the depots to begin immediate action for immediate processing.

(c) AMC depots responded to requirements and shipped to aerial ports which were designated by JCS. In some cases, these aerial ports were not MAC terminals, but were air bases operated by the Air Force Logistics Command. (See Air Force Operations below.)

(3) Air Force Operations. This paragraph covers the Air Force support of the Israeli effort in the Middle East War, including the operation of the Military Airlift Command.

(a) Air Force Logistics Support. More than 50 percent of the total cargo moved in support of the Middle East War was moved through Air Force Logistics Command bases, including cargo of the Army Materiel Command. To control this movement, the AFLC established an augmented operations center (AOC). The AOC carefully monitored and controlled the movement of AFLC cargo through the aerial ports. Centralized command posts maintained worldwide visibility of AFLC movements and instantaneous information was available at all times.

(b) Military Airlift Command Operations. Military Airlift Command efforts had an immediate impact upon the war in the Middle East. Once the National Command Authorities made the decision to resupply, the strategic resources of the Command were tasked to begin immediately the airlift effort. MAC C-5's, 141's and some TAC C-130's were pressed into service and flew 22,300 short tons to Israel in 30 days. The advance elements of an Airlift Control Element (ALCE) arrived with the first C-5 Galaxy and the ALCE remained on the ground at Lod Airport until the close-out of the critical phase of the operation in November. As mentioned before, over 50 percent of the cargo was shipped through CONUS aerial ports controlled by the Air Force Logistics Command. Materiel was received at

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bases in Ohio, Georgia, Utah, California, Oklahoma and Texas. In many cases, MAC aircraft moved from base to base, as in the days of tramp steamers, picking up cargo until a full load was on board for the trans-oceanic trip to Israel.

(4) Use of Present Management Systems. A major complaint from U.S. logistic agencies during the Middle East War was the by-passing of the existing systems by the JCS and other higher headquarters and the substitution of "patch" or hastily developed procedures. Often, this resulted in functional agencies being left out of the flow of requirements that were being levied on subordinate elements, crash changes being published and duplicated maintenance of management information data. Systems presently in effect have been developed from years of experience and study; personnel at all levels are trained and knowledgeable of these systems as they routinely comply with the established procedures. Many of the logistical information and management systems are automated.
Super-imposing another unique system during contingency operations results in disruption of the routine and some loss of automation. Quite often, personnel at the working level neither have access to secure lines of communication nor possess the required clearances: this just imposes another constraint on the system at a time when the needs of speed and fluidity are critically imperative. During crises or contingencies, the desired intensive management can be realized fully by assigning project codes to requisitions submitted in support of the contingency and by manning those supply and transportation movement areas (nodes) deemed critical to ensure rapid processing, preparation and movement of supplies and equipment. Additional manning should be accomplished only in those areas where management and control decisions can be exercised most effectively; normally, this will be at the major transportation and supply operating agencies.

c. Proposed Management System for an Assured Air Line of Communication.

(1) Description of the CONUS Movements and Materiel Control Center (CMMCC). The CMMCC will be a joint activity possibly subordinate to the JCS, in addition to being subject to JCS direction, and will respond directly to requirements as established by the JTF Commander, providing him a single point of contact within CONUS for logistical matters upon implementation of a contingency plan. The CMMCC will, in coordination with the JTF Commander, exercise final materiel and distribution control into the contingency area. Under this concept, the CMMCC will practice management by exception through existing logistical systems and agencies.

(a) Composition. The CMMCC should be manned to support a 24-hour a day operation throughout the crisis or contingency. Personnel involved should be highly qualified in supply, maintenance and transportation movement procedures. Under this concept, the CMMCC will be staffed with Army and Air Force representatives and, if required, augmented by

Navy or Marine Corps personnel. Total personnel required to form the CMMCC will depend largely upon the amount of information required, the number of areas/nodes deemed critical, contingency length, etc.

(b) Location. Since the Logistics Intelligence File (LIF) is a function of the Logistics Control Agency (LCA), located at the Presidio of San Francisco, the CMMCC should logically be headquartered there. All supply and transportation data is funneled into the LIF to update and maintain the data base. Delays in processing, preparing or transporting can be determined and appropriate corrective action initiated. As a minimum, CMMCC liaison personnel should be located at the following headquarters: EAMTMC, MAC, AMC, AFLC, and LCA. If required, the alternate location for the CMMCC command element should be HQ, EAMTMC, the area from which the majority of the supply and transportation requirements would originate to support a Middle East contingency.

(c) Functional Description/Responsibilities. The CMMCC will act as the single point of contact in CONUS for coordination of the logistical functions and requirements in support of the contingency force in the theater of operations. CMMCC functions and responsibilities regarding logistical matters are to:

1. Act as the interface between the Theater Movement and Materiel Center (TMMCC) and CONUS logistical agencies.

2. Coordinate logistical requirements with CONUS agencies in accordance with JTF Commander guidance, policy and priorities.

3. Act as the coordinating activity and single point of contact between CONUS logistical agencies and the contingency force relative to providing support to the force; i.e., resolution of discrepancies, establishment of priorities, response to queries concerning logistical support operations, etc.

4. Act as the logistical management and control center in CONUS for the contingency force.

5. Advise the TMMCC of the current status of selected shipments moving through the DOD transportation system.

6. Transmit the desires of the JTF Commander regarding logistical support to the appropriate CONUS agencies; i.e., expediting certain requirements, diversion, reconsignment, cancellation, etc.

7. Coordinate with existing CONUS agencies to develop and maintain data bases concerning logistical support to the contingency force; this data will be used for decision-making, statistical purposes and to meet report submission requirements directed by higher headquarters and the JTF Commander.

(d) Interface with Existing Control Agencies. The CMMCC effects the necessary interface to manage, coordinate, and control the logistical requirements of the contingency force providing liaison personnel at major CONUS logistical agencies such as MAC, AMC, AFLC, LCA, MTMC elements, etc. Liaison personnel will act as the single point of contact for these agencies and the deployed contingency force with regard to logistical support matters within their respective functional areas. Liaison personnel will respond to directives from the CMMCC and coordinate the informational requirements of the functional activity with the CMMCC. A JTF movements team should also be an element of the CMMCC. The team would function in much the same way as the Pacific Area Movement Priority Agency (PAMPA). See Monograph 18, Transportation and Movement Control, Joint Logistics Review Board, 1969).

(2) Theater Movements and Materiel Control Center (TMMCC). The primary mission of this organization is to manage and control the overall logistical support for the contingency force within the theater of operations; as such, it is the single point of contact in the contingency area for those matters. To effectively accomplish this mission, this agency must be directly subordinate to the JTF Commander.

(a) Composition. The MEI scenario troop list contains the elements for both a Movement Control Center (MCC) and a Materiel Management Center (MMC), to be subordinate to the Corps Support Command (COSCOM). The command and control relationships and responsibilities can be delineated by the Corps Commander since he also functions as the JTF Commander. The TMMCC will be a joint activity and will be composed of the following:

1. 162 personnel under TOE 55-7T to perform movement control and management function for the force.

2. 138 personnel under TOE 29-404T to perform stock control functions.

3. 26 personnel under TOE 29-403T to perform maintenance management functions. Air Force augmentation as determined by the appropriate Air Force authorities.

(b) Location. Ideally, the TMMCC should be located in close proximity to the JTF headquarters. To function properly, direct access is required to the communications and ADP facilities.

(c) Functional Description/Responsibilities. Essentially, the TMMCC will perform the logistics control functions within the contingency area. Also, this element will maintain liaison with other US forces, allied and host nation logistics agencies. Specific responsibilities include:

1. Direct storage and distribution.

2. Receive and process requisitions from supported commands and other designated forces and activities.

3. Review and analyze demands and computations of supported force requirements, for supplies, equipment and maintenance support.

4. Evaluate the workload and capabilities of supply transportation and maintenance units and corps level workloads or resources to achieve compatibility and maximum efficiency.

5. Establish and coordinate materiel maintenance priorities in accordance with JTF command guidance.

6. Collect, sort and analyze supply, maintenance and movements data.

7. Initiate within the policies and directives of the JTF headquarters, actions to fulfill supply and maintenance requirements by requisitioning from CONUS theater or supporting activities, local procurement, and redistributing supply and maintenance assets.

8. Approve within established policies, additions or deletions from stockage lists and adjustments to requisitioning objectives.

9. Act as the air clearance authority in the contingency area using USAF elements.

10. Perform the highway regulating function in the contingency area.

11. Develop movement plans and programs within the contingency area.

12. Receive, maintain and disseminate status of shipments which are intransit to the contingency area.

13. Accept transportation requirements from shippers within the contingency area.

14. Task mode operators to perform transportation services.

15. Manage the contingency area movement control system in accordance with the guidance, policies and priorities of the JTF Commander.

16. Coordinate movement requirements with personnel and materiel managers and with medical agencies for medical evacuation.

17. Act as the interface for logistical support matters affecting the contingency force with the CMMCC, EUCOM transportation and materiel management agencies and other U.S., allied and host nation logistic agencies.

18. Provide exception data and report to the JTF Commander.

19. Provide guidance to subordinate logistics elements of the JTF.

(d) Systems and Interface.

1. 96 personnel under TOE 29-530T form the ADPO for the light corps in the MEI Scenario. This unit will be the primary means of systems support for the TMMCC.

2. Interface. Functional managers within the TMMCC coordinate with their functional counterparts in the CMMCC and in Europe. Additionally, the TMMCC provides the interface with existing theater logistical agencies through liaison personnel and direct communications channels. The liaison personnel act as the single point of contact with the EUCOM logistics organizations for all matters affecting forces located in the contingency area.

(4) Information Flow. A general description of the information flow for movement is attached as Appendix 3.

4. CONCLUSIONS.

a. Conclusions about the Present System.

(1) Current systems are designed to function during routine peacetime operations and during wartime. Crisis management procedures have, in times past, usurped the routine of current operations. It is apparent that the managers at DOD level do not perceive current systems as capable of achieving high degrees of responsiveness required in emergencies. Thus, there is an increasing tendency to manage from the top. A single point of contact is required for materiel and movements management to support a contingency or a crisis. This single point of contact can be created using the organization and systems in being, and in such a way that routine logistics management and operations can be performed below the policy-making level. These problems fall into the area of command and control and have been addressed in previous studies from the days of World War II through the DOD Blue Ribbon Panel which was critical of the tendency for policy-makers to engage in operational activities.

(2) The Theater-Oriented Depot Complex (TODC) is supported, during peacetime, by a dedicated airfield; this concept works well for

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'normal' operations. To support a crisis situation, virtually any qualified airfield can be used for staging and moving air eligible cargo. The key is to get the critical item to the user. Any logistical management system should take full account of this reality. Cost is second to service in these cases.

b. Conclusions about the Proposed System.

(1) The Proposed system is fully cognizant of the realities of crisis management. It can bring the operational decision-making down from the policy making level, especially if the CMMCC is created under the auspices of the JCS and augmented by a JTF movement priority element. The CMMCC could conceivably be the single source of information long sought by the JCS and DOD.

(2) The proposed system also meets the dictum of the Joint Logistics Review Board that supply and movement control agencies be created and control instituted early in a contingency to ensure that materiel flow management is exercised to avoid the chaos and congestion of past wars on the transportation system. An additional step would be to designate the level at which the TMMCC would be established for planning purposes. A mobilization JTD could be maintained at unified command level, activated and deployed in a contingency, and at some pre-designated time, control transferred to the Joint Task Force Commander. This would be a logical method since the joint operational planning tasks are assigned to the theater commander through planning directives or the Joint Strategic Capabilities Plan. A similar method using the Readiness Command as the planning agency, could be equally effective. In either case, the supply and movement control TOE's mentioned above would remain as an integral part of the light corps force package.

(3) The CMMCC provides a single CONUS point of contact for the Joint Task Force Commander, regardless of the chain of command. If it is an element subordinate to him, all the better. If it is a JCS element, the placement of a JTF movement priority within the CMMCC will ensure that materiel flow into the contingency area can be controlled in a way which lessens the chance of congestion at the aerial ports while concomitantly moving supplies so as to arrive in accordance with JTF established priorities. Additionally, the CMMCC provides a single point of contact for all supply and transportation aspects of the air line of communication.

(4) The CMMCC provides a CONUS-based nucleus which can be expanded to assume movement and supply control of the sealift support of the contingency should this be required.

THE DEPUTY SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

MAY 11 1974

MEMORANDUM FOR Secretaries of the Military Departments
Chairman, Joint Chiefs of Staff
Director, Defense Communications Agency
Director, Defense Contract Audit Agency
Director, Defense Supply Agency

SUBJECT: Military Airlift Clearance Responsibilities

In March 1967, DoD Directives 5160.2 and 5160.53 respectively set forth the Single Manager Assignment for Airlift Service of the Secretary of the Air Force and the Single Manager Assignment for Military Traffic, Land Transportation and Common-User Ocean Terminals of the Secretary of the Army. Included in those assignments was the delegation of responsibility to the Secretary of the Army to perform Military Airlift Clearance Authority (MACA) functions in connection with the movement of air eligible CONUS originated cargo into the international airlift system operated by the Military Airlift Command (MAC).

The Military Traffic Management and Terminal Service (MTMTS) was designated as the Single Manager Operating Agency of the Secretary of the Army and, in turn, established the MACA Agency to control the flow of cargo into the military airlift system and the Military Air Traffic Coordinating Offices (MATCOs) to perform those cargo management functions which required physical location at the MAC aerial ports.

Concurrent with the foregoing, authority was granted to the Military Services to establish or maintain Shipper Service Control Offices (SSCOs) and Aerial Port Logistic Officers (APLOs) to perform certain supply distribution functions, to represent the respective Shipper Service in operational interface with the MACA Agency and, in the case of the APLOs, to perform non-MATCO logistic functions at the aerial ports.

After several years of operation under the foregoing organizational structure it has become apparent that there is a considerable overlap and duplication of functions between the MACA Agency and the SSCOs and between the MATCOs and APLOs. The recent review of this organizational

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alignment by the General Accounting Office has served to confirm this view. While it has been generally agreed that significant savings can be achieved by elimination of these duplicative efforts, many alternative solutions have been proposed.

This office has carefully considered the various organizational alternatives recommended and discussed them with all concerned. As a result, it has been determined that the following functional realignment actions should be initiated:

(1) The Shipper Service Control Offices are to be retained at their present manning levels.

(2) The Military Airlift Clearance Authority Agency is to be disestablished.

(3) The Military Air Traffic Coordinating Offices are to be retained under MTMTS administration and at their staffing level prior to closure of the MAC aerial port functions at Kelly AFB, Texas, but with Air Force representation included.

(4) The Aerial Port Logistic Officers of the Air Force and Army are to be disestablished. Except under unusual circumstance of short duration there will be no more than one SSCO representative at the MAC aerial ports in CONUS performing functions related to air cargo movements except in the jointly staffed MATCO organization.

(5) The duplicative transportation computer data banks presently maintained by the MACA Agency and the SSCOs are to be discontinued in favor of common use of the computer data maintained by MAC.

(6) In addition to administering the MATCOs, the Military Traffic Management and Terminal Service will be responsible for monitoring DoD international airlift operating procedures, air cargo generation and growth patterns, as well as cargo movements to and from CONUS in the MAC system. MTMTS will be responsible for preparing management analyses and recommendations

for transmission at least semiannually to this office.

(7) The Military Airlift Command will provide secondary computer challenge of CONUS outbound cargo as is now done by the MACA Agency for review and decision by the SSCOs. MAC will maintain a complete transportation data bank and make available shipment intransit data and management reports required by MTMTS, the Military Services, the Office of the Joint Chiefs of Staff or this office.

The following chart reflects personnel and costs involved in the current and the new organizational structures:

Unit	Present Organization		New Organization	
	No. Pers.	$(000)	No. Pers.	$(000)
SSCOs - (Shipper Service Control Office)				
Air Force	39	$523	39	$523
Army	23	$367	23	$367
Navy	30	$370	30	$370
Marine Corps	1	$ 12	1	$ 12
Subtotal	93	$1,272	93	$1,272
APLO - (Aerial Port Logistic Officers)				
Air Force	55	$646	NIL	NIL
Army	9	$110	NIL	NIL
MACAA - (MIL AIRLIFT CLEARANCE AUTHORITY AGENCY)	32	$1,001	NIL	NIL
MATCO	121	$1,596	121	$1,596
MTMTS	2	$ 50	2	$ 50
Grand Total	312	$4,675	216	$2,918
Difference	-96 men		-$1,757	

Enclosure (1) contains more finite guidance regarding this functional realignment. It is desired that MAC and MTMTS jointly develop a

coordinated plan for implementing these organizational changes as possible but not later than 1 January 1975, and that the plan be forwarded to the Assistant Secretary of Defense (I&L) for not later than 1 August 1974.

...istant Secretary of Defense (I&L) will work with the Assistant ...y of Defense (Comptroller) and the Assistant Secretary of ... (M&RA) to modify Fiscal Year 1975 personnel ceilings and ... of the Military Services as appropriate to reflect manpower ...s and budgetary savings of the magnitude shown in the fore... ...art. Additionally, the Assistant Secretary of Defense (I&L) ...pare appropriate revisions to DoD Directives 5160.2 and ... to reflect this realignment of functions as soon as practicable.

M. P. Clements, Jr.

...rc

ENCLOSURE

Functional Realignment of Military Airlift Clearance Responsibilities

In connection with the clearance, movement, and management of CONUS outbound cargo in the military air transportation system operated by the Military Airlift Command, DoD Directives 5160.2 and 5160.53 will be revised to reflect the following general assignment of responsibilities:

The SSCOs will:

(1) Control the flow of cargo into the MAC airlift system.

(2) Determine the eligibility of Service cargo for airlift.

(3) Respond to requests for expedited or special handling, tracing, shipment status reports, etc.

(4) Direct diversions as appropriate.

(5) Provide or arrange for MAC to receive advance TCMD information needed to move cargo through the airlift system.

(6) Monitor cargo movement through the aerial ports.

(7) Provide technical guidance on correction of discrepancies in shipment preparation, documentation, identification.

(8) Coordinate the movement of special project, classified, or high priority cargo movements with logistic managers and MAC.

(9) Respond to computer challenge inquiries received from MAC.

The MATCOs will:

(1) Represent the Shipper Services at the MAC aerial ports in CONUS.

(2) Perform necessary coordinating action with MAC terminal operators to insure orderly flow of traffic.

(3) Change precedence of movement of specific shipments as requested by Shipper Services.

(4) Insure the timely processing of unscheduled or frustrated traffic.

(5) Arrange for diversion or reshipment of traffic in accordance with SSCO directions.

(6) Report shipment discrepancies to SSCOs and coordinate resolution with SSCO and MAC.

(7) Perform or arrange for performance of inspection and acceptance of vendor-supplied material at the aerial port in accordance with SSCO direction.

(8) Respond to Shipper Service requests for tracing, special handling, or shipment status reports.

(9) Monitor cargo movement through the ports and keep SSCOs advised.

MAC will:

(1) Respond to MATCO or SSCO requests for special handling, tracing or expedited movement of specific shipments.

(2) Perform the computer challenge function previously performed by the MACA Agency utilizing advance TCMDs and furnish the resultant data to the SSCOs for review and final decision.

(3) Provide recoopering, marking, repacking and similar services as required for cargo in transit.

(4) Provide SSCOs current capability information and real time reports covering aerial port tonnage on hand.

(5) Receive, process, and forward air cargo entered into the airlift system.

(6) Maintain full and complete statistical records concerning air traffic entered into and moved through the airlift system.

(7) Provide statistical data and/or summarized management reports on export and import cargo as requested by MTMTS, the Shipper Services, the Office of the Joint Chiefs of Staff or the Office of the Secretary of Defense. This communication may be in the form of tape, punch cards, direct computer link-up or any form mutually agreed to.

(8) Develop capability for on-line communication between MTMTS and the SSCOs with the Aerial Port Documentation and Management System file (ADAM II) operated by MAC.

MTMTS will:

(1) Administer the operations of the MATCOs located at the MAC aerial ports in CONUS.

(2) Perform after-the-fact analyses on a continuing basis of the originations, flow patterns, operational procedures, growth trends, etc., relative to the international movement of DoD cargo within CONUS and between CONUS and oversea areas and prepare reports covering these analyses for submission at least semiannually to the Assistant Secretary of Defense (I&L). Such reports shall be accompanied in each instance by copies of the concurrences or comments of the Military Services.

DEPARTMENT OF THE AIR FORCE
WASHINGTON [illegible]

3 SEP 1974

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS & LOGISTICS)

SUBJECT: Military Airlift Clearance Responsibilities

This responds to the Deputy Secretary of Defense memorandum of May 31, 1974, which realigned military airlift clearance responsibilities and directed submission of a service coordinated plan to implement the organizational changes not later than January 1, 1975. Attachment 1 contains general and explanatory comments on various portions of the plan which is at attachment 2. The service coordinated plan is designed to implement an operational logistics concept responsive to the organizational changes and is forwarded to your office for approval.

There are two areas that warrant special emphasis and early decision by your office. The first concerns the time period from January 1 to April 1, 1975 (Phase I). This will be a difficult time that will require the cooperation and close coordination of all concerned to minimize any degradation in airlift service to the shippers. The problems that may arise during this period could be alleviated by your early authorization to expedite the manufacture and installation of input/output (I/O) devices at the Military Service Control Offices (MSCOs). Paragraph 3, attachment 1, provides additional details. The second area concerns the implementation schedule contained in the plan (Tab VI of attachment 2). Early approval of the plan will enable the MSCOs to begin preparations for a smooth transition to the new procedures, as well as provide adequate time to resolve any unforeseen problems that may arise.

To insure that the plan is fully responsive to Navy requirements during Phase I, the Commander, Military Traffic Management Command (MTMC), is prepared to undertake an interim procedure wherein current receipt and lift data could be retained in the MTMC computer. This will provide the Navy MSCO with direct access to that computer to retrieve data up to 30 days old for cargo tracing purposes. The Military Airlift Command (MAC) computer will have this capability about April 1, 1975.

To ensure early implementation of the plan, it is recommended that:

a. The implementation schedule outlined in Tab VI, attachment 2, be approved.

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b. Expedited acquisitio and installation of the I/O devices at the FSCCs, with the capabilities described in Option 3, Tab IV, attachment 2, be approved.

c. The funds required t implement the proposed procedures be authorized.

d. MAC be designated th responsible agency for procurement and coordination of the required hardw e.

e. Approv is recommended surrender, MFSI, to continue to maintain receipt and list data in the FSCC computer for the Navy during Phase I.

This plan has been coordinate with the Assistant Secretary of the Army (Installations and Logistics)

L. K. MOSEMANN II
Deputy Assistant Secretary
(Logistics)

2 Attachments
1. Additional Comments
2. Initial Plan

ADDITIONAL AND/OR EXPLANATORY COMMENTS:

1. Due to the anticipated delay in completing actions related to the I/O devices, communications and the associated programming, Phase I of the proposed implementation will be less responsive to both MAC and the SSCOs. (See Tab II for documentation flow and service interface.) Initially, during Phase I, a manual AUTODIN to computer interface will be required. (See Tab VI for implementation schedule.) Once the I/O devices, communications and associated computer programming are available, on/or about 1 April 1976, Phase II of the implementation will begin thus providing a realtime exchange of mission time critical data between MAC and the SSCOs. High volume, less critically received data, are transmitted by AUTODIN (Tab IV explains options and costs). A direct computer to computer system is envisioned as a follow-on effort in Phase III (1976-1978 time period). Although there are several additional workload factors, two major areas of concern exist:

a. The ADAM II and Transportation Information Processing System (TIPS) programs will require major revisions to add the challenge criteria, restructure edit criteria, interface AUTODIN and I/O communications and develop service reports. Further refinements, debugging and programming additional capabilities in all transportation subsystems must be reviewed to re-establish their priority.

b. There will be a workload increase at both the SSCOs and the Military Air Traffic Coordinating Offices (MATCOs) as they will be assigned responsibilities for the performance of functions presently accomplished by the Military Airlift Clearance Authority Agency (MACAA) and the Aerial Port Logistics Offices (APLOs).

2. MAC will screen the advance Transportation Control Movement Document (ATCMD) on all shipments to assure valid SSCO authorization of cargo to enter the airlift system. Those which are not SSCO authorized will be returned to the appropriate SSCO for necessary action. This procedure places the responsibility of control and management upon the appropriate service manager. Certain shippers are authorized by the SSCO to communicate with MAC directly; however, their authorization will be controlled by the SSCO. An unauthorized shipper cannot introduce cargo into the airlift system without the SSCOs knowledge. Thus, positive control of all shipments by the SSCO is insured.

3. Reports provided to the SSCOs, MATCOs and Navy Supply Systems Command (NAVSUPSYSCOM) are at Tab III. Statistical and analytical data on export and import cargo from the MAC data base will be made available to the SSCOs, MTMC, Organization of the Joint Chiefs of Staff (OJCS) and Office of the Secretary of Defense (OSD) as MAC transportation subsystems are fully developed.

4. SSCOs will be responsible for [illegible] processing service sponsored shipments for the Defense Supply Agency (DSA[illegible] other DOD and non-DOD agencies. The Air Force SSCO will assume the res[illegible]nsibility for processing all non-service sponsored shipments.

5. Should a large scale contingen[illegible]y occur, especially during Phase I, a SSCO representative may be require[illegible] at MAC to coordinate responsive cargo movement to the aerial termi[illegible]ls. Once the system evolves into Phase II, it will enhance the res[illegible]ent SSC/SSCO responsiveness. Further, in developing the system, the volu[illegible] of data traffic (as experienced during previous contingencies) will signif[illegible]icantly increase beyond today's workload. Therefore, the essential hardware [illegible]ommunications and procedures must have the capacity to accept the daily w[illegible]artime peak workload. Although the current ADAM II subsystem relies on t[illegible] computer supporting the Passenger Reservation and Manifesting Syste[illegible] (PRAMS) as a backup/emergency system, consideration will be given to lo[illegible]ting an MSOCO computer away from Scott AFB for use as a backup in case of [illegible]natural disaster or wartime subversive activities. Further, considering [illegible]he wartime need for inland aerial terminals (and specifically the Tinke[illegible] AFB aerial terminal), an immediate ADAM II interface with the Air Force Logistics Command (AFLC) transportation subsystem of the Advanced Logistics System (ALS) is required (see Tab V). Initially MAC had proposed placing equipment at the inland/aerial terminals to interconnect with AD[illegible] II. However, with the placement of comparable ALS equipment, the MAC [illegible]requirement appeared redundant and was deleted. Although an initial AUTO[illegible]N interface may be achieved, the AFLC terminals may not have the real-ti[illegible] aspects of ADAM II. The flow of ATCHDs and resulting output data will greatly impact the MAC operation at these terminals and subsequent support of the SSCOs. The Air Force will initiate action to resolve this problem.

6. The Norfolk aerial terminal is not currently supported by ADAM II. Although Norfolk was initially proposed, implementation was delayed to determine financial responsibility between the Air Force and Navy under the Worldwide Military Command and Control System (WWMCCS) contract. The possibility of acquiring and installing the ADAM II H700 remote terminal system at Norfolk by 1 January 1975, may be attainable. In addition to the aerial terminal function, the Navy SSCO could be supported by this system which would greatly enhance their capability. Approximately $60,000 in hardware costs and $3,500 per year in communications costs are required. (See Tab IV for equipment analysis). Action to proceed on this item has been initiated.

7. Although the SSCOs have primary responsibility for control of cargo movement into the airlift system, Commander in Chief, Pacific (CINCPAC) has requested surveillance of Pacific Command (PACOM) destined cargo. The reports provided to the SSCOs were designed for their functional operation and do not appear to satisfy the CINCPAC requirements. Further, the data required for the CINCPAC surveillance would require transmittal of all PACOM ASCHD data to their offices. Such a requirement appears to

be prohibitive. Further analysis of this requirement will be necessary to determine an appropriate interface. One solution would be the assignment of a PACOM liaison officer to [illegible] MAC during contingencies. This item is still under study.

8. Upon approval of the detailed procedures, two additional conferences will be scheduled. The first will be an implementation conference to finalize all details and evaluate the current posture. It is planned to convene this conference in Sept. [illegible]. The second will be a status conference 60-90 days after Phase I begins. This should coincide with the implementation of Phase I.

AIRLIFT CLEARANCE RESPONSIBILITIES

TAB I - PURPOSE/RESPONSIBILITIES/PROCEDURES

TAB II - DOCUMENTATION FLOW DIAGRAMS

TAB III - REPORTS

TAB IV - EQUIPMENT ANALYSIS AND COSTS

TAB V - ANCILLARY IMPACTS

TAB VI - IMPLEMENTATION SCHEDULE

TAB VII - DIRECTIVES REQUIRING CHANGE

I. PURPOSE/RESPONSIBILITIES/PROCEDURES

Purpose: To establish procedures and guidelines for the clearance of shipments in to the Military Airlift Command (MAC) airlift system under the provisions of the Airlift Service Industrial Fund (ASIF).

I. Responsibilities:

A. The Shipper Service Control Office (SSCO) as the Service/Agency Airlift Clearance Authority (ACA), will:

1. Determine the eligibility of service cargo for airlift.

2. Control the flow of cargo into the MAC airlift system.

3. Respond to requests for expedited or special handling, tracing, shipment status reports, etc.

4. Direct diversions as appropriate.

5. Provide or arrange for MAC to receive advance TCMD (ATCMD) information needed to move cargo through the airlift system.

6. Monitor cargo movement through the aerial terminals.

7. Provide technical guidance on correction of discrepancies in shipment preparation, documentation and identification.

8. Coordinate the movement of special project, classified or high priority cargo movements with logistic managers, Military Air Traffic Coordinating Offices (MATCOs), and MAC.

9. Respond to computer challenge action received from MAC.

B. MAC will:

1. Respond to MATCO or SSCO requests for special handling, tracing or expedited movement of specific shipments.

2. Perform the secondary computer challenge function, utilizing ATCMDs, and furnish the resultant data to the SSCOs for necessary review and final decision.

3. Provide recoopering, marking, repacking and similar services as required for cargo intransit.

4. Provide SSCOs current airlift capability information and real time reports covering aerial terminal tonnage on hand.

5. Receive, process and forward authorized air cargo entering into the airlift system.

6. Maintain full and complete statistical records concerning the air cargo traffic entered into and moved through the airlift system.

7. Provide statistical data and/or summarized management reports on export and import cargo as required by the Military Traffic Management Command (MTMC), the shipper services, the Organization of the Joint Chiefs of Staff (JCS), or the Office of the Secretary of Defense (OSD). This communication may be in the form of tape, punch cards, direct computer link-up or any form mutually agreed to.

8. Develop capability for on-line communication between SSCOs, designated shipping activities and the Aerial Port Documentation and Management System File (ADAM II) operated by MAC.

C. MATCO's Responsibilities:

1. Represent the SSCOs at the MAC aerial terminals in CONUS.

2. Perform necessary coordinating action with MAC terminal operators to insure orderly flow of traffic.

3. Expedite the movement of specific shipments as requested by SSCOs (Referred to as "Green Sheeting").

4. Insure the timely processing of unscheduled or frustrated traffic.

5. Arrange for diversion or reshipment of traffic in accordance with SSCO instructions.

6. Report shipment discrepancies to SSCOs and coordinate resolution with SSCO and MAC.

7. Perform or arrange for performance of inspection and acceptance of vendor-supplied material at the aerial terminal in accordance with SSCO instructions.

8. Respond to SSCO requests for tracing, special handling, or shipment status reports.

9. Monitor cargo movement through the aerial terminals and keep SSCOs advised.

10. Coordinate the movement of classified and/or courier material in accordance with SSCO instructions.

D. MTMC will:

1. Administer the operations of the MATCOs located at the MAC aerial terminals in CONUS.

2. Perform after-the-fact analyses on a continuing basis of the originations, flow patterns, growth trends, etc., relative to the international movement of DOD cargo within CONUS and between CONUS and overseas areas and prepare reports covering these analyses for submission at least semi-annually to the Assistant Secretary of Defense (I&L). Such reports shall be accompanied in each instance by copies of the concurrences or comments of the Military Services.

3. In coordination with Department of the Air Force, develop and coordinate the necessary MILSTAMP changes to reflect the realignment of responsibilities.

II. Procedures: The Shipper Service Control Office (SSCO) is the Airlift Clearance Authority (ACA) representing each sponsoring service/agency for CONUS air export shipment. The MTMC/MATCO will represent the SSCO at designated CONUS aerial terminals. The procedures herein allow for a peacetime or contingency workload interface between the SSCO, the MATCO, and MAC and will be in consonance with the provisions of MILSTAMP.

A. Introduction of CONUS Export Cargo into the MAC Airlift System

1. Shipping Activity:

a. Transmit Advance TCMD (ATCMD) to respective SSCO in MILSTAMP format. Exception: Designated shipping activities may transmit ATCMD direct to MAC by AUTODIN.

b. Release shipment to carrier if not challenged within MILSTAMP time frames.

2. SSCO:

a. Evaluate ATCMD for air eligibility, validate consignment instructions, insure compliance with MILSTAMP, etc.

b. For shipments not authorized for airlift, challenge will be made to shipping activity within MILSTAMP time frames.

c. Correct errors on ATCMD or contact shipping activity for error correction.

d. Transmit ATCMD to MAC for shipments authorized for airlift (by AUTODIN only in Phase I).

e. Contact appropriate 21st or 22nd AF transportation office (21/22AF/DOZ) for any shipment either outsized to the C-141, in excess of 10,000 cuft, or more than 40 short tons.

3. MAC:

a. Validate ATCMD transmission from an authorized source.

(1) If routing indicator valid, pass to ADAM II edit.

(2) If invalid, pass to respective SSCO for appropriate action.

b. Edit ATCMD for errors.

(1) If no major errors (e.g., TCN, TAC), pass to ADAM II ATCMD file.

(2) If major error exists, an error notice is passed to the respective SSCO (through the MATCO in Phase I), for correction.

(3) The SSCO will correct ATCMD and resubmit to MAC (this function will be coordinated through the MATCO in Phase I).

c. ADAM II ATCMD file.

(1) The "Booked to Port" notice is passed to respective SSCO via AUTODIN.

(2) Maintenance criteria concerning late ATCMD file is accomplished through following computer time parameters:

(a) Priority 999: ETA plus 24 hours.

(b) Priority 1-3: ETA plus 120 hours.

(3) Late ATCMD notices are passed daily to the SSCO and MATCO for resolution; e.g., ETA revision.

(4) Purge of ATCMD data from the ATCMD file will be accomplished based upon the time frame of ETA plus 240 hours (10 days).

(5) The purge notice is passed to the SSCO and must be resubmitted to MAC as a new offering.

d. Cargo arrival/receipt and subsequent processing.

(1) Data arrives in the form of a GBL, waybill or truck listing with associated truck number (the air terminal will use the GBL or MILSTAMP shipping label in Phase I).

e. Contact appropriate 21st or 22nd AF transportation office (21/22AF/DOZ) for any shipment either outsized to the C-141, in excess of 10,000 cuft, or more than 40 short tons.

3. MAC:

a. Validate ATCMD transmission from an authorized source.

(1) If routing indicator valid, pass to ADAM II edit.

(2) If invalid, pass to respective SSCO for appropriate action.

b. Edit ATCMD for errors.

(1) If no major errors (e.g., TCN, TAC), pass to ADAM II ATCMD file.

(2) If major error exists, an error notice is passed to the respective SSCO (through the MATCO in Phase I), for correction.

(3) The SSCO will correct ATCMD and resubmit to MAC (this function will be coordinated through the MATCO in Phase I).

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(4) Purge of ATCMD data from the ATCMD file will be accomplished based upon the time frame of ETA plus 240 hours (10 days).

(5) The purge notice is passed to the SSCO and must be resubmitted to MAC as a new offering.

d. Cargo arrival/receipt and subsequent processing.

(1) Data arrives in the form of a GBL, waybill or truck listing with associated truck number (the air terminal will use the GBL or MILSTAMP shipping label in Phase I).

(2) Upon arrival at the truck dock, documentation data are checked against the data in the ADAM II TCMD file.

(a) If the TCMD is in the file, the cargo is ready for in-check processing.

(b) If the TCMD is not in the ADAM II TCMD file, MAC will pass a notice to the SSCO requesting an authorization notice reply and the cargo is frustrated to the MATCO to await MATCO/SSCO corrective action. (This function will be the MATCO's responsibility in Phase I). Discrepancies in shipment documentation and/or packaging will also be frustrated to the MATCO.

(3) The receipt data are passed to the SSCO by AUTODIN communications, and the cargo processed into the terminal.

(4) Cargo documentation procedures during air terminal processing and lift actions are as follows:

(a) The ADAM II data base is updated with processing palletization and manifesting status as actions are accomplished by the air terminal operators.

(b) Upon movement of each shipment, the mission, tail number, departure data are compiled into manifest data and passed to SSCO by AUTODIN in Phase I and II.

B. Visibility responsibilities in MAC data base.

1. Cargo documentation procedures during Phase I will continue present methods of tracing actions (i.e., message, etc.).

a. ADAM II will provide receipt and lift data for CONUS outbound air cargo, by AUTODIN to SSCOs.

b. ADAM I will provide lift data on air cargo resident in Transportation Information Processing System (TIPS) file (format does not permit tracing).

c. Non-automated MAC terminals provide lift data through single submission by a Revenue Traffic Data Processing Center (RTDPC) to ASIF and TIPS (format does not permit tracing).

d. Non-automated ports will submit intransit data card (IDC) receipt and lift to Central Data Collection Point (CDCP). ASIF movement will be processed through the ADAM I computer sites for editing and onward submission to MAC, resident in TIPS data file (format does not permit tracing).

2. MAC Intransit File (MIF) - Phase II (1975-1976).

a. ADAM II will provide receipt and lift data for CONUS out/inbound cargo to the MIF for current status and to SSCOs. Inquiry capability available for ADAM II data up to 48 hours after lift by on-line communication.

b. ADAM I will provide lift data (and receipt data in later stages) to the MIF for current status. Cargo departure from the MAC system will purge the file.

c. The non-automated terminals will report receipt and lift data in the same manner as in B1 (c) and (d) above.

d. Receipt and lift data submissions will be provided directly to MAC. MAC will submit end-of-day, TK-7 MILSTEP data tape, by AUTODIN to the CDCP.

3. MAC Intransit File (MIF) - Phase III 1976-1978.

a. ADAM I and II will provide receipt and lift data for all cargo processed through the aerial terminal and transmitted to MAC. Cargo status information will be retained in the MIF for tracing capability until shipment departs the MAC system. Input/output device with inquiry capability will be available for each SSCO.

b. Non-automated ports will submit receipt and lift data to nearest RTDPC for edit and onward submission by AUTODIN. Pertinent data will be retained in MIF. Input/output device with inquiry capability will be available for each SSCO.

NOTE: Pending MAC/SSCO systems review in Phase III, MAC CONUS outbound lift and inbound receipt data may be deleted. This final step will establish MAC responsibility internal to its system and SSCO responsibility to and from the MAC system. The feasibility of the action can only be evaluated once the above posture is attained.

4. The single transportation data bank (MIF) will provide tracing and shipment accountability in order to provide visibility and maintain a closed loop system within the MAC airlift network.

5. Overseas to CONUS Inbound Documentation Flow.

a. After cargo receipt and in-check procedures, receipt notice is passed to the SSCO by on-line communication (by AUTODIN in Phase I and II).

b. Lift/movement of CONUS inbound shipments are compiled by manifest noting carrier, mode of movement, GBL number, truck number, etc., and passed to the SSCO by on-line communication (by AUTODIN in Phase I and II).

II

ADAM II - TIPS

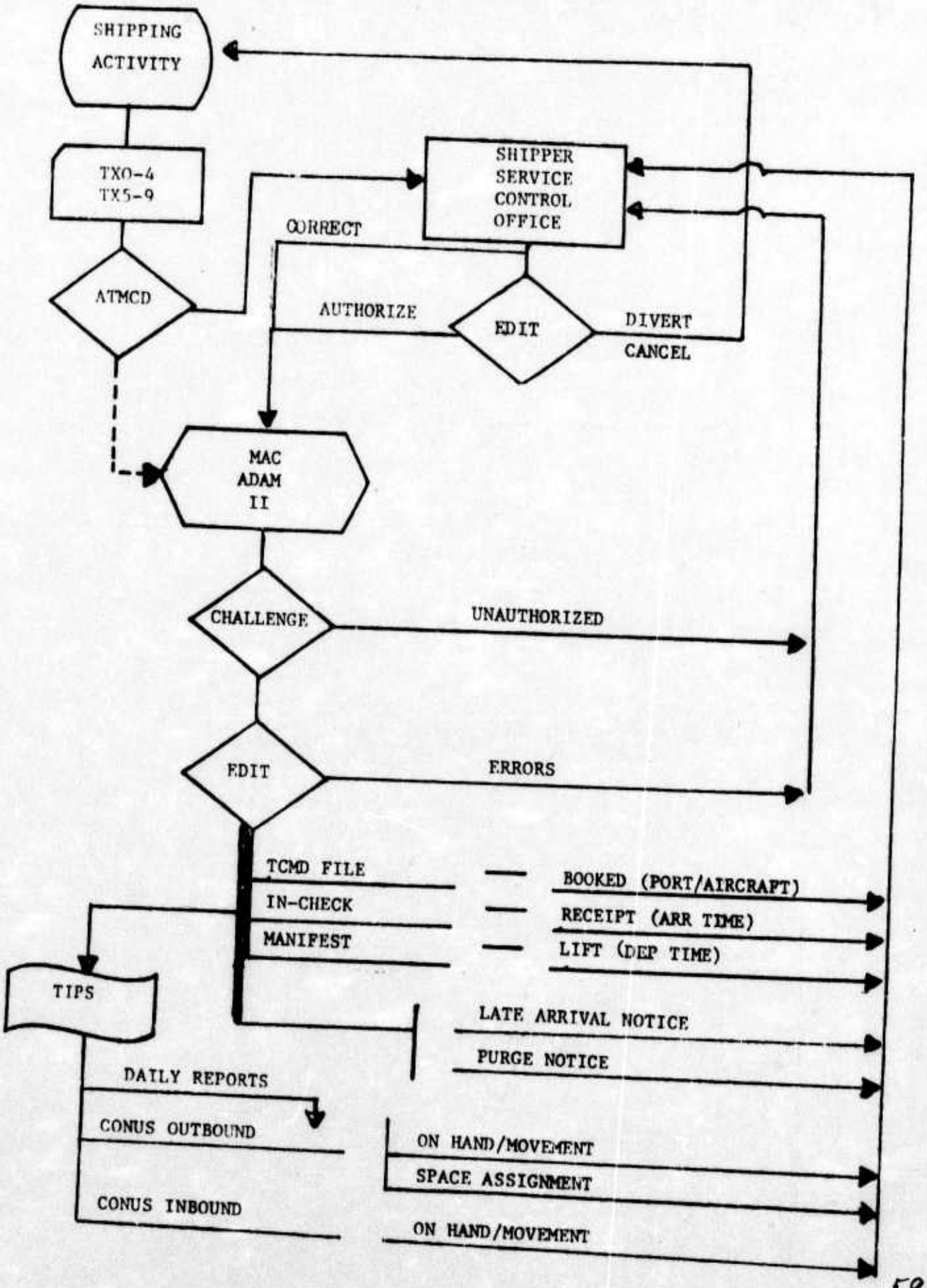
PROPOSED

DOCUMENTATION

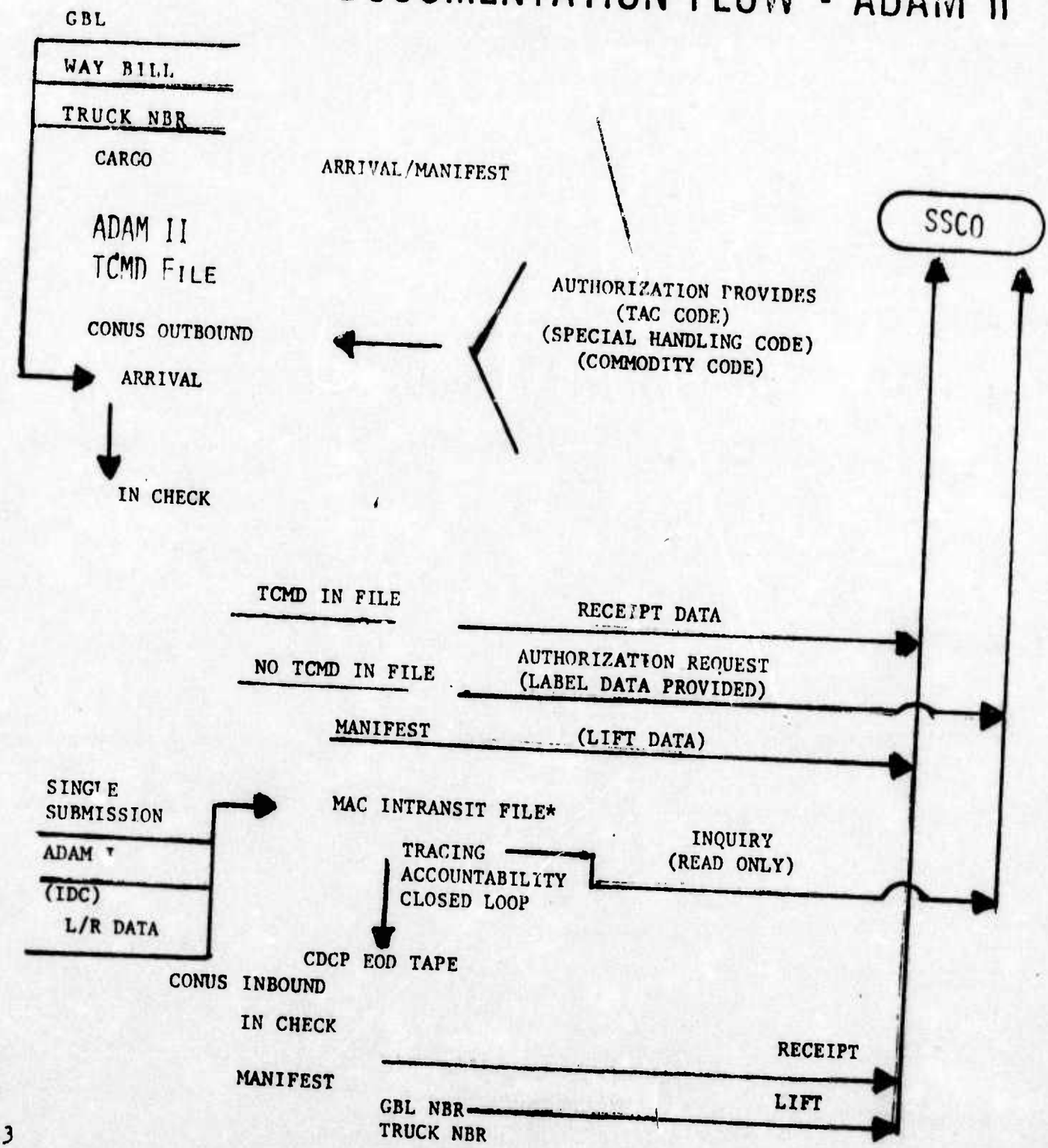
FLOW

DIAGRAMS

DOCUMENTATION FLOW ADAM II - TIPS



DOCUMENTATION FLOW - ADAM II



* (PHASED IN FROM 1975 - 1977)

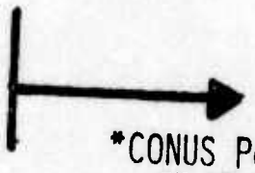
DOCUMENTATION FLOW - TIPS

DAILY REPORTS

ADAM I

ADAM II

SINGLE SUBMISSION SYS



TIPS

*CONUS PORT/CARGO STATUS (OUTBOUND)
- BY SERVICE
- BY CHANNEL

SPACE ASSIGNMENT (CUMULATIVE)
- TOTAL
- PERCENT OF GENERATION

GENERATION AND MOVEMENT (CUMULATIVE)
- TOTAL
- S-PRI (999)
- PERCENT OF TOTAL
- S-PRI (999)
- TOTAL

ON HAND
- TOTAL
- S-PRI (999)
- PERCENT OF TOTAL

*CONUS PORT PROFILE
- BY SERVICE
- BY CHANNEL
  - S-PRI (999)
  - TP 1-3
  - TOTAL
    - 0 - 48 Hrs
    - 48 - 72
    - 73 - 96
    - 97 - 120
    - 121 - 168
    - Over 168

*CONUS PORT/CARGO STATUS (INBOUND)
- BY SERVICE
- BY CHANNEL (CONUS STN)

ON HAND
- TOTAL
- S-PRI (999)

MOVEMENT
- TOTAL
- S-PRI (999)

III. REPORTS

A. General:

1. MAC will provide SSCOs, MTMC and the Naval Supply Systems Command with certain traffic reports on a recurring basis. The reports identified herein are those which will be provided upon implementation of Phase I. The reports are in addition to those currently provided service agencies and higher headquarters.

2. The content of each recurring report will be as mutually agreed upon by MAC and the recipient of the report. Reports and report formats will be standard as they will reflect information or data of common interest to all agencies.

3. Requests for special or one-time reports of information not contained in established recurring reports will be provided upon request. Such requests will be for information or data generated or maintained by MAC.

4. MAC aerial terminals will provide resident MATCOs with ADAM II reports as required.

B. Instructions:

1. MAC will transmit the following reports to each SSCO and the Naval Supply Systems Command by AUTODIN. Reports will be cut off at 2400Z daily and will be transmitted NLT 1000Z daily. The content of each report is as follows:

a. The CONUS Port Cargo Status Report (outbound) identifies the following in tons and tenths of tons:

(1) Pro Rata Space Assignment Cumulative: The total space assignment, divided by the number of days in the month being reported, multiplied by the number of days reported on (month to date). Also in this column is the generation, month to date, expressed as a percent of the space assignment.

(2) Generation Cumulative: The generation, month to date, for all cargo and for super priority cargo. Super priority cargo also will be expressed as a percent of the total.

(3) Movement Cumulative: The movement, month to date, for all cargo and for super priority cargo. Super priority cargo also will be expressed as a percent of the total.

(4) On Hand: The total cargo on hand, the super priority cargo on hand, and the super priority cargo expressed as a percent of the total.

b. The CONUS Port Profile Report identifies the number of shipments and tons of cargo on hand by channel for the time period indicated by super priority (999), other priority cargo and a total.

c. The CONUS Port Cargo Status Report (inbound) identifies the number of tons of terminating cargo on hand and moved and the total cargo tonnage and the number of tons of super priority cargo on hand at the close of the daily reporting period.

2. MAC will provide MTMC monthly cummulative movement reports presently provided by TIPS. Reports will arrive NLT five days after the last day of the reporting month. (NOTE: A special report detailing worldwide cargo flow patterns is to be developed subsequent to Phase I implementation.)

3. Requests for special reports will be submitted to MAC identifying the specific data required, the period in question and any other pertinent details. MAC will acknowledge the request and advise the requesting agency of the date on which the report will be provided.

C. Air Terminal Management Reports. Reports will be submitted to the MATCO daily and on an as required basis by the SSCO. The following local management reports indicate:

1. Frustrated Cargo by Channel. Individual shipments, by channel, which are in a frustrated status.

2. Triple Nine (999) Cargo Over 48 Hours Old. All individual 999 shipments, by channel, which have aged beyond 48 hours in the terminal.

3. Outsize Cargo by Channel/Age. All receipted individual outsize cargo shipments, by channel, regardless of age.

4. Old Age Cargo by Channel/Age. All receipted individual cargo shipments, by channel, whose terminal hold times exceed local specified management parameters.

5. Freight Terminal Inventory. An inventory by APOD and TCN of onhand cargo which has been receipted for by the aerial terminal.

6. Overdue Advances. All ATCMDs in the file which are five or more days past the shipment arrival date. ATCMDs for super priority cargo are listed when the cargo is more than 24 hours past the shipment ETA.

7. ATCMDs in Error. All ATCMDs presently in the file which contain errors requiring correction.

8. Cargo in Port for Project Code. All individual shipments in the terminal, by channel, for a particular project code. This report must be requested separately from other management reports and the desired project code must be specified in the request.

9. Forecasted Cargo Due In. A summary of originating shipments due into the terminal for the next 72 hours. The information is processed from the shipment ETA data field contained in the ATCMDs on file. The total pieces, weight and cube are reported for each day by channel. The total cargo due in for all channels for the next 72 hours is also indicated at the end of the report.

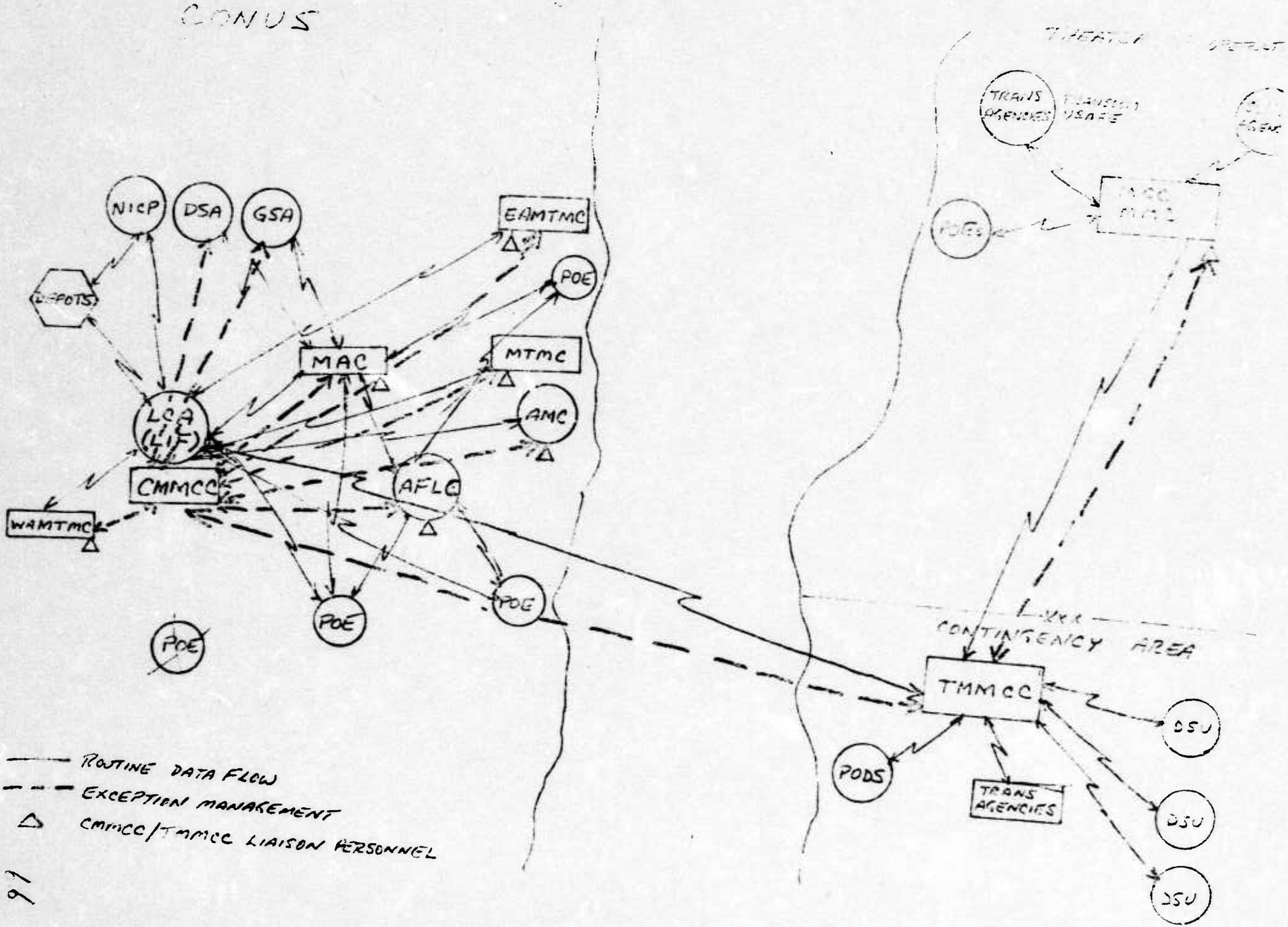
10. Terminating Cargo on Hand. All terminating cargo shipments in the terminal listed in the standard MILSTAMP (DOD 4500.32R) record format. The report (listing) is processed from the APOD data field contained in the TCMD detail records in the file and is in consignee sequence.

V. ANCILLARY IMPACTS

A. Equipment Requirements:

1. Transportation data visibility requirements dictate that all aerial terminal imput status information be submitted in an accurate and timely manner to MAC. Currently, six of the eight CONUS aerial terminals are configured with the Honeywell 700 remote terminal system connected directly to the Honeywell 6000 computer network at MAC Headquarters. To insure this responsiveness in data interchange for all CONUS aerial terminals, there is a requirement for a remote 700 terminal system at Norfolk and a similar real-time system interface at Tinker.

2. The wartime/contingency requirement will necessitate the expansion of the aerial terminal concept to include the provision for additional AFLC inland air terminals. To meet the shipment visibility requirements of a contingency, it is essential that an interface be established between the transportation subsystem of Advanced Logistic System (ALS) and the ADAM II subsystem.


CONUS
NICP
DSA
GSA
EAMTMC
POE
MAC
MTMC
AMC
LCA
CMMCC
AFLC
WAMTMC
POE
POE
POE
TRANS AGENCIES
POEs
CONTINGENCY AREA
TMMCC
DSU
PODS
TRANS AGENCIES
DSU
DSU
ROUTINE DATA FLOW
EXCEPTION MANAGEMENT
CMMCC/TMMCC LIAISON PERSONNEL

Annex C (Logistics), Assured Air Line of Communications (ME-I Scenario)

1. PROBLEM: To examine logistical concepts required to support a contingency operation with an assured air line of communication.

2. ASSUMPTIONS:

a. Resupply origins and mode: All classes of supply through D+25 will be transported by air (75% from CONUS and 25% from Europe). After D+25, 75% of resupply will be transported by surface; 25% (including all Class IX) will be transported by air from CONUS.

b. Support to US Forces only: Only support to US Forces is considered in this analysis.

c. Water supply: Potable water supplies will be adequate with purification unit augmentation.

d. Labor supply: Civilian and indigenous-type labor will be available to meet requirements.

3. DISCUSSION:

a. Introduction:

(1) This annex is concerned with the logistical support required for a light corps employed in a non-nuclear, mid-intensity environment for a sixty (60) day period. The bulk of the force, with its combat support and combat service support, would be capable of deployment anywhere in the world by strategic airlift. In planning for logistical support for the force, only minimum essential combat service support (CSS) will be provided. This concept is primarily oriented towards reducing the logistical tail of the force and concentrating on mobility, flexibility, and responsiveness. The resupply effort would be accomplished through the assured air lines of communication employing Direct Support System (DSS) concepts utilizing throughput distribution. The magnitude of the resupply operation will place great demands on airlift assets in sustaining the force for the initial 25 day period until sealines of communications (SEALOCS) become operational. The force composition being supported is essentially as depicted in the ME 1 Scenario; however, responsive supply support by air should permit reductions in service support elements.

(2) Only minimum essential combat service support units will be deployed into the contingency area. The operation is envisioned to last 60 days; austerity of CSS will be maintained by intensive management. Even though mission essential CSS and supply austerity will be maintained, support to combat commanders must be adequate and responsive.

b. The following combat service support will be provided on a minimum essential basis:

(1) Supply. The purpose of this discussion is to provide an appreciation for the vast amounts of materiel required to support a corps size force, to identify problem areas which could be experienced, and propose concepts which could reduce the magnitude of the supply requirement. It is not the intent of this annex to provide exact supply requirements in support of the corps force. The supply requirement listed below is based on DA approved consumption factors, and is provided only to indicate the amount of airlift which may be needed for the resupply effort during the initial phases of a contingency. More detailed estimates can be found in the classified documents listed in the bibliography.

(a) Each division will deploy with the accompanying supplies depicted below:

TYPE	DAYS OF SUPPLY
Class I	5
Class II	15
Class III (Bulk)	5
Class III (Packaged)	15
Class V	Basic Load
Class VIII	15
Class IX	15

Units would be required to utilize their accompanying load more readily than under normal situations. Replenishment of accompanying load and basic load will be on a daily basis, as required, utilizing the air line of communication and throughput distribution. Eventually, buildup will result in a 7 day reserve level of all classes of supply except bulk POL (2 days), Class VIII (15 days), and Class IX (15 days). These stocks will be maintained by COSCOM; however, due to demands on airlift, it is not anticipated that the buildup will be completed until the SEALOC becomes operational.

(b) The following consumption figures were used to determine resupply requirements, and are expressed in pounds per man per day for Army troops in the theater. Figures do not include buildup quantities.

Class I	6.70 pounds	Class V	31.29 pounds
Class II	3.26 pounds	Class VI	3.20 pounds
Class IIIJ	1.86 pounds	Class VII	4.27 pounds
Class III	45.94 pounds	Class VIII	0.35 pounds
Class IV	8.50 pounds	Class IX	1.52 pounds

Using the consumption figures above for all classes of supply, less Class III, and the troops supported as indicated, the following air resupply requirements were developed for the period D-Day to D+25. (Note: 75% of tonnage to be provided from CONUS and 25% from Europe).

18

D-Day	Average # Troops Supported	Average Daily Air Resupply Requirement (ST)	Total Average Daily Requirement (ST)
D to D+5	25,000	762	762
D+6 to D+10	50,000	1,524	1,524
D+11 to D+15	55,000	1,676	1,676
D+16 to D+20	60,000	1,828	1,828
D+21 to D+25	66,000	2,011	2,011

The following table depicts daily air resupply requirements from D+25 to D+60, which represents 25% of the total requirement for Class I, II, IIIJ, IV, V, VI, VII, and VIII plus 100% of the Class IX requirement.

D-Day	Average # Troops Supported	Average Daily Air Resupply Requirement (ST)	Total Average Daily Resupply Requirement (ST)
D+26 to D+30	85,000	696	2,5[illegible]
D+31 to D+35	90,000	737	2,[illegible]
D+36 to D+40	100,000	819	3,048
D+41 to D+60	100,000	819	3,048

Class III requirements prior to D+10 will be supplied by intra-theater assets using C-130 bladder aircraft. After D+10, Class III requirements will be satisfied by surface tankers. The following depicts the intra-theater airlift requirement for the period D-Day to D+10.

D-Day	Average Daily Air Resupply Requirement (ST)
D to D+5	574
D+6 to D+10	1,148

(c) In the early stages of the contingency it will be necessary to "push" certain items to the area so they will be available until a "pull" system based on requisitions is established. Supply forecasts determined in the initial planning must include only the minimum essential items to support the force until the flow, based on requisitions, is established. In this initial stage the TMMCC must be operational and receive notification of shipments to maintain control over these assets. All supply control and stock accounting above the DSU level will be provided by the TMMCC. By comparing initial requisitions against listings of inbound cargo, only the requisitions which cannot be filled are transmitted to CONUS. This will eliminate the buildup of excess stocks in the area and permit rapid conversion to a "pull" system.

(d) One of the most sensitive and demanding areas within the logistical support of the contingency operation will be the supply management

and stock control during initial deployment. A centralized stock control system within the TMMCC will greatly enhance supply managers' abilities to determine supply and equipment requirements and locations to rapidly react to unit demands.

(e) Logistical support units must be deployed as expeditiously as possible to permit early establishment of the COSCOM base.

(f) Special attention must be given to stock locations. One of the key areas in supply responsiveness will be in the area of storage and distribution operations. Sufficient trained personnel, proper shipment documentation, and adequate storage and material handling equipment must be provided and closely managed.

(g) To eliminate the need for deployment of mess facilities and personnel, all Class I should be MC I rations.

(2) Maintenance. The purpose of this discussion is to provide maintenance support concepts and capabilities in support of the corps operation. Additionally, some problem areas which could be experienced during support of the operation, and proposals to minimize these problem areas, are provided.

(a) A modified direct support (DS) maintenance system, with no general support (GS) maintenance, will be employed. Corps DS maintenance units will provide support in the corps area and additionally assume limited GS mission requirements and backup support, eliminating the need for deployment of GS units into the area of operations. DS maintenance contact teams will be emphasized and utilized to the maximum extent to reduce backhaul of inoperable equipment. On-site repairs should be accomplished whenever possible. Controlled cannibalization will be authorized to the maximum extent to expedite repair of equipment. Any equipment requiring extensive maintenance, to include uneconomical reparable and salvaged equipment, will be evacuated from forward units to COSCOM DS maintenance units for removal of serviceable parts which can then be placed into the supply system. Remaining equipment not needed for repair parts or that is economically reparable should be returned to CONUS or USAREUR on an air backhaul basis. Close coordination with Air Force assets returning to CONUS should be accomplished to eliminate any buildup of salvaged and/or equipment requiring extensive maintenance.

(b) The modified DS support for aircraft and heavy and light equipment will be located as far forward in support of divisions as the tactical situation will allow.

(c) An expanded float system will be employed with accelerated replacement of inoperable major items of equipment.

(d) An expanded system of direct exchange (DX) items will be employed.

(e) To minimize possible maintenance problems, action in the

following areas should also be taken:

-- Early introduction of maintenance units must be accomplished.

-- Intensive management of Class IX repair parts to expedite repair of items by DS contact teams in support of divisions in forward areas must be accomplished. The ASL should only include repair parts that are determined to be essential to place vehicles and equipment back into minimum operating condition. There should be no convenience or cosmetic items carried on the ASL.

— Organizational maintenance within forward units must be continually stressed to eliminate equipment from becoming inoperable.

-- Only combat essential equipment and those items that distract from the combat effectiveness of the equipment should be repaired. There should be no cosmetic repairs, such as canvas, glass, body, fender, and painting performed by maintenance support units.

— Recovery and collection of salvaged equipment, to insure expeditious classification and disposition, must be intensively managed to complement the maintenance and cannibalization policy.

-- No new non-standard equipment should be introduced into the area of operations.

(3) Transportation. The purpose of this discussion is to provide transportation concepts and capabilities in support of the corps operation. Additionally, some proposals are presented which could minimize possible problems in supporting the operation.

(a) The requirements for the movement of men, materiel, and equipment will place great demands on the transportation assets within the area of operations and will impact upon the commander's tactical planning throughout the AO. Initial deployment of the force must include adequate transportation assets to insure that aerial terminal clearance is accomplished and continued throughout the operation. Transportation units should be located near terminals to provide rapid clearance and throughput distribution to forward units.

(b) Interface of units with the TMMCC is paramount to insure continuity of transportation/materiel movement support. Intensive planning and management of all transportation assets must be accomplished throughout the operation to insure responsive support to forward units.

(c) Maximum use must be made of indigenous transportation assets and terminal service personnel.

(d) Reduced supply levels will require that airlift be used to the maximum within the area of operations to deliver supplies as far forward and as rapidly as possible.

(e) The capability of all transportation facilities and modes in the area of operations must be thoroughly evaluated and incorporated into transportation planning.

(4) Field Services. The purpose of this discussion is to provide field service concepts and capabilities in support of the corps operation. Additionally, some proposals are presented which could minimize possible problem areas in providing support to the operation.

(a) As envisioned in the concept, only those field service units which are absolutely necessary will be deployed in support of the operation, with emphasis on adequate, austere support.

(b) A modified field service company providing bath, laundry, salvage, collection, and graves registration will be placed forward in support of each division.

(c) Field service units should be deployed as expeditiously as possible to enable them to become operational in the early stages of the operation.

(d) Field service units must be mobile and be able to displace rapidly in support of the divisions; they should be able to provide their own security, commensurate with the tactical situation.

(5) Health Services. The purpose of this discussion is to provide health service concepts and capabilities during support of the corps operation. Additionally, some problem areas which could be experienced during support of the operation are provided.

(a) A five day evacuation policy will be utilized during the operation. This will eliminate the need for a substantial amount of personnel, facilities, and equipment within the area of operations. Only life saving stabilization and regulating will be accomplished on patients within the area of operations prior to evacuation to CONUS or Europe. This will eliminate the need for large amounts of Class VIII resupply. It is envisioned that two medical clearing companies per division will be adequate to provide emergency treatment for wounds, injuries, and

illnesses. One combat support hospital will be deployed to the area of operations to provide continuing life saving treatment. It is envisioned that with the five day evacuation policy the rapid turnover of patients will prevent any large buildup of patients in the area.

(b) Communicable diseases can be expected to cause an appreciable amount of illnesses with the newly deployed force within the area of operations. This will contribute to an increased amount of non-battle casualties.

(c) The rapid movement of forces into a combat environment, along with a rapidly moving situation, could create increased psychological problems for personnel.

(d) The five day evacuation policy will place increased demand for replacements. The personnel replacement requirement will be doubled over that of a 15 day evacuation policy; however, a two-third reduction in in-country medical personnel, facilities, and resupply of medical supplies would be achieved. The trade-offs would favor the five day evacuation policy.

(6) Personnel and Administration. The purpose of this discussion is to provide personnel and administration concepts and capabilities for the support of the corps operation. Proposals are presented which could minimize possible problem areas in providing this support.

(a) It is envisioned that as a result of the short duration of the operation no personnel or finance records would be deployed to the area of operations. All administrative requirements projected for the anticipated sixty days would be accomplished prior to deployment of force. This would eliminate a large amount of support personnel and facility requirements within the contingency area.

(b) Replacements. Prior to deployment into the area of operations, all units should be brought to full strength. With the five day medical evacuation policy in effect, an automatic projected "push system" of replacements should be programmed into the area based on forecasted casualty losses. Intensive management of specialized MOS's would be required to insure that replacements are provided for officers and enlisted personnel with highly technical skills. With the "push system" in effect for common MOS's, such as combat arms, requisitions and time-lag can be greatly reduced.

(c) Personnel and administrative contact teams can be organized to provide support in the areas of legal assistance, religious services, personnel service/administration, and finance.

(d) Deployment of personnel and administration units would be required to provide casualty reporting, replacement operations, postal operations, labor relations (local hire negotiations), and contract law (contractual negotiations.)

4. CONCLUSIONS:

a. As stated in this Annex, the vast amounts of supplies and materiel required will place great demands on present airlift assets. An austere environment and the use of an air line of communication should, however, permit modifications in the support base, reducing some requirements for support personnel and the associated support they require.

b. Dedicated airlift would be required to provide mission essential items in quantities to sustain the force until the SEALOC becomes operational. The first priority for resupply should go to supply classes I, III, V, VIII, and IX. The JTF commander must determine how much of above classes of supply will be moved in each category.

c. The heavy demand on airlift may delay the buildup of reserve stocks until the Sea lines of Communications become operational, requiring units to place greater dependence on their accompanying load.

d. Reduction in the number of general support supply units deployed should be considered due to the reduction in levels of supply and in the number of ASL lines carried.

e. Reduction in the number of mess personnel and equipment should be considered with the use of combat rations.

f. The elimination of general support maintenance will reduce the number of maintenance units deployed. The modified DS policies, such as no cosmetic repairs and more deferred maintenance, will reduce the number of DS maintenance personnel required.

g. Extensive cannibalization of non-reparable equipment will provide additional repair parts for the supply system and reduce the requirement from CONUS stocks.

h. Reduction in field services and personnel services provided should reduce the number of personnel and units deployed to accomplish these tasks.

i. The five day medical evacuation policy should allow for reductions in medical personnel, supplies, and facilities deployed into the contingency area.

5. RECOMMENDATION: It is recommended that the basic concepts provided in this annex be incorporated into future contingency plans for employment of a light corps force. These concepts realistically identify support procedures which will appreciably reduce the number of CSS units required in the area of operations.

Annex D, (Communications), Assured Air Line of Communication (ME-I Scenario)

1. PROBLEM: The Tactical Communication System is not adequate to support a corps contingency force Assured Air Lines of Communications (AALOC).

2. ASSUMPTIONS:

a. That frequency allocation will not interfere with the host country's communications system.

b. That communications austerity will be a principle adhered to throughout the operation.

c. That DCS circuits will be available for use during the operation.

d. That the US Readiness Command Joint Communications Support Element (JCSE) or similiar system will be available for use during the initial phase of the operation.

3. DISCUSSION: In developing the communications requirements for an AALOC, a look back to the past reveals that in the Vietnam conflict the tactical communications system was, in some ways, inadequate to fully support the Logistics requirements. The Joint Logistics Review Board, in the monograph on communications, indicated that the common user doctrine for logistics communications requirements proved to be inadequate; subsequently, the Defense Communications System (DCS) was established in country to broaden the capabilities and provide additional means for communications in both command and control as well as logistics.

From the additional means provided by the DCS, only 14% of the circuits were dedicated to logistics requirements as "sole user." This in itself, was not ample evidence to show that a doctrinal change in communications requirements for logisticians was required. It did, however, surface specific needs for a limited amount of "sole user" circuitry" in the strategic system to provide high qualitity, reliable, long-range circuits. The modern battlefield, with its digital traffic, has generated a greater requirement for long distant, quality circuits not always available in the tactical communications system.

In the AALOC discussed in this paper, a greater reliance will fall on the ability of the Theater Materiel Management Control Center to communicate with a CONUS Materiel Management Control Center such items as supply request transactions, follow up actions on requests, status, intransit shipment visibility, movement priorities, etc. This will place a tremendous demand on the time, and due to its high degree of reliance, places a priority for identification of dedicated circuitry on the system. The AALOC concept does not reflect a need for doctrinal change to the tactical

communication doctrine in FM 24-1. The AALOC concept does, however, show a need for support from the following defense agencies: Defense Communications Agency (DCA), Defense Communications System (DCS), and the Defense Communications Satellite System, (DCSS).

The DCA has been given the responsibility of communications engineering and management for the Department of Defense. They have the responsibility of developing the systems requirements and identifying the agency, (DCS or DCSS) that will provide the interface point to fulfill the requirement. In order for the DCA to fulfill its function, the following information at a minimum is required:

a. With what location must each point communicate.

b. Duration of voice calls or length or service of recorded messages.

c. Frequency with which each individual key point must communicate with each other keypoint, and the speed of service required.

d. Quality of service.

e. Mode of service (voice, narrative, or data).

f. Security requirements.

g. Justification, including a statement of impact if the required service is not provided.

In the AALOC concept described in this study, these same standards apply. A requirement exists for:

a. Dedicated voice, data, and computer terminal to terminal interconnecting communications from the TMMCC to the CMMCC is required for those systems identified under automated systems.

b. Voice communications will bring about an operational requirement. "Immediate" predence in the AUTOVON system, as well as a dedicated "sole user" voice circuits. These will be a minimum requirement. Data transmission will depend on the amount of supplies consumed and the resupply rate. The rate identified in the ME I scenario can be used to determine the systems engineering requirements. The AUTOVON requirement identified also includes the same precedence for stateside use to depot and airlift facilities.

c. Frequency of calls will greatly depend on the tactical situation and rate of consumption. Engineering must take into consideration "worse case" for requirements determination.

d. Quality of service for data transmission will include at least:

(1) Automatic switching.

(2) Store and forward capability.

(3) 10^{-6} error rate.

(4) Printout flexibility at destination points.

(5) Establishment of up to 200 cards per minute satellite data links.

e. Mode requirements include.

(1) Voice

(2) Data

(3) Narrative

f. Security Requirements. No change to any doctrinal concepts has been identified.

g. Justification:

(1) Based on needs experienced in similar situations.

(2) Cost benefit analysis method.

(3) Operational necessity (most common method).

(4) Volume of traffic method.

Once the DCA has this information, they can systems engineer the requirements expressed above.

The DCS is the equipment and personnel supplier of The Defense system. Appendix 1 to this annex shows the worldwide capabilities of the DCS. Equipment providing access to the DCS from the corps contingency force will have to be identified and made available when such contingencies arise.

The DCSS will identify those satellites and frequencies required for use in the data transmission system. The Army is presently fielding two tactical systems that can fulfill the AALOC communications data requirements. The first to be discussed is the MSC-59. It has the capability of 6-12 channels of point to point communications. In the trunking mode it

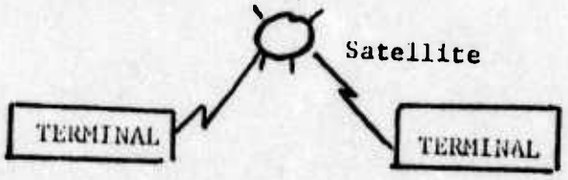
will pass 48 kilo bits per second and in the single channel mode 19.2 kilo bits. Planning range for this system is 10,000 miles.

The TSC 85 has increased capabilities:

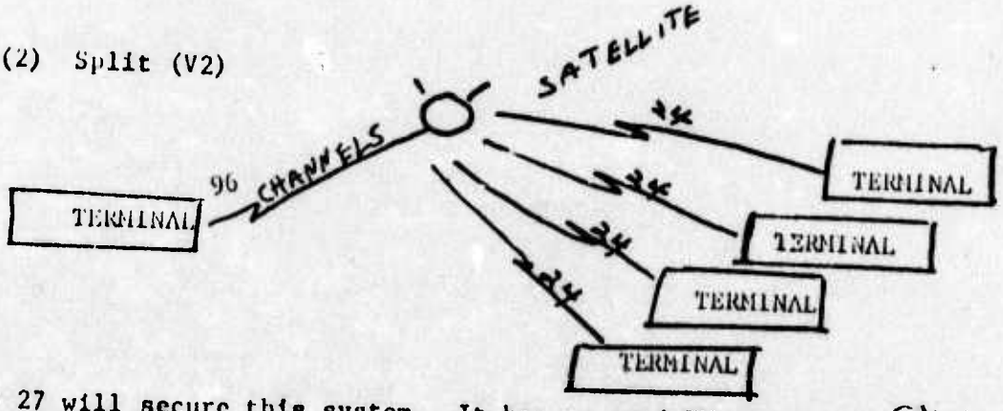
VI System	24 Channels
Trunking mode	48 K bits
Single channel	19.2 K bits
V2 System	96 Channels
Trunking mode	48 K bits
Single channel	19.2 K bits

The TSC 85 (V) has two modes of operation:

(1) Point to Point (VI)



(2) Split (V2)



The KG 27 will secure this system. It has an anti EW capability, and to add to its usefulness, it is nuclear hardened.

Considerations have also been given to the use of facsimile equipment to lower the probability of error in the transmission of requisitions. The present state of the art makes it impractical for use at this time. The AN/TXC1 (Army Standard) requires 20 minutes for transmission of one standard page of data. Project MASSTER, at Ft Hood, Texas is presently

testing an off-the-shelf facsimile set for probable use; at this writing, results of the tests are not available. The Tactical Digital Facsimile System, presently under development, won't be ready for fielding until the 1982 time frame. It is being developed to transmit one page of 300 words in 1/2 second with the resolution required for supply requisition purposes. Until such time as a system similiar to the TDFs is available, facsimile is not a viable option for use in the AALOC.

Strategic tropospheric scatter equipment will have to be made available to handle voice traffic out of the corps contingency force area of operations to a DCS interface point. Here again, the DCA will engineer the type system needed, based on the scenario, to include:

(1) Identification of DCS points of entry.

(2) Types of equipments to fulfill those requirements generated.

(3) Personnel and equipments to accompany the force headquarters.

(4) Amount and type of circuits available, (sole user or common user), to the logistics user.

Given the proper requirements early in the engineering phase will allow for the proper amount and type circuit early in the planning and allevaite "crisis management" during the operation.

Commercial satellite systems exist worldwide. (See Appendix 1) The DCA can also arrange for use of these systems, when available, by the TMMCC. By having multiple means available, the reliance on a single system is reduced.

4. CONCLUSIONS:

The AALOC concept places requirements on the communications system that exceeds the tactical system capabilities. Due to this increased requirement, the DCA must be brought into the planning phase early. It will be the agency responsible for planning the communications means out of the contingency force area of operations, types of equipment needed, and general engineering to interface with the DCS. Early identification of valid requirements will allow for the assured operation of the AALOC concept. This AALOC concept does not reflect a need for change in the communications doctrine depicted in FM 24-1 (Communications Doctrine). It does, however, show a need for dedicated circuitry in the AALOC Operations Centers.

A major reliance for the smooth orderly flow of supplies will depend on the ability of the theater to communicate with CONUS on data links, voice, and computer interface circuits. The Tactical Communications

System was not designed to handle long-haul, high quality, digital traffic. This has been recognized and circumvented by the DCS.

The AALOC concept will place additional requirements, above those already identified in the ME I scenario, on the strategic system. Early identification and proper engineering will be needed to assure the AALOC's operation.

5. RECOMMENDATIONS:

a. That the proper agency be given the responsibility for the engineering of those requirements identified. The DCS has been given this responsibility by the Department of Defense.

b. That the DCA identify the DCS interface point, and identify the responsible service for supplying the equipment and personnel to accompany the contingency force.

c. That the Theater Materiel Management Center be given sole user circuits for communications back to CONUS.

d. That satellite communications be made available to augment both the JCSE and the area system once the JCSE is replaced.

e. That plans are also made for alternative methods of transferring data when communications are minimal or disrupted. (i.e., messenger route, and air transportation of data cards).

f. That early identification of communications interface equipment for the DCS System be identified to include the multiplex equipment for data requirements.

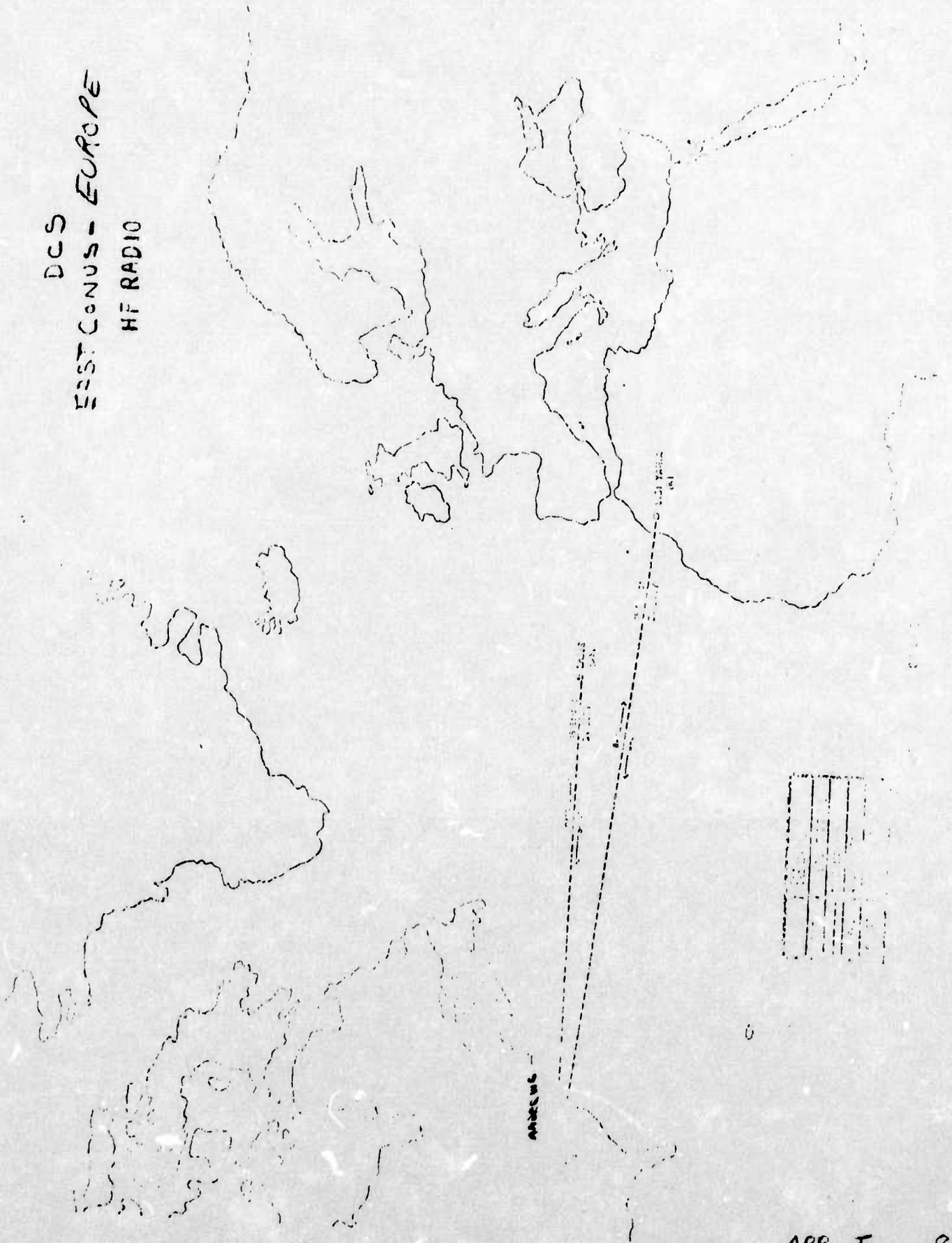
g. That communications austerity be a principle adhered to throughout the operation. The TMMCC will require at a minimum:

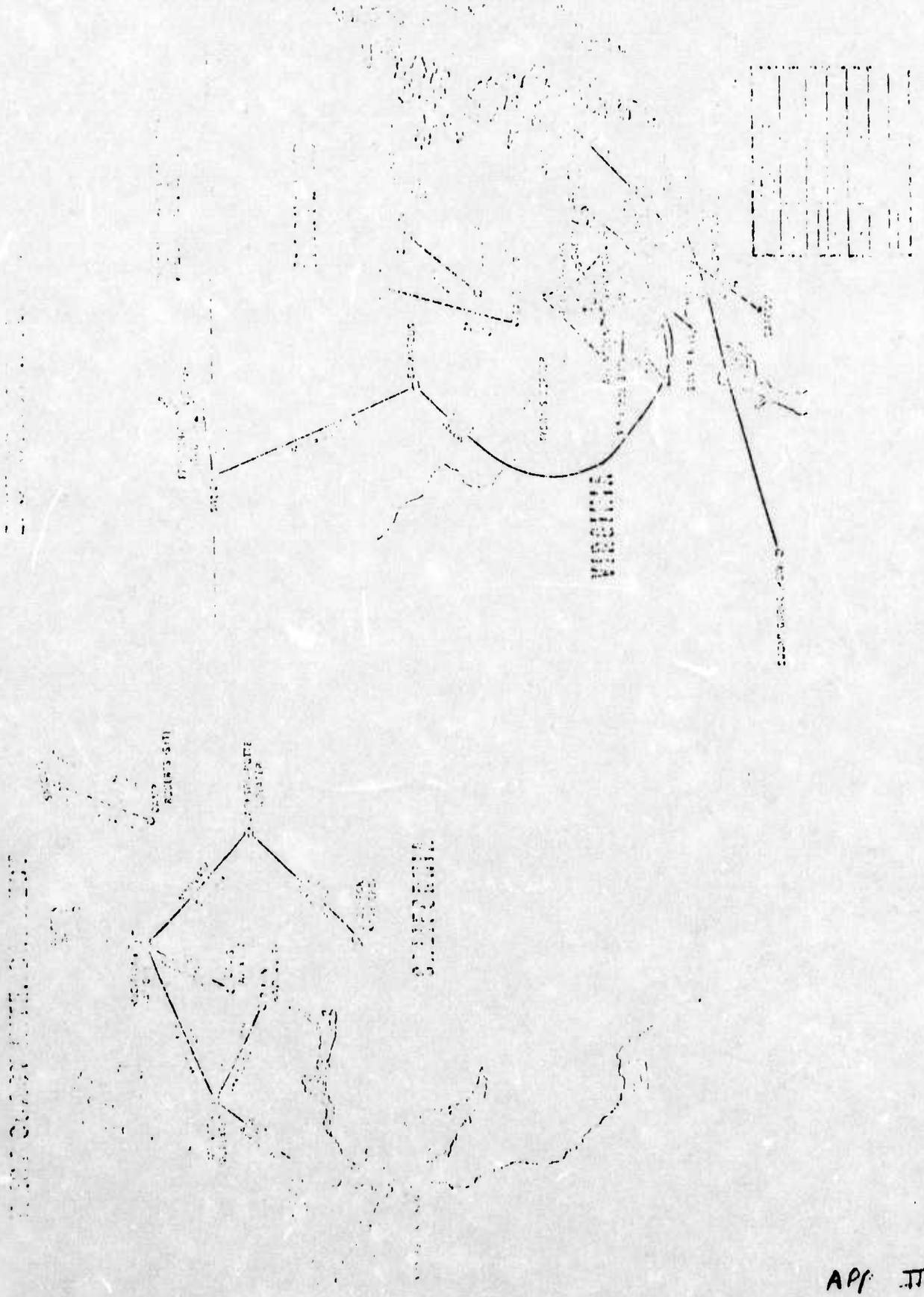
(1) One sole user voice circuit.

(2) One data circuit.

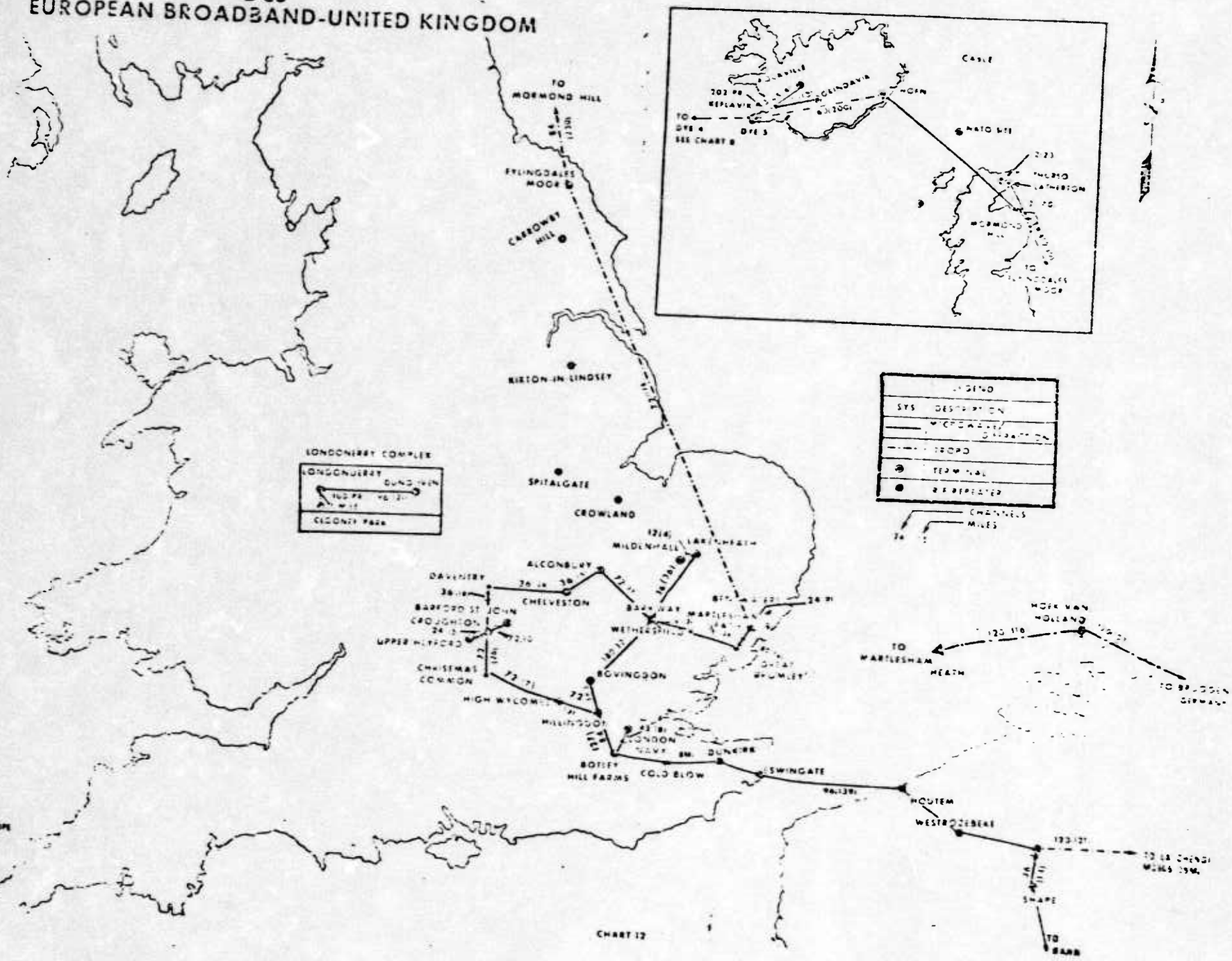
(3) AUTOVON access with a minimum of "Immediate" precedence.

Appendix 1: DCS East CONUS - Europe HF Radio
2: West Coast & East Coast Interconnect
3: DCS European Broadband - United Kingdom
4: DCS European Broadband- Germany
5: Spain, Italy, and N. Africa - DCS European Broadband
6: DCS European Broadband - Central Germany





DCS
EUROPEAN BROADBAND-UNITED KINGDOM



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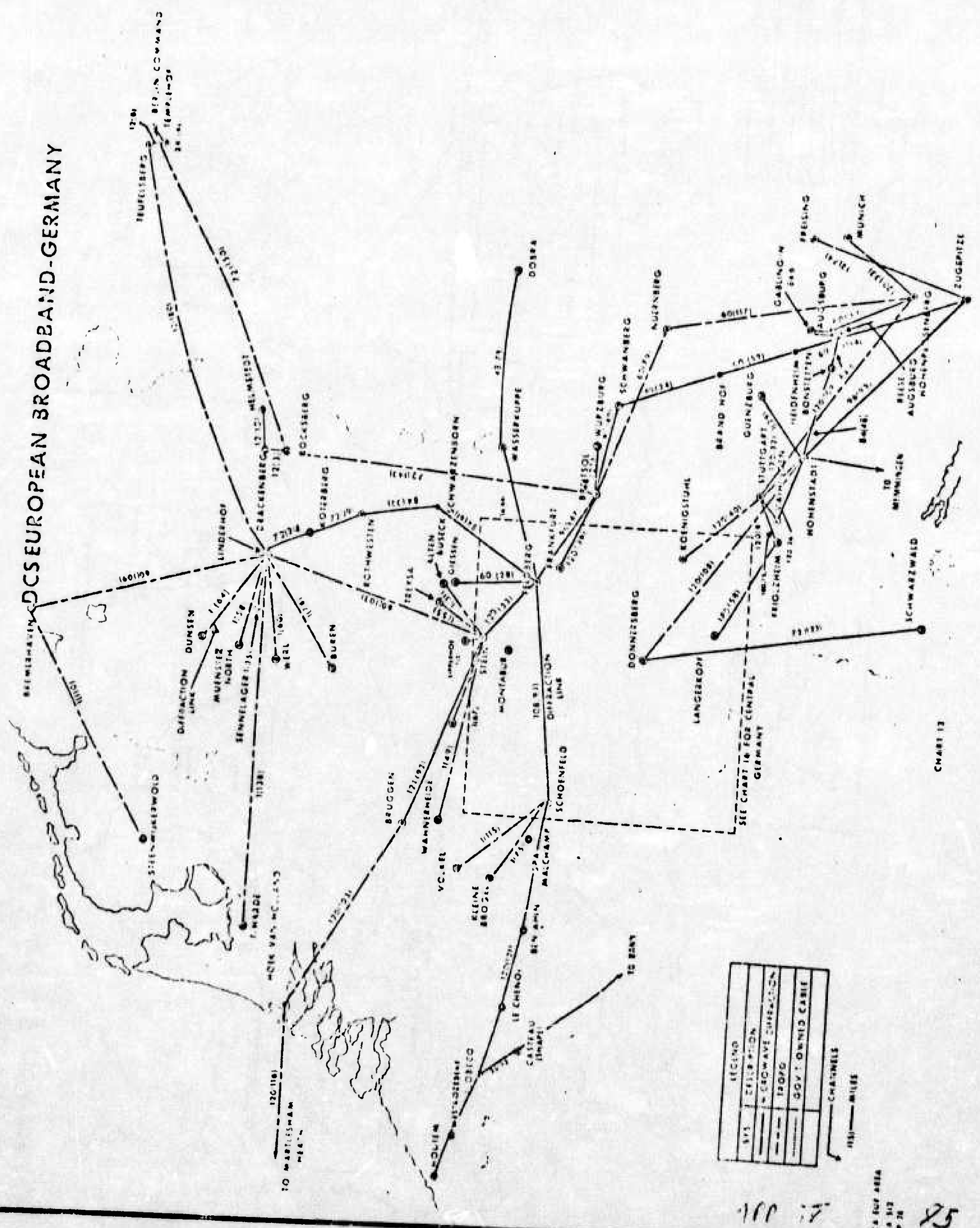
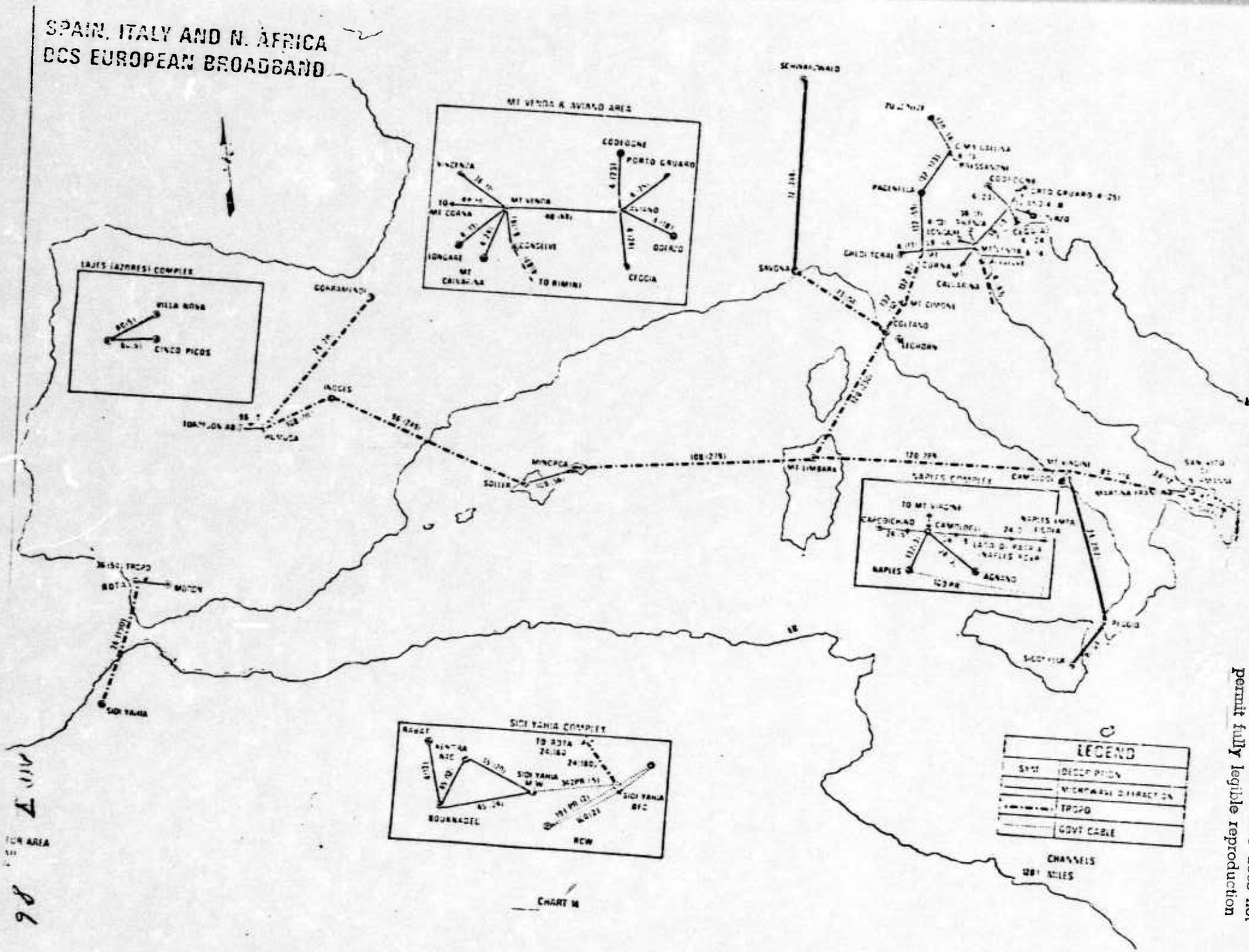
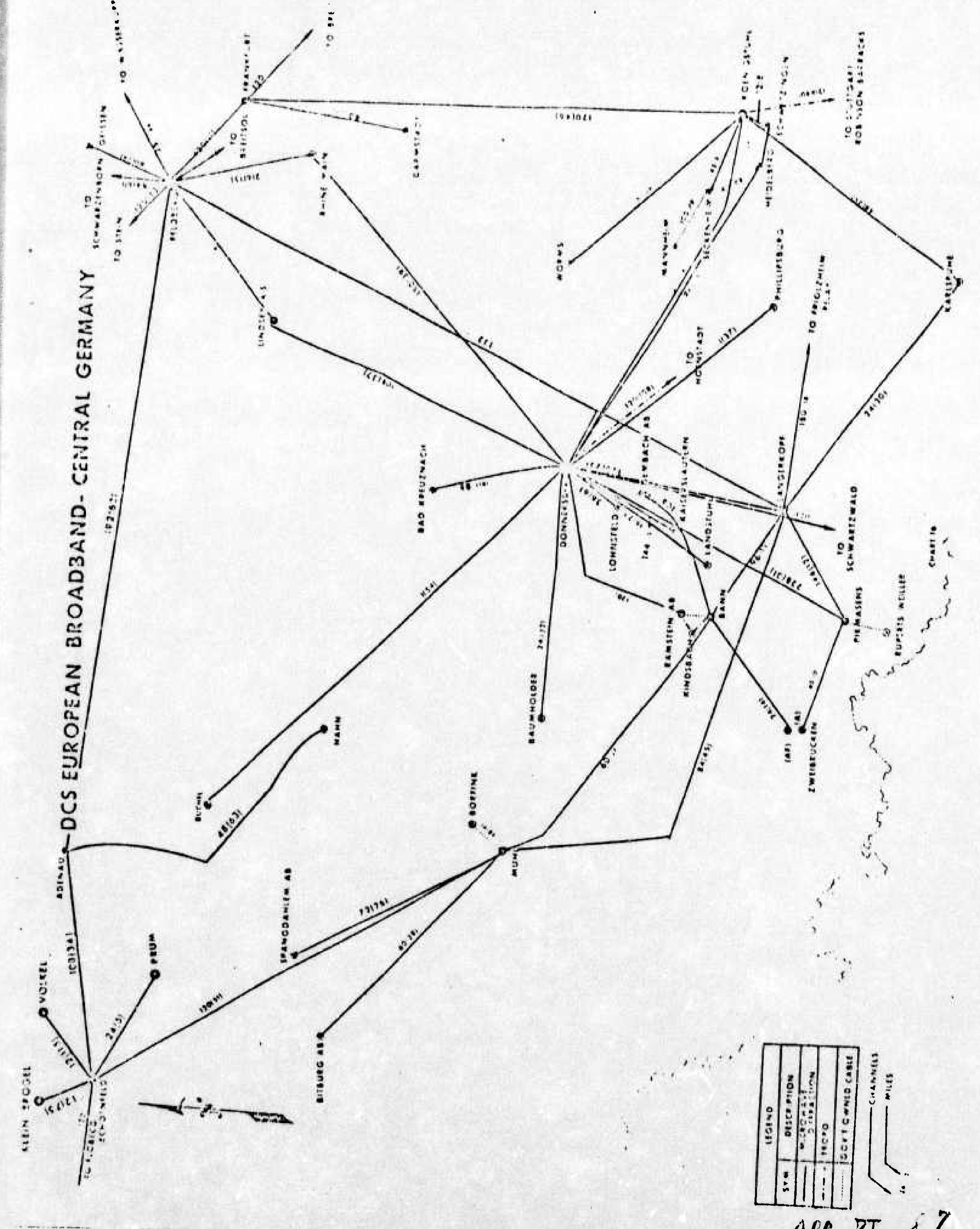
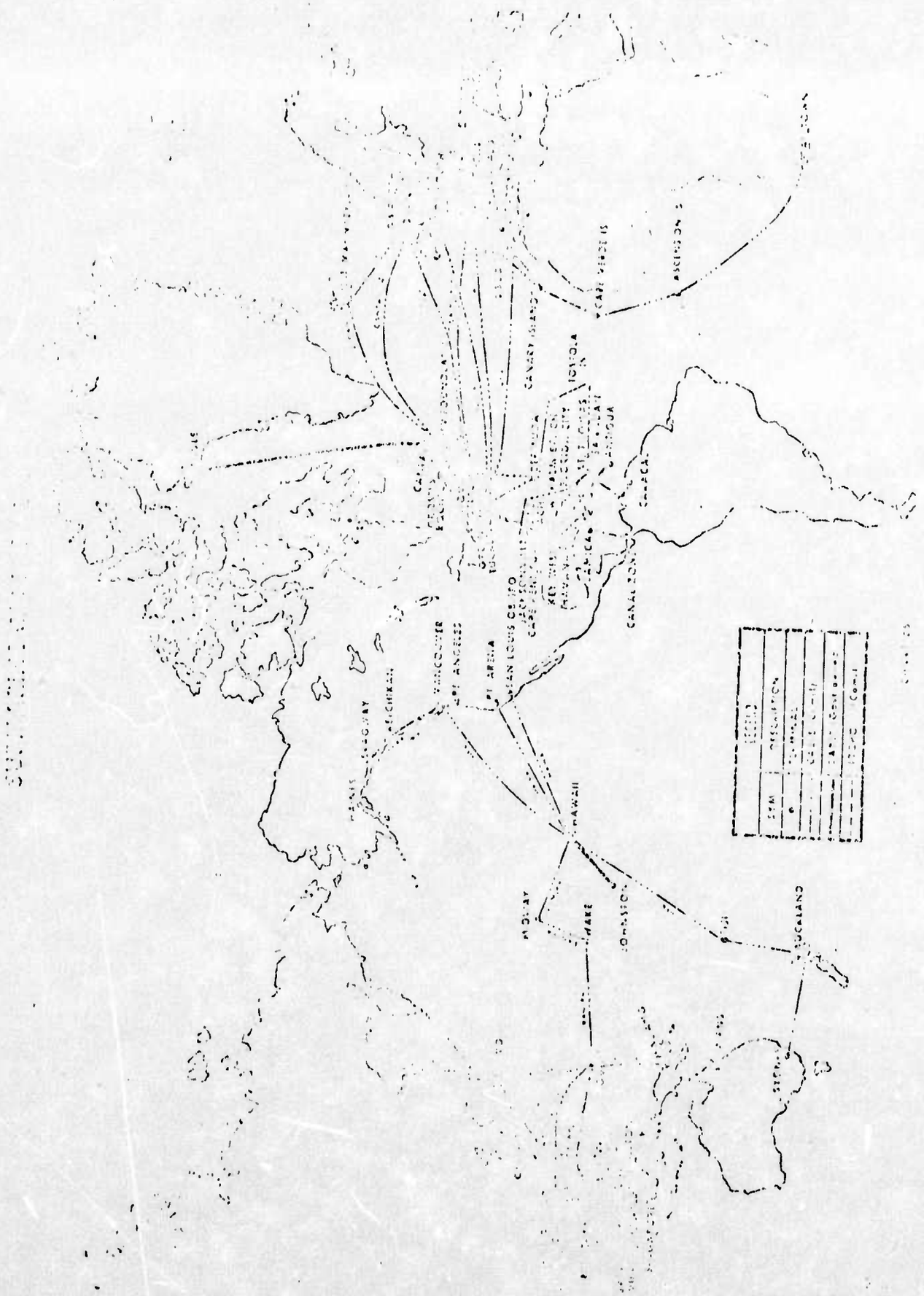








WORLD

DEFENSE SATELLITE COMMUNICATIONS SYSTEM

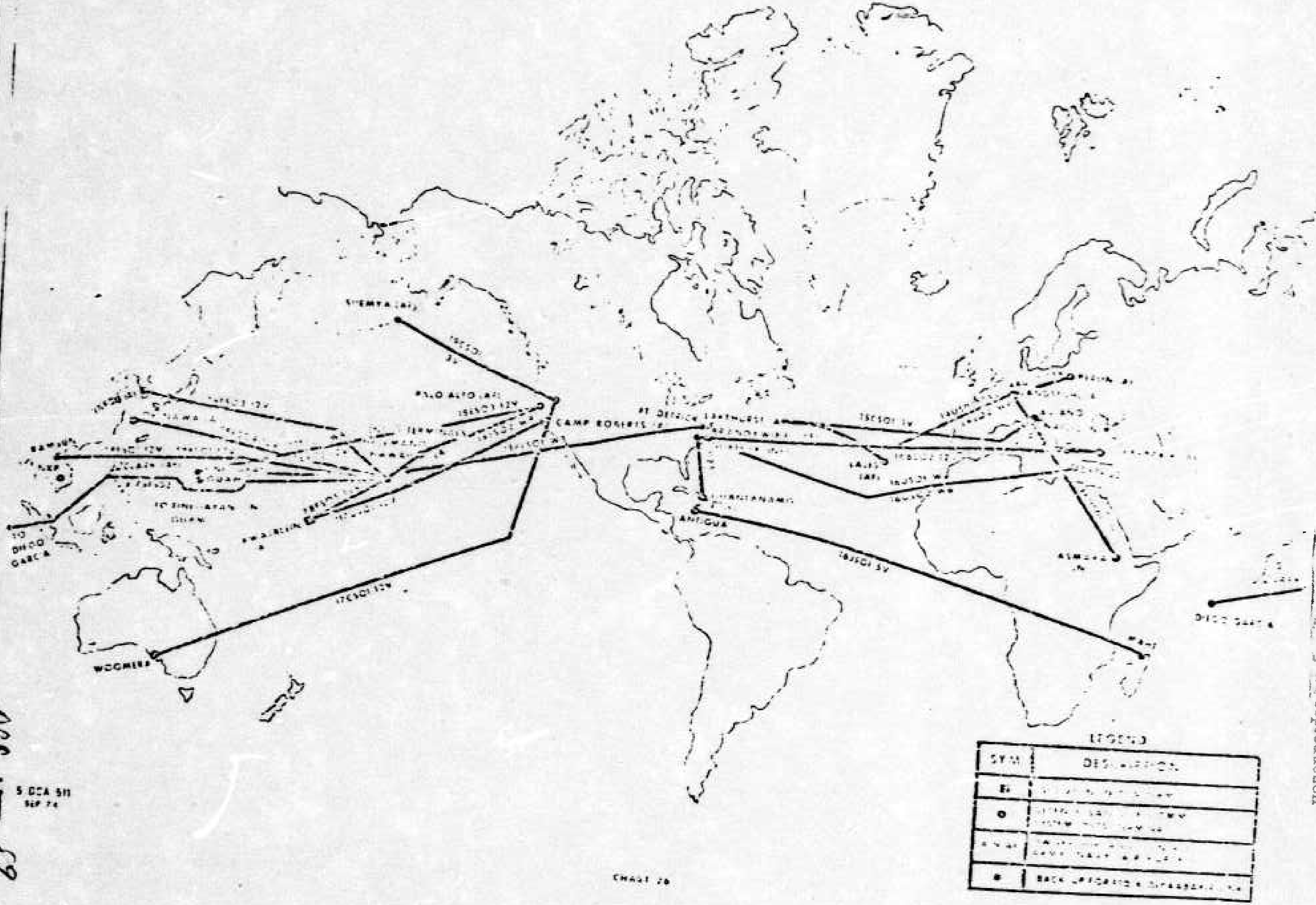
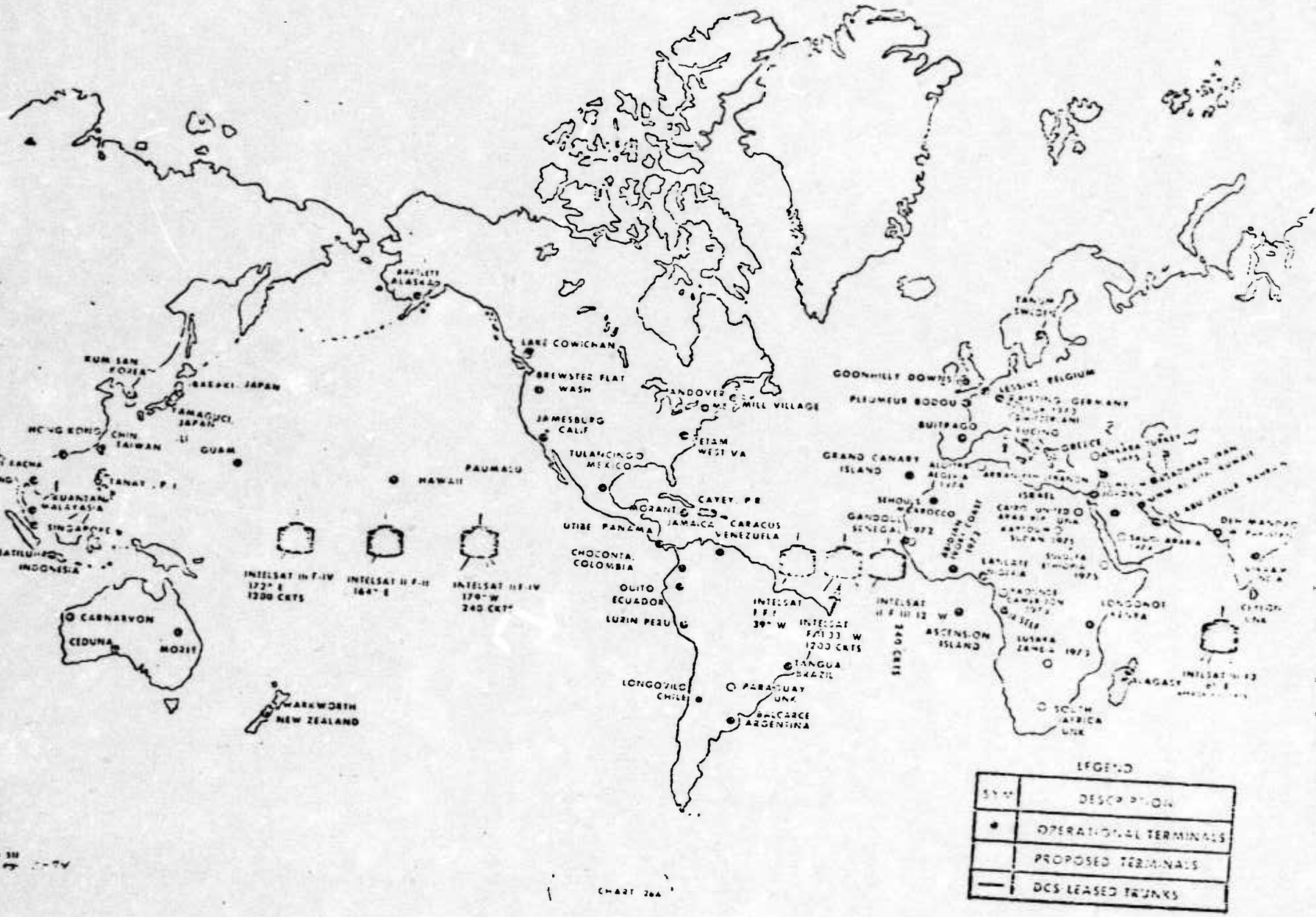


CHART 26

S DCA 511
SEP 74

WORLD

COMMERCIAL SATELLITE COMMUNICATIONS



LEGEND

SYM	DESCRIPTION
•	OPERATIONAL TERMINALS
	PROPOSED TERMINALS
—	DCS LEASED TRUNKS

CHART 26A

AIR IX 90

DCS

CONUS AND CANADA AUTOVON SWITCHING CENTERS

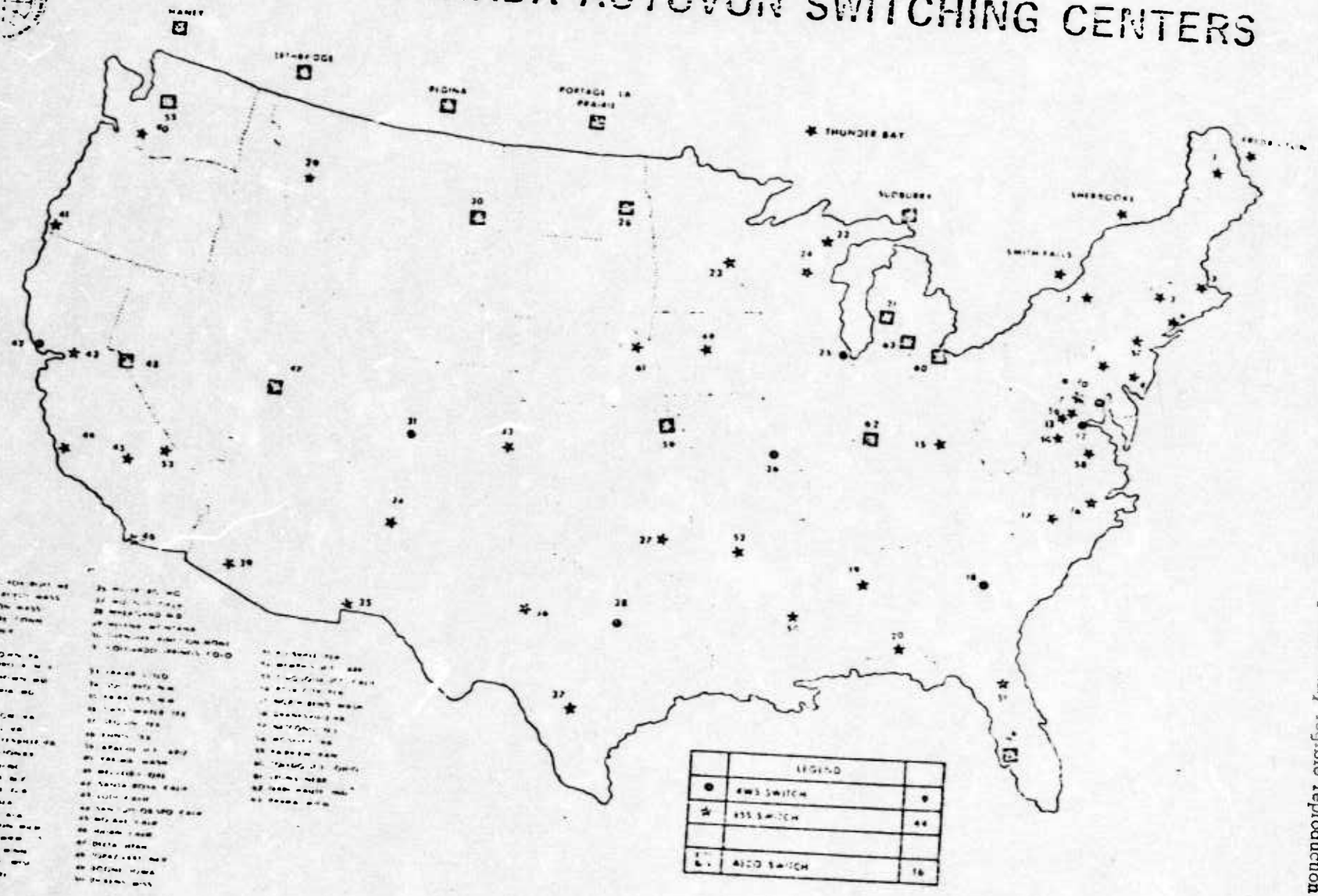
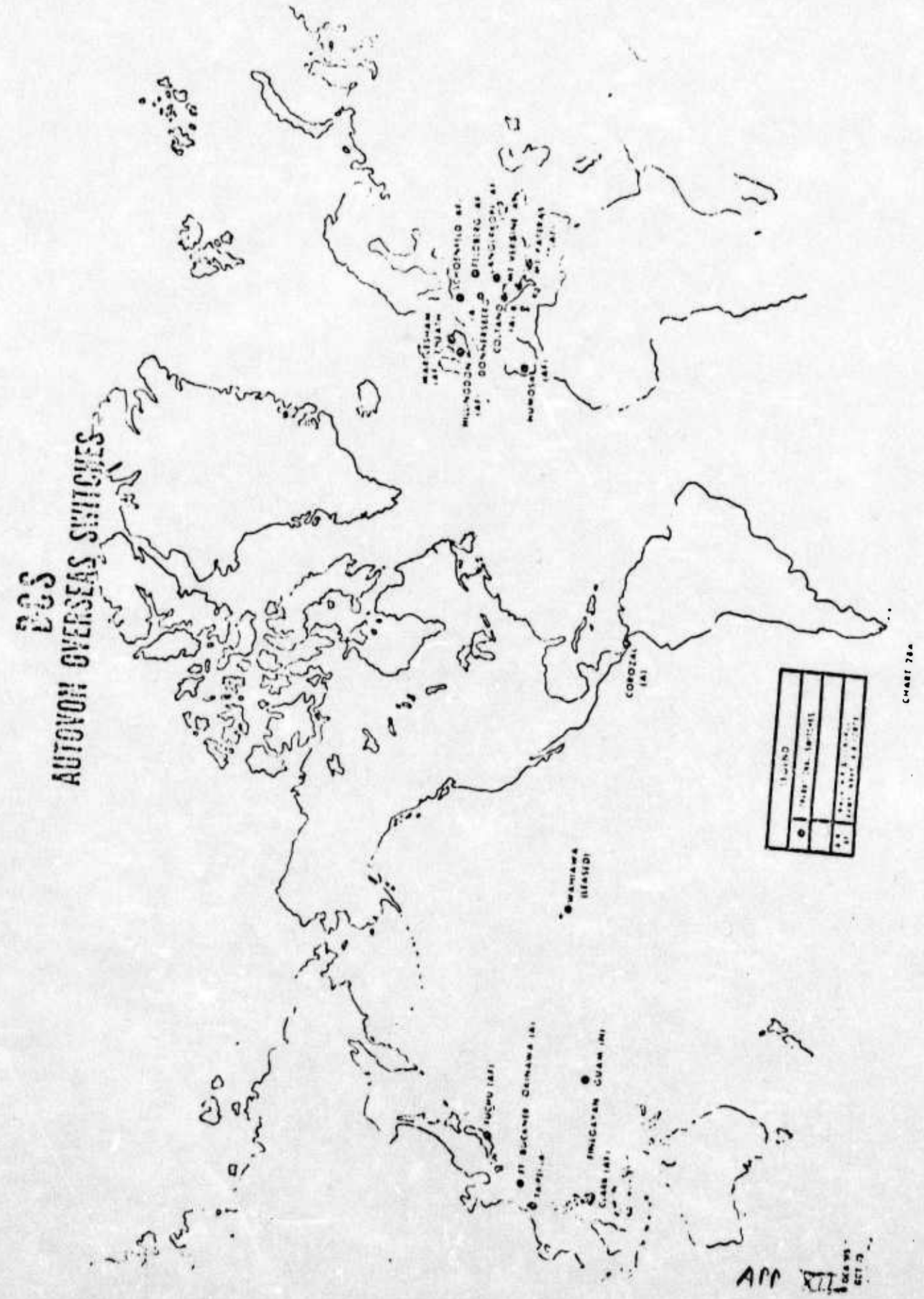


CHART 28



Annex E, (Economic Analysis) Assured Air Line of Communications (ALC-1 Scenario)

1. PROBLEM:

To analyze system characteristics to determine the worth of the system with respect to economic and design tradeoffs.

2. ASSUMPTIONS:

See study assumptions.

3. DISCUSSION:

Economics play a vital role in any system being considered. A quick response, logistic system, as that being developed is a highly complex network containing sundry design/economic parameters and constraints that must be analyzed. These constraints and parameters illustrate the complex nature of the system and it is, therefore, necessary that all problem areas be examined thoroughly. Yet, it is most difficult to properly analyze the economic area because of the multitude of intangible inputs whose interaction within the system can not be clearly defined.

In today's world and that of the foreseeable future, rising costs due to inflation, recession, and third party influences make it necessary for the US to consider all its "systems" in light of capital outlay as well as productivity and mission accomplishment. Military spending has been relatively free from Congressional interference for the past twenty years. Senator Gaylord Nelson has said:

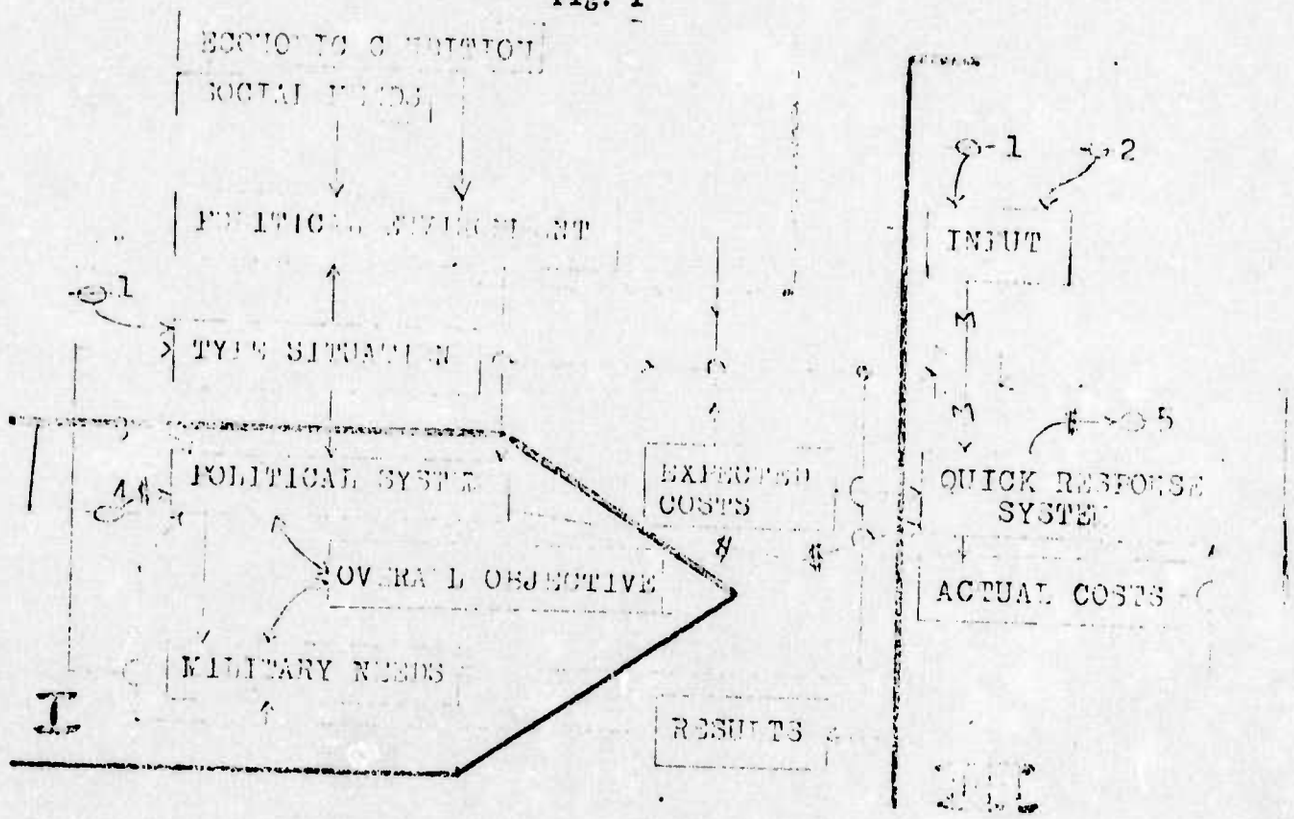
> We all know the two biggest words in the English Language are 'national defense'. It is unpatriotic to question any appropriation for national defense. Defense against what? Just utter the magic words and you are in the clear.

However, Congress has begun to question, in-depth, any and all defense spending, near or far term. Congress has, also, limited the power of the president to project US influence into any part of the world.

As a result of the economic harness placed on the military, any new system, whether it be combat or support oriented, must concern itself with three areas of influence: organizational, institutional, and operational. (Fig 1). The institutional area support the public views when and where possible. The organizational area creates the atmosphere in which the political and military systems must operate. The operational area is a control mechanism for evaluating resource management in the operating

system. This area evaluates demands internal and external to the system.

Fig. 1



1 - Allied assistance
2 - Resources
3 - International Environment
4 - Public
5 - Expenses

I - INSTITUTIONAL SYSTEM
II - ORGANIZATIONAL SYSTEM
III - OPERATION SYSTEM

An information feedback system is implemented to supply the overall system with the results of actions taken and also with the actual expenses incurred by that action. This information in conjunction with the political and military objectives are evaluated to determine the resource allocation for the action.

It is evident that unexpected situations, such as a natural disaster and/or a show of strength, are completely controlled by the political and military institutions. The limited engagement and total war situations are initally controlled by the above mentioned institutions but as time becomes the dominant factor the organizations begin to influence control on the institutions. This assumption of control is a highly complex and

sensitive manuver. Certain parameters and constraints become quite important to the overall system. These parameters and constraints are listed as follows:

a. Majority party in power.

b. President.

c. Minority party.

d. Time until election.

e. International relations.

f. Public demands and opinions.

g. National attitude.

h. World opinion.

i. National resources.

j. Tax base.

k. Budget of Department of Defense.

l. Debt ceiling.

m. World trade.

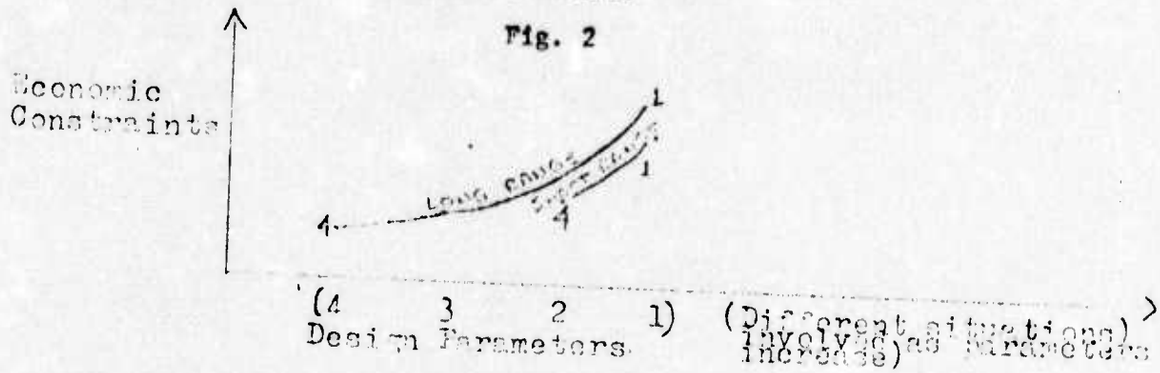
n. Situation type.

o. Time.

The overall system with its dynamic characteristics, coupled with a time delay has considerable effect on thr responses in the system. Due to this, the apparent parameters and economic constraints may not necessarily be driving the system. This problem is similar to Professor John Forrester's industrial dynamic concept concerning the reaction with time of the retailer, distributor and factory to a change in customer orders. What is actually causing the situation and its initial response can be diminished or terminated while the effects it caused are continuing to react for some time until they are damped out or settle down. In addition, the design parameters are much more consistant over time than the economic constraints. Also in the progression from a low priority situation (in reference to national security) to a higher priority situation, the economic constraints begin to diminish while the design parameters cannot change as quickly and

therefore become the restricting factors.

Fig. 2



The above graph shows the change in economic constraints and design parameters effecting the system as the situations change. The top curve concerns long range and the bottom the short range.

Therefore, it is felt that the quick response subsystem works within one set of restrictions for the short range period and another set of restrictions for the long range; dependent upon the type of situation encountered.

Key design parameters will be in the interfaces between the different subsystems. It is in the realm of the higher level restrictions that the actual constraints and parameter sets are determined. It will be the institutions tempered by organizational pressures which will determine the effort which will be expended in reacting to different situations.

The system under discussion must make maximum use of all assets: men, money, and material. This is required so as to optimize the productivity of the system. Efficiency in cost reduction is but one item in the overall system analysis. Savings in transportation, inventory control, materials handling, proper use of communications, and attention to detail in the decision making process must also be accomplished. Yet, the paramount consideration must be mission accomplishment because this is the driving force of any system. Flexibility and the need to make tradeoffs become necessity.

The system cost is made up of tangible and intangible factors. There are many existing cost formulas and models that develop the total cost. These cost formulas include air and line haul transport, inventory, packing, warehousing, handling, and loss/damage costs. It is easy to see that each of these costs can be expressed in constant dollars: packing

cost = Item wt X pack cost X quantity X tare factor. Selected normal costs using 1969 dollars are listed in Figure 3.

Fig. 3

AIRLIFT COST DATA

PACKAGING		
	TARE FACTOR	1.75
	PACK COST	$82.30
DAMAGE		
	PER UNIT	$00.0018
LINEHAUL		
	CONUS	$00.0968
	THEATER	$00.064
HANDLING		
	AVG COST	$20.45

The efficient use of existing systems affords us the ability to save R&D costs while at the same time establishing product improvements. The proper use of communications, efficiency in packing, transporting, handling and warehousing will enable the supplier to maintain inventory visability and offer the user prompt dependable service. The use of priorities will be a command perogative. However, there will be timely information flow at all levels. Tradeoffs will have to be made to provide this service. Yet, these tradeoffs can be done in such a manner that they will not detract from the overall mission. Efficiency, timeliness, and proper transportation and supply techniques are the keys to a productive system.

The system utilizes those presently operating procedures as the Direct Support System (DSS) in conjunction with Logistics Intelligence File (LIF) of the Logistics Control Agency (LCA) and a joint operations element to provide fast efficient service between the theater and CONUS. Certain problem areas do exist. If dedicated communication circuits are not provided, the efficiency of the system will be degraded. Location of warehouse facilities can also pose a problem. These facilities strategically located will save money, increase transport utilization, increase efficiency, and provide one stop shopping for the theater. The sum total of the system will be to provide a system which works in peacetime and which can easily be converted to a wartime operation. The transition to maximum effort can be accomplished within the existing framework and with a minimum of additional personnel.

The present airlift capability for an excursion into the area under examination is 4788.3 tons per day. This capability will not be fully augmented by sealift until D+25. The Army daily resupply requirements fluctuate from 750 tons to a maximum of 2000 tons per day during the period D-Day to D+30. The requirement levels off to about 800 tons per day out through D-60. This requirement only depicts that which is delivered from outside the theater. A requirement still exists for an intheater airlift of 1100 tons per day. A less than in depth review would maintain that there is excess airlift available. This is not true, however. During the period D-Day to D+25, the total requirement includes troop and unit deployments; buildup supplies; and resupply tonnages. The average daily lift requirement during this period is 5000 tons per day. A short fall of 300 tons exists. This short fall continues to increase when one includes the build up requirement of 200 additional tons per day. Also, any additional C 130 aircraft required for lift within the theater will reduce the total capability.

This analysis, of requirements versus lift capabilities, focused on the tonnages to be moved. It should be noted that the tonnage factors for the deployed units did not include those tonnages for small, light units such as postal, AG, and other personnel/finance type units. Based on this analysis, the shortfall appears to be less than expected. A reexamination of the factors used indicated that except for dense items of equipment, aircraft will cube out before they weigh out. Thus, a more exact analysis must include a detailed look at aircraft loads. The examination must look at sortie requirements and the number available to deploy a force. This type of detailed analysis would provide a true picture of the entire deployment. It must be understood that an examination of this type consumes many manhours of detailed analysis.

There are certain proposals now under consideration which can reduce some of the shortfall. These proposals are the following:

1. Increase the utilization rates of the aircraft from 10 hours to 12.5 hours per day. This would be accomplished by increasing the active force crew ratio from 2 to 2.5.

2. Increase the cargo carrying capacity of the C-141 by lengthening the fuselage by 280 inches, wing modification, and adding an inflight refueling capability.

3. Modify the wide bodied 747's to accept oversized cargo. With this modification, the 747's could accomodate 1/3 of the oversized cargo required to be moved in a situation needing strategic movement of US forces.

Without reducing the shortfalls, the theater commander must make some tough decisions as to supply priority and lift discrimination. It is he, the commander, who must make the decision: guns, bullets, repair parts, food, and people; what is the priority of shipment? It is interesting to note that these decisions can be discussed and researched before getting to the combat zone even though the final decision will be made when the force is engaged. Of course, one prime consideration which will not be known until the beginning of hostilities is the amount of airlift available for the operation. The figures used in this study represent the best estimate of those aircraft which will be available.

4. CONCLUSIONS:

a. The existing system saves money, personnel, and material.

b. Tradeoffs have no adverse effect on the system.

c. Operating systems interface is the key to systems performance. This includes the communication network.

d. Quantification of the environment cannot be made, but the environment can be predicted within acceptable limits.

e. Congress will continue to examine the DOD very carefully to determine cost effectiveness and program needs.

5. RECOMMENDATIONS:

a. Utilize existing systems for wartime and peacetime use.

b. Provide dedicated communication circuits for logistics transmissions between the theater and the CONUS logistics base.

c. Insure that system interface is accomplished through training.

d. Conduct joint exercises to test and operate the total system.

e. Examine methods to reduce the weight of deploying forces.

f. Reaffirm logistics policies to ensure that what is required is actually needed (cut the padding).

g. Perform a complete and detailed analysis and evaluation of the total strategic deployment plan to ensure feasibility.

ANNEX F

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