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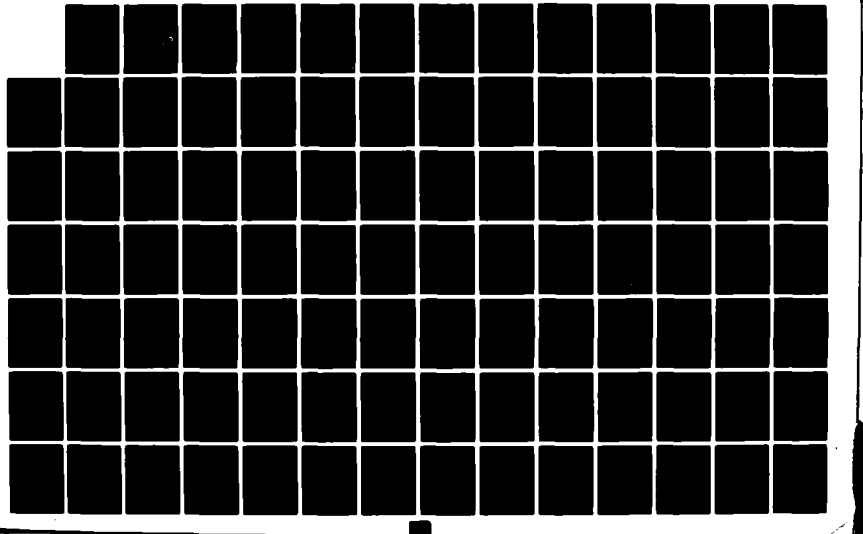

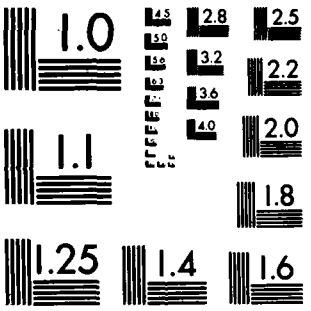

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RESERVE COMPONENT LOGISTICS RESPONSIBILITIES IN THE TOTAL FORCE

ML206

October 1982

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This report presents the effects of Total Force Policy on DoD's wartime logistics support structure. The Reserve Component now has a major responsibility for many critical logistics functions. The DoD cannot deploy and receive the surge of combat units into a theater nor support those units already in place without an immediate and significant infusion of Guard and Reserve logistics units.

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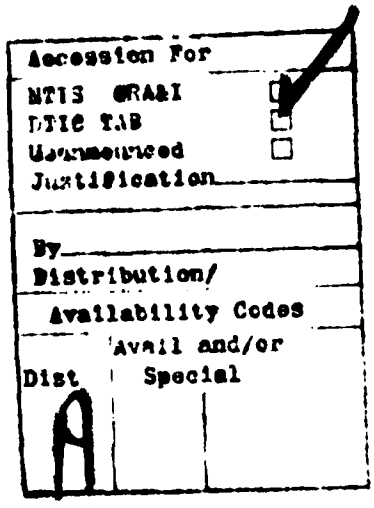
Approximately 70 percent of the Army's corps- and theater-level supply, maintenance and transportation units is in the Army National Guard and Reserve. The Air Force Guard and Reserve have 50 percent of air crews and 35 percent of maintenance assets for strategic airlift forces, 65 percent of tactical airlift capability and 64 percent of the squadrons needed to expedite cargo and units through air terminals. Surge augmentation in the Navy depends on the Navy Reserves: 10 percent for replenishment ships, 20 percent for tenders and repair ships, 40 percent for shore intermediate maintenance and 85 percent for cargo handling and fleet air transport. The Marine Corps Reserves has about 30 percent of the Corps' logistics assets; for some contingencies the dependence on Reserve bulk fuel and beach operations assets is significantly greater.

Given the Reserve Component role in the DoD's logistics force structure, ther readiness of Guard and Reserve units and their interoperability with Active combat units are critical to early and effective support in any major theater of operations.

PREFACE

The evolution of the Total Force Policy during the 1970s resulted in many critical wartime logistics functions being assigned to the Reserve Component. The nature and extent of Department of Defense dependence upon Reserve Component logistics assets is the subject of this final report and the four working notes attached as appendices. A future report will address the readiness of those assets.

The underlying study was sponsored by the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), evidencing his concern about the capability of the logistics support now assigned to the Reserve Component and its effect on U.S. capability to support forces in a developed theater and to project and sustain forces in an undeveloped theater.



EXECUTIVE SUMMARY

The advent of the Total Force Policy in the early 1970s fundamentally changed the structure of our military forces. After a decade of policy evolution, much of the DoD's logistic support has been assigned to the Reserve Component. Contingency plans best illustrate the implications of that assignment. In plans for a developed theater of operations, with forward deployed forces and an extensive national logistic infrastructure, Guard and Reserve logistics units are required immediately and in great numbers. These units are to support the combat forces in place and to transport and receive the quick infusion of additional combat elements. The dependence on Guard and Reserve logistics units is even more dramatic in an undeveloped theater. Most of the DoD's capability to project forces into such a theater and to build and sustain lines of communication is assigned to the Reserve Component.

Approximately 70 percent of the Army's corps- and theater-level supply, maintenance and transportation capability is in the Army National Guard and Reserve. Guardsmen and Reservists receive, store and distribute ammunition and petroleum; they provide intermediate maintenance in support of corps and divisional equipment; and they operate the general support supply base in theater. In a developed theater with negotiated host nation support, they dominate logistics from the rear combat zone to division rear boundaries. In an undeveloped theater, they extend their logistics responsibilities to all aspects of the surface lines of communication from the terminal/port to the division rear.

The major logistics impact of the Total Force Policy on the Air Force is on military airlift. Under the Associate Program, the Air Force Reserve provides 50 percent of the air crews and 35 percent of the maintenance assets

for the strategic airlift forces. The Air Force Guard and Reserve also provide about 65 percent of the DoD's tactical airlift capability. Their tactical airlift assets will be used in theater to reposition tactical air combat assets and to redistribute munitions from rear storage sites to newly opened, advanced bases often remotely located. In support of the airlift force, the Air Guard and Reserve provide most of the aerial port squadrons needed for packing, loading/unloading and routing of cargo.

With some notable exceptions, the Navy's approach to Total Force is to augment Active logistic capability with Reserve personnel. This augmentation is distributed across the Navy's logistics structure. Dependency on Reservists is approximately 10 percent for replenishment ships, 20 percent for tenders and repair ships, and more than 40 percent for nondeployable ship intermediate maintenance activities. The exceptions to the augmentation concept are found in two transportation functions: cargo handling and fleet air transport. More than 85 percent of the Navy's capability in those functions is in the Reserve.

The Marine Corps Reserve has 25 percent of the Corps' combat capability (the 4th Division Wing Team) and approximately 30 percent of its logistics assets (the Reserve Force Service Support Group). Even though the Reserve logistics assets are closely aligned with their counterpart combat elements, a few units, such as bulk fuel companies, will deploy early to augment Active capabilities.

Thus the projection and sustainment of any significant combat force requires a large number of Reserve Component assets. To fulfill their wartime responsibilities, Reserve Component logistics units must be fully staffed, trained, equipped, and interoperable with the combat forces they support. Since many of these Reserve logistics units deploy before Reserve combat

units, any action to enhance their readiness and interoperability will directly improve the initial combat capability of the Active Force and the combat sustainability of the Total Force.

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1. TOTAL FORCE POLICY AND LOGISTICS

During the final years of the Viet Nam War, the United States sought to significantly and permanently reduce defense expenditures, while at the same time retain the capability to fulfill national security obligations. As one approach to obtaining the desired economies, the Department of Defense reduced the strengths and capabilities of the Active Force and increased its reliance on the Guard and Reserve. In 1970, Secretary of Defense Melvin Laird announced the "Total Force Concept" which emphasized the concurrent consideration of Active and Reserve Components in developing military capability to support national strategy. Secretary Laird stated: "...Selected Reserves will be prepared to be the initial and primary source for augmentation of the active forces in any future emergency...". He also directed that the Total Force Concept be applied to all aspects of Defense resource planning and programming.

In 1973, Secretary of Defense James Schlesinger added his support for the Total Force Concept by stating "Total Force is no longer a 'concept.' It is now the Total Force Policy..." Since then, each succeeding administration has reaffirmed its commitment to the Total Force Policy.

The Military Services' implementation of the Total Force Policy in the 1970s was influenced by continued pressures to reduce active end strengths. Each selected a different approach to integrating its Active and Reserve Forces based on peacetime operating environments and wartime requirements.

While the Total Force Policy affected most aspects of military operations, its greatest impact was on the logistic support structure. The peacetime operating tempo of many combat elements generate relatively low demands

upon the military logistic system, especially when contrasted with those expected during war. These low demands allowed many logistics units to be identified as excess and transferred to the reserve forces with no apparent effect on combat readiness. In addition, numerous peacetime logistics tasks were found to be more efficiently accomplished by the private sector.

The overall effect of the Total Force Policy, combined with related budget cutting measures, is an Active logistic structure that is sized to meet peacetime, not wartime, workloads. To accomplish the immediate surge in support requirements associated with any military response and to sustain a deployed fighting force require a rapid and large expansion of the current Active logistic structure. Critical portions of this expansion must come from the Reserve Component. This report describes the DoD's dependence on Guard and Reserve supply, maintenance and transportation units after a decade of Total Force Policy evolution.

2. DEPENDENCE UPON RESERVE COMPONENT LOGISTICS UNITS

This chapter describes the dependence of the Military Services upon Reserve Component logistics units as portrayed in the current force structure. It focuses on the traditional logistics functions--supply, maintenance and transportation--which are outside the responsibility of combat divisions/wings or beyond the organic capability of combatant ships. Particular attention is provided those functions in which the Reserve Component has a critical support role.[1]

ARMY

The Army logistics units of interest are those which provide support in nondivisional areas, i.e., the corps rear and the communications zone. Their support responsibilities include all aspects of the surface lines of communication from the sea/aerial ports of debarkation forward to the combat areas. They also store and distribute such commodities as ammunition, petroleum and repair parts in the corps rear, as well as repair all theater and corps equipment.

The provision of these critical nondivisional logistic services is primarily the responsibility of the Army National Guard (ARNG) and the U.S. Army Reserve (USAR). Together, they are assigned 78 percent of the supply companies, 73 percent of the maintenance companies, and 67 percent of the transportation companies (Table 2-1).

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[1] A detailed discussion of the dependency of each Military Service upon its Reserve Components for wartime logistics functions is provided in four Working Notes under LMI Task ML206: "Army Reserve Components and Logistic Support Functions," April 1982; "Air Force Logistics and the Reserve Components," August 1982; "Navy Reserve and Logistic Support Functions," September 1982; and "Marine Corps Reserve and Logistic Support," October 1982. All four are included as appendices to this report.

TABLE 2-1. FY82 TOTAL ARMY PROGRAM

Type of Logistics Units	Total Units	Percent ARNG	Percent USAR
SUPPLY	229	19	59
Ammunition Company (Conventional)	50	22	50
POL (Petroleum, Oils & Lubricants) Company	31	7	74
End Items & Repair Parts Company	42	10	79
Other Field & General Supply Company	106	25	51
MAINTENANCE	218	50	23
Vehicle Maintenance Company	183	52	21
Watercraft Maintenance Company	3	33	33
Rail Locomotive, Car & Equipment Company	4	0	100
Aircraft Intermediate Maintenance Company (Nondivisional)	20	35	25
Special Functions Company (Calibration, Collection & Classification)	8	63	37
TRANSPORTATION	223	33	34
Vehicle (Cargo, POL Truck) Company	170	38	29
Terminal Service or Transfer Company	26	4	61
Watercraft (Boat, Amphibian) Company	13	8	54
Air (Helicopter) Company	14	57	14

Supply

While nondivisional supply companies provide most classes of supply to theater forces, they have particular significance in three crucial commodities of war: ammunition, fuel and repair parts.

Over 70 percent of the Army's conventional ammunition companies are in its Reserve Component. These companies operate all ammunition storage and transfer points in the theater; they also deliver ammunition to storage sites immediately behind the division as well as inside division boundaries.

Of the 82 petroleum distribution companies in the Army's Force Structure (including other supply companies with POL responsibilities), almost 75 percent are in the ARNG and USAR. These companies operate petroleum terminals and pipelines, pumping stations, and loading and storage facilities.

They also issue/distribute petroleum products to units in the corps area and communication zone.

The ARNG and USAR also dominate the Army's capability to stock and issue repair parts, especially those that are highly specialized or slow moving. Almost 85 percent of the Army's repair parts supply companies are in its Reserve Component. When the Army's nondivisional maintenance companies are included (they stock their own repair parts), the ARNG and USAR still provide over 75 percent of the Army's capability to stock and issue repair parts outside divisional boundaries.

Maintenance

The nondivisional maintenance companies in the Army Force Structure support a wide range of equipment, from tactical and combat vehicles to locomotives and aircraft. Most of these companies are in the ARNG and USAR.

Almost 75 percent of the Army's nondivisional maintenance capability to support tactical and combat vehicles is in its Reserve Component. The direct support maintenance companies repair end items and modules; they also adjust, align, troubleshoot and calibrate designated items in support of equipment in the corps rear area and along the theater lines of communication. The general support companies repair major assemblies, evacuate materiel to CONUS for overhaul and operate cannibalization and disposal activities. They also are the primary source of backup support to the maintenance assets in the combat divisions.

Sixty percent of the Army's capability to provide aircraft intermediate maintenance outside the divisional boundaries is in the ARNG and USAR. In addition to the aircraft repair function, these companies recover and evacuate aircraft, and calibrate Test, Measurement and Diagnostic Equipment (TMDE).

Even the Army's capability to repair harbor and landing craft is dependent upon assets from its Reserve Component. That capability is split evenly among the Active Army, ARNG and USAR--each has about one-third of the units.

In some maintenance areas, the Army is totally dependent upon the ARNG and USAR. These include collection and classification companies (which perform equipment triage by designating which equipments are to be repaired, cannibalized, or disposed), calibration companies (which calibrate and provide repair parts for all general purpose TMDE), and rail companies (which repair locomotives and rail cars).

Transportation

The nondivisional transportation assets in the Army Force Structure are primarily assigned to the Guard and Reserve. These include truck and helicopter companies, terminal service and transfer companies, and watercraft companies.

Approximately two-thirds of the Army's truck companies are in its Reserve Component. These companies transport materiel from the ocean terminals and aerial ports to direct and general support supply companies and user units within the corps rear area. The helicopter companies provide much of the same support as the truck companies except they primarily move higher priority materiel. They also offload cargo from ships to eliminate shoreline rehandling. More than 70 percent of these companies are in the ARNG and USAR.

Sixty-five percent of the Army's terminal service and transfer companies is in the Guard and Reserve. The terminal service companies offload both break-bulk and container ships; they also operate ocean terminals. The terminal transfer companies, while generally operating inland, load/offload cargo at air, rail and river terminals.

The watercraft companies operate between the cargo ships and the ocean terminal to augment the offload capability of the terminal companies. They also operate on rivers and lakes. Almost two-thirds of these companies are in the Reserve Components.

AIR FORCE

Assets from the Air National Guard (ANG) and U.S. Air Force Reserve (USAFR) constitute over 50 percent of several key logistic services outside the tactical and strategic combat aviation wings. The Reserve Component is integral to the Air Force capability to provide strategic and tactical airlift, rapid aircraft battle damage repair and aerial refueling. Of the 230 squadron-equivalents providing these services in the Total Air Force Structure, 126 are in the ANG and USAFR (Table 2-2).

TABLE 2-2. FY82 TOTAL AIR FORCE PROGRAM
(in squadron-equivalents)

Type of Unit	Total Units	Percent ANG	Percent USAFR
SUPPLY			
Air Refueling (KC-135, KC-10 aircraft)	38	18	5
MAINTENANCE			
Combat Logistics Support	11	0	55
TRANSPORTATION	181	12	49
Strategic Airlift (C-5, C-141 aircraft)	34	0	50
Tactical Airlift (C-7, C-130 aircraft)	31	35	29
Aerial Port (includes mobile sqdns)	116	10	54

Supply

Few supply functions exist outside the wing/base or depot structure. Air wings deploy with a 30-day supply of essential parts and other materiel, and merge their supply personnel with those of the receiving base. The number of supply personnel who deploy with the Guard or Reserve combat wing is tailored to offset only the increased supply burden at the wartime base, not to support Active combat assets.

The major exception to this Active/Reserve Component alignment is in aerial refueling. The ANG and USAFR provide 23 percent of the Air Force's aerial refueling capability. Aerial refueling supports bomber operations and deployment operations of CONUS-based forces by reducing the need for additional enroute bases for strategic airlift and fighter aircraft.

Maintenance

During the early stages of any war, the rapid repair of aircraft is crucial to gain air superiority and, thereby, stabilize the theater of operations. Studies have shown that adequate maintenance capability, particularly the repair of battle damage, will not be available from the committed assets organic to the air wing. To improve the aircraft battle damage repair capability, the Air Force Logistics Command established Combat Logistics Support Squadrons (CLSS), composed of highly skilled technicians specifically trained in expedient repair techniques. Six of the eleven CLSSs in the Total Air Force Structure are in the USAFR.

In wartime, the CLSSs quickly deploy into the theater and send mobile repair teams forward to operating bases. Repair teams from the USAFR dominate the rapid battle damage repair operation for many weapon systems, including the most sophisticated aircraft in the Air Force (Table 2-3).

TABLE 2-3. CLSS REPAIR TEAMS

Equipment	Total Repair Teams	Percent in USAFR
A-10	11	36
F-15	7	71
F-16	5	60
F-4	18	55
C-130	10	90
C-141	2	50
KC-135	2	50
B-52	4	50
Engines	74	54

Transportation

As the Single Manager for Airlift, the Air Force provides airlift transportation for all components of the Department of Defense. Overall, the ANG and USAFR provide 62 percent of the units that operate and support the DoD's air lines of communication.

Of the 34 Air Force squadrons dedicated to the strategic airlift mission, 17 are in the USAFR. These USAFR units are organized as associate squadrons, providing air crews (50 percent of the Air Force's total) and maintenance personnel (35 percent of the total) but share the aircraft with collocated Active units.

Two-thirds of the Air Force tactical airlift capability is in the Guard and Reserve. This capability is key to the rapid repositioning of troops or materiel within theater. The aerial port capability, which supports both strategic and tactical movements, is primarily assigned to the USAFR (65 percent of the aerial port units). These critical material handling, offloading and routing functions cannot be accomplished effectively without Reserve aerial port assets.

NAVY

The primary mission of the Navy Reserve is to augment Active logistics units to enlarge their capacity to accommodate increased wartime workload. In

a few cases, the Reserve provides entire units which operate independently in support of the fleet. The Navy's major dependency upon the Reserve occurs in transportation, with some significant dependencies also occurring in a few supply and maintenance organizations.

This assessment of the Navy's dependence on the Reserve is based upon the mobilization billets of selected logistics support organizations. The specific types of organizations, by logistics function, are shown in Table 2-4.

TABLE 2-4. PRIMARY NAVY LOGISTICS ORGANIZATIONS

Function/Type of Organization	Reserve % of Total Positions
SUPPLY	
Underway Replenishment Ship	9
Supply Center and Depot	16
Air Station Supply Department	14
Weapons Station[1]	28
Advance Supply Base	100
MAINTENANCE	
Destroyer Tender/Repair Ship	19
Shore Intermediate Maintenance Activity	46
Submarine Tender	16
Submarine Support Facility	34
Aircraft Intermediate Maintenance Department (Aircraft Carrier)	2
Aircraft Intermediate Maintenance Department (Air Station)	23
Naval Station (Aircraft Support)	19
TRANSPORTATION	
Underway Replenishment Ship	9
Fleet Logistics Support Squadron	86
Carrier On-Board Delivery Squadron	7
Military Sealift Command Office[1]	62
Naval Control of Shipping Office[1]	100
Cargo Handling Battalion	86

[1]Includes current civilian positions but not civilian mobilization increases.

Supply

Reserve augmentation in the supply area ranges from 9 to 28 percent and averages 18 percent. The greatest augmentation occurs at the naval weapons stations. The Navy's five weapons stations, all in the Continental United States, overhaul, rework, produce, store, transship and distribute ordnance and weapons. Although predominantly staffed by civil service personnel, approximately 28 percent of 10,000 mobilization positions in the five weapons stations are for Reservists (not counting civilian workforce increases during mobilization). At two of the stations -- the ammunition outload ports at Earle, New Jersey and Concord, California -- the dependency exceeds 40 percent.

Reserves are also critical to the establishment of advance supply bases, which do not exist in the Active Navy. Examples of these bases include supply storage facilities, material handling facilities and tank farms. The advance supply bases needed to support operational plans require slightly more than 800 positions. All are programmed to be filled by Reservists.

Maintenance

Most Navy maintenance organizations depend upon Reserve augmentation for less than 20 percent of their strength. A few are significantly higher -- shore-based intermediate maintenance activities for surface ships, submarines and aircraft.

The Navy's seven shore intermediate maintenance activities (SIMAs) for surface ships accomplish those ship repairs which do not require the use of a drydock or heavy industrial facilities. Operating in fixed facilities, SIMAs maintain electronics, hull, mechanical and electrical equipment; they fabricate some parts and fixtures, and perform some underwater repairs. Their wartime staffing is approximately 46 percent dependent upon augmentation from the Selected Reserve, with individual SIMAs varying from 42 to 57 percent.

The Navy's two shore facilities for submarine intermediate maintenance are located at New London, Connecticut and at Pearl Harbor, Hawaii. Although they provide a wide variety of submarine support services, their repair mission is analogous to that of a SIMA for surface ships. Overall, the New London facility is 20 percent dependent upon Reserve augmentation and Pearl Harbor is 31 percent dependent.

Aircraft intermediate maintenance is performed by specifically designated aircraft intermediate maintenance departments (AIMDs). Their missions include calibration, repair, modification and check of components, assemblies and related support equipment. Thirty-nine AIMDs support tactical and patrol fleet aircraft: 14 aboard aircraft carriers, 12 in CONUS and 13 overseas.[2] Those aboard aircraft carriers are minimally dependent (2 percent) upon Reservists while those at shore-based activities are significantly more dependent (averaging 23 percent, with a high of 31 percent).

Transportation

The Navy's primary organic transportation assets are the underway replenishment ships, naval aircraft in transport squadrons supporting intra-theater fleet operations, and carrier onboard delivery aircraft. They are supported by specialized organizations for cargo handling and for management, coordination and control of cargo.

The underway replenishment ships are minimally dependent upon the Reserve (i.e., less than 10 percent) while most of the remaining transportation organizations are heavily dependent. Fleet logistics support squadrons provide a rapid transportation link between the theater aerial and sea ports of debarkation and shore-based air facilities in close proximity to the operating fleet. Ten of the eleven fleet logistics support squadrons are in the

[2]Another 20 support training and specialized missions.

Reserve. Approximately 85 percent of the total billets in these squadrons are assigned to the Reserve (2,621 of 2,708). In contrast, the three carrier onboard delivery squadrons are augmented by Reservists at a level of only 7 percent.

The Navy, as the Single Manager for Sealift, requires several specialized organizations to support the sea lines of communication. Over 60 percent of the billets in Military Sealift Command (MSC) offices, which assist in coordinating the movement of ship cargo, are filled by Reservists. Worldwide Naval Control of Shipping Offices, which primarily route ocean traffic, are staffed exclusively with Reservists. The Reserve also provides six of seven cargo handling battalions, covering 1,700 of 1,980 positions or 86 percent of the Navy's deployable capability.

MARINE CORPS

The primary source of logistics support for a deployed Marine Force is the Force Service Support Group (FSSG). FSSG units provide extensive supply, maintenance and transportation support which is not available from organic elements of the combat units. In peacetime, logistics units in the Marine Corps Reserve are organized into a FSSG that is associated with the Marine Reserve's 4th Division-Wing Team (DWT). The Reserve FSSG provides slightly more than one-fourth of the total FSSG logistics capability of the Marine Corps (Table 2-5).

The need for Reserve logistics units is greater than the current force structure suggests. The primary wartime mission of many Reserve FSSG units is to augment (i.e., fill unit-sized gaps) or reinforce (i.e., provide additional capability) the logistics element of a deploying Active Marine Air-Ground Task Force. Some Active logistics units are currently understaffed (especially those providing bulk fuel, ration and ammunition services) and require immediate augmentation by Reserve units at mobilization.

TABLE 2-5. FY82 TOTAL MARINE CORPS PROGRAM

Type of Logistics Unit	Total Units	Percent Marine Reserve
SUPPLY	17	29
Supply Company	4	
Ration Company	4	
Ammunition Company	4	
Bulk Fuel Company	5	
MAINTENANCE	16	25
Motor Transportation Maintenance Company	4	
Engineer Maintenance Company	4	
Electronics Maintenance Company	4	
General Support Maintenance Company	4	
TRANSPORTATION	23	26
Landing Support Company	11	
Beach & Port Operations Company	4	
Truck Company	4	
Transport Company	4	
Marginal Terrain Vehicle Company (cadre)	0	

Supply

Of the 17 supply companies in the FSSG structure of the Total Marine Corps, five (29 percent of the total capability) are in the Reserve FSSG. These supply companies provide all classes of materiel to a deployed force. They manage and store materiel in the beach or port area and then distribute it, via truck companies, to combat battalions.

Maintenance

Maintenance units in the FSSG perform intermediate-level maintenance in support of deployed ground forces.[3] With the exception of the general support (GS) maintenance company, they are deployed in two sections, one near the port in fixed facilities, the other as forward contact teams giving direct

[3]Aircraft intermediate maintenance capability is organic to the Air Wing.

assistance to combat units. Operating out of fixed facilities near the port area, the GS maintenance company provides the most comprehensive level of repair available in theater. The FY 82 Marine Corps Structure authorizes 16 FSSG maintenance companies; four are in the Reserve.

Transportation

Marine Corps doctrine requires that each FSSG has three landing support companies and one each of the following companies: beach and port operations, truck, transport and marginal terrain vehicle. These companies support initial landing assaults and sustain logistics operations in the established landing area. In conjunction with Navy cargo handling battalions (predominantly Naval Reservists) they link the Marine combatants with afloat sources of supply. Currently one Active landing support company is at zero staffing, as are all marginal terrain vehicle companies. Of the 23 FSSG transportation companies, six (26 percent) are in the Reserve.

3. WARTIME IMPLICATIONS

The wartime logistic structure is dominated by units and personnel from the Reserve Component. While the Guard and Reserves have historically played a major role in the logistic support of any war, the magnitude, urgency and hence significance of their current logistics responsibilities have never been so great. Today, the U.S. cannot mount a significant land combat operation without calling immediately upon a large number of Guard and Reserve logistics units to project forces by air and to flesh out and establish effective surface lines of communication.

DEVELOPED THEATER

Scenarios involving operations in a developed theater are normally associated with large scale military operations -- a general war. Plans in support of the forward deployed U.S. forces in Europe require Reserve Component logistics units to be among the earliest CONUS-based units into theater. While total mobilization of the Selected Reserve is envisaged under this scenario, logistics units (especially transportation) are among the most urgently needed.

Nearly one-half of the Total Army's nondivisional support capability will deploy into theater within the first 60 days with three-fourths of those units being Guard and Reserve. This massive expansion of the theater logistics structure is indicative of the limited capability available to forward deployed Active units during peacetime. Within the first few weeks, one-half of the nondivisional capability of each forward deployed corps will be provided by Guard and Reserve units. Additional corps deployed into theater will be almost exclusively supported by Reserve Component units. The operation and

support for movement of supplies along the surface lines of communication from the ports of debarkation to the corps areas will be the responsibility of Reserve Component units in conjunction with prearranged support provided by several host nations.

Initially, the primary means of moving combat units forward into wartime locations will be airlift -- strategic and tactical. The planned rapid infusion of forces into the European theater requires maximum use of all strategic airlift assets. The Air Force Reserve associate squadrons will provide the personnel to support the increased usage of the C-5 and C-141 fleets. Plans call for these units to be fully integrated with their Active counterparts within 72 hours. The tactical airlift units will reposition combat assets within the theater, especially fighter units and priority munitions. The C-130 squadrons from the Guard and Reserve, which are critical to this repositioning, must be in theater within 72 hours.

This dramatic increase in airlift traffic will require a substantial increase in air terminal capability to ship, receive and manage cargo. Many Active aerial ports squadrons will move forward in theater to open reception ports and manage the offloading of troops and supplies during the initial surge. Guard and Reserve squadrons will assume the strategic aerial port of debarkation (APOD) tasks vacated by Active units and open new ports; others will deploy forward to support tactical airlift operations. The staffing of a typical APOD is 80 percent dependent on the Reserve Component. Many Guard and Reserve aerial port units will deploy within 36 hours of mobilization to complete the air lines of communication.

Most Navy Reserve logistics units will deploy quickly after mobilization to augment Active units. Fleet logistics support squadrons will be needed immediately to link the deployed fleet with the ports of debarkation for the movement of high priority cargo.

Marine Corps Reserve logistics units will be required quickly to support the operations of the 4th Division-Wing Team (also in the Reserve). Additionaly, some units will augment Active logistic organizations to compensate for their lack of capability.

UNDEVELOPED THEATER

Operations in an undeveloped theater are characterized by a projection of a lesser combat force into a region with little or no available national logistic infrastructure. Consequently, that force must be self sufficient. Since the Active Force does not contain enough logistics assets to support limited operations in one theater as well as peacetime requirements in other theaters, heavy reliance on Guard and Reserve logistics units is inevitable.

The ability to rapidly move a significant land combat force depends on the immediate availability of Air Force Reserve associate squadrons to increase the utilization of the strategic airlift assets. While the forces required to be moved will be fewer than in support of a general war, the distances will be greater resulting in extended sortie times. The Active Air Force does not have the crews and maintenance capability to meet these requirements.

The establishment of a logistic system to support land operations in an undeveloped theater will require significant Army Guard and Reserve logistics assets. Those assets will provide many of the same services available from commercial sources in a more developed theater. Deployment plans for a high priority undeveloped theater show that the Guard and Reserve will provide 80 percent of the petroleum support units, 62 percent of the terminal companies, 49 percent of the truck companies and 45 percent of the ammunition companies.

To support operations in an undeveloped theater, the Navy will require several fleet logistics support squadrons and cargo handling battalions. The

squadrons will tie the deployed fleet with the theater logistics system, while the battalions will support Marine Corps operations in the landing area. Most of these squadrons and battalions will be from the Navy Reserve.

Although the Marine Corps will primarily use Active combat units in the undeveloped theater, several company-sized logistics units from the Reserve will be mobilized to round out the Force Service Support Group of the deploying force. Staffing deficiencies and other contingency requirements do not allow deployment of a complete Force Service Support Group from the Active structure to support these operations.

ASSESSMENT

To successfully carry out their critical wartime responsibilities, Reserve Component logistics units must be fully staffed, trained and equipped prior to mobilization. They also must be fully interoperable with all equipments, systems and procedures of the Active Force. If they are not, then the Total Force will not be effective -- we will be unable to quickly project and sustain any significant military force.

APPENDIX A

WORKING NOTE: ARMY RESERVE COMPONENTS AND LOGISTIC SUPPORT FUNCTIONS

(ML206-1)

April 1982

Edward D. Simms
Chris Demchák

APPENDIX A

PREFACE

This working note documents the dependency of the Total Army on Reserve Component logistic units. It concentrates on the missions of Reserve Component logistic units and the logistic system within which those units must operate. This overview of the Army logistic system, as programmed for 1982, in some respects may be at variance with the latest Army doctrine. Because it addresses a logistic structure that can only be changed slowly, we believe variances are minor and do not flaw the note's usefulness at this stage of research into the dependency of the Total Army on Reserve Component logistic units.

Comments and corrections to the factual content of the working note are invited.

APPENDIX A

TABLE OF CONTENTS

A.1. INTRODUCTION

PURPOSE

The study plan for "Readiness of Reserve Logistics Units" (LMI Task ML206) calls for the preparation of three working notes. In this first working note we identify the wartime logistics support functions supplied by the Reserve Component (RC) of the U.S. Army -- the Army National Guard (ARNG) and U.S. Army Reserve (USAR). Additional working notes present similar data for the Air Force, Navy, and Marine Corps.

SCOPE

Our review of ARNG and USAR logistics focuses on units providing traditional support in nondivisional areas (i.e., the communication zone and rear corps area). That support is confined to the following functions:

- Supply: to provide ammunition, petroleum, repair parts, heavy materiel items, food, tents, and clothing.
- Maintenance: to repair and maintain vehicles, watercraft, rail cars, locomotives, and aircraft; to provide test equipment calibration and battle damage assessment.
- Transportation: to operate trucks, tankers and transport helicopters; to move cargo through fixed and beach terminals; and to provide boat and amphibious landing services. Every time cargo changes mode (rail to truck or air to rail), a transportation unit operates the transfer point and moves the cargo.

The FY82 Total Army Structure contains 670 supply, maintenance, and transportation units, of which 487 are in the Reserve Component. In this working note, we contrast the logistics support assigned to the RC with that in the Active Component's (AC) inventory.

During the balance of the task, we will augment the data presented in this working note with:

- time phasing of RC units after mobilization for a NATO or Southwest Asia scenario
- ARNG and USAR functions affected by force modernizations
- adequacy of existing readiness indicators for ARNG and USAR logistics units.

STUDY APPROACH

Our review of the logistics functions supplied by RC units draws upon existing doctrine for those units, even though the full effect of the Army-wide doctrinal review begun in the early 70s has not yet percolated throughout Army literature. The logistics units examined are those assigned to corps or echelons above corps and, consequently, the missions and functions of a few units may differ slightly in practice from what we present.

To the extent possible, we outline the Army's logistics system, discuss the specific logistics functions culled from field manuals and tables of organization and equipment (TOEs), and define the RC's contribution toward the Total Army's capability to perform those functions.

A.2. TOTAL ARMY STRUCTURE AND RESERVE LOGISTICS UNITS

FORCE INCREMENTS

The "Total Force" concept, announced in late 1969 by the Secretary of Defense, sets the stage for today's Total Army Structure. The Active and Reserve Components are to form a single independent Army[1]. ARNG and USAR logistics capabilities are crucial to the total structure. The next war may be "come as you are" but the Army won't be landing, shooting and moving for long without RC units to provide ammunition and fuel and to repair equipment.

The magnitude of RC contribution is obvious from a breakout of the Army's structure. Personnel are divided according to the functions they perform: combat, nondivisional combat, and tactical support increments. A portion of each function is grouped into a "division-equivalent force." The Army has 24 such forces. The ARNG and USAR contribute 8 of the 24 combat divisions, 12 of 24 nondivisional combat increments, and 12 of 24 tactical support increments, with another 6 of the support increments unmanned. Figure A.2-1 shows the three increments and Figure A.2-2 presents the relative RC contribution of each based on personnel spaces.[2]

RESERVE LOGISTICS UNITS

The ARNG and USAR contribution to the Total Army Structure is not distributed equally across all increments. As Figure A.2-2 shows, the Active Component (AC) retains most of the combat forces (16 divisions) and smaller

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[1] See Appendix A for a summary history of the ARNG and USAR.

[2] Source: Office of Force Development, Department of the Army.

FIGURE A.2-1. A ONE-DIVISION-EQUIVALENT FORCE

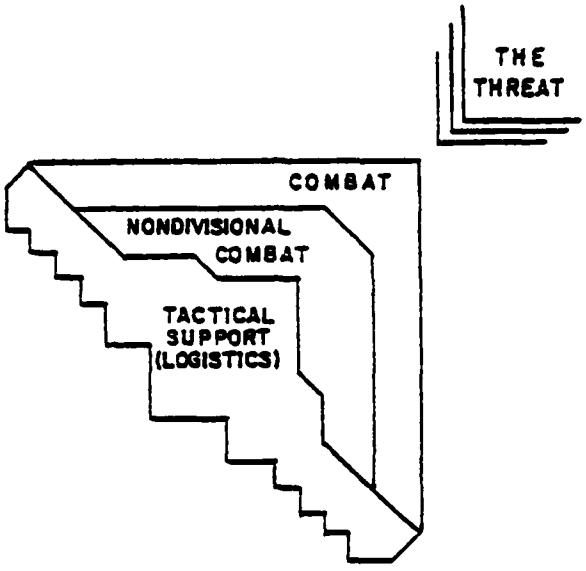
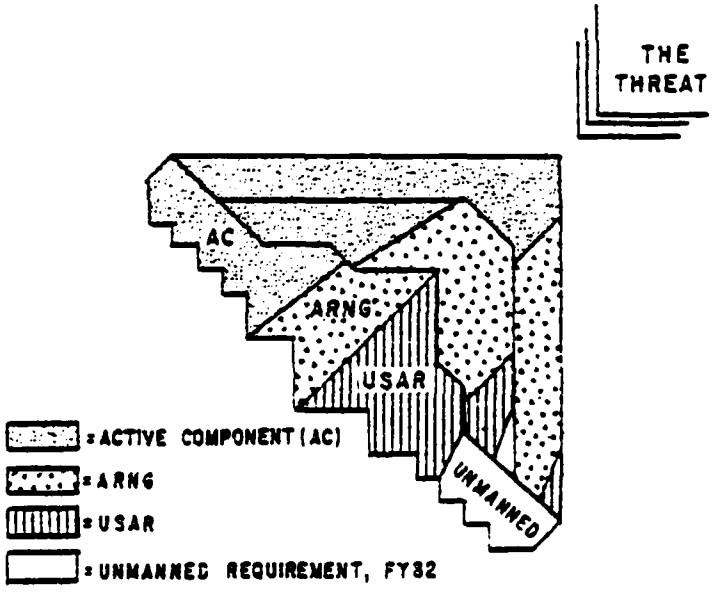


FIGURE A.2-2. RELATIVE CONTRIBUTION OF RC TO COMBAT, NONDIVISIONAL COMBAT AND TACTICAL SUPPORT INCREMENTS



portions of the nondivisional combat and tactical support. The logistics support provided by nondivisional units is included in the tactical support increment, where the RC comprises 50 percent of the billets.

ARMY ORGANIZATION IN THEATER

Since RC logistics units will primarily be assigned to the Theater Army (TA) and the corps, understanding those organizations is critical to understanding the full effect of the RC contribution to the Army's logistics capability.

A theater of operations is normally divided into a combat zone and a communication zone (COMMZ); the operational situation, however, may not permit a clear delineation between the two zones.[3] The combat zone is that part of the theater in which the combat forces conduct operations; it contains the necessary organic combat support and combat service support facilities. Geographically, the combat zone (also called the corps area) includes the area extending from the rear boundary of the corps into the area controlled by the enemy. There may be several corps in one theater of operations or one corps area may be the entire theater.

When control of the rear area of the theater becomes impracticable or when there is more than one corps in the theater, a COMMZ is then established.[4] The COMMZ encompasses the territory to the rear of the corps area, including the lines of communication (LOC). Logistics units assigned to the COMMZ generally will be aligned along the LOC to augment logistics support in the corps area.

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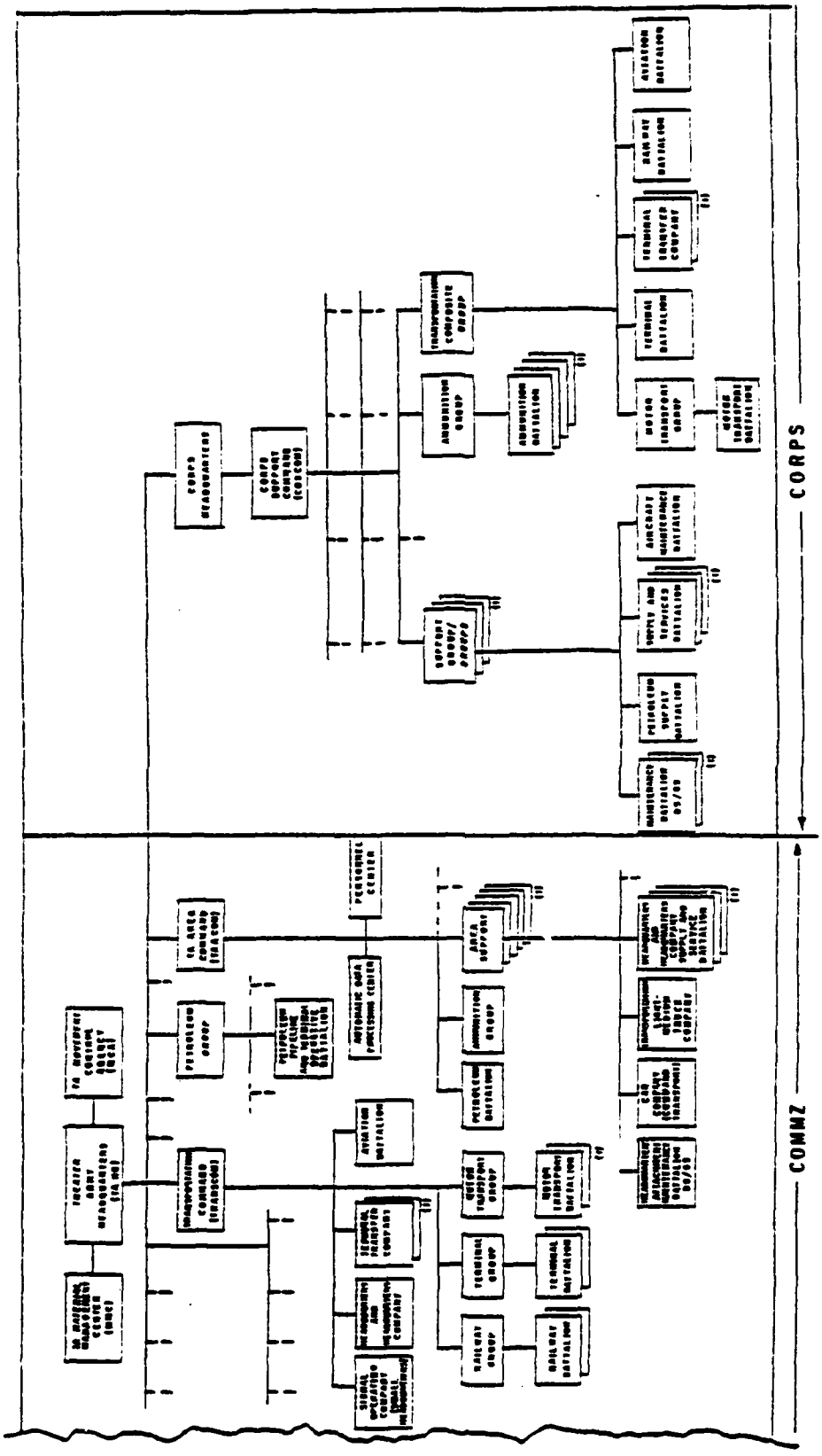
[3]Source: Field Manual (FM) 54-7, Theater Army Logistics.

[4]Source: FM 100-10, Combat Service Support.

Within the TA, supply and maintenance units are assigned to the Theater Area Command (TAACOM) while the transportation assets are under the direction of the Transportation Command (TRANSCOM). In the corps area, the Corps Support Command (COSCOM) is assigned logistics responsibility. Figure A.2-3 shows how the TAACOM, TRANSCOM, and COSCOM are integrated into the overall theater structure, down to the battalion level. The specific logistics units in those battalions are discussed in Chapter 3.

FIGURE A.2-3. STRUCTURE OF THEATER ARMY



A.3. LOGISTICS UNITS

Table 3-1 lists all nondivisional supply, maintenance, and transportation units programmed by the Army for FY82 by component. Approximately 78 percent of the Army's nondivisional supply units are in the RC (19 percent in the ARNG, 59 percent in the USAR). The RC has approximately 73 percent of the maintenance units (50 percent in the ARNG, 23 percent in the USAR) and 67 percent of the transportation units (33 percent in the ARNG, 34 percent in the USAR). In the balance of this chapter, we discuss the specific missions of the RC logistics units and the dependency of the Army upon those units for logistics support in wartime.

SUPPLY

Doctrine

The Army recognizes ten classes of supply[1]. Nondivisional supply companies provide eight of the ten commodities to the COMMZ and corps area (all classes except Classes VIII and X). They coordinate their inventories with either the COSCOM Materiel Management Center (MMC), the TAACOM MMC or the TA MMC.[2] Requisitions flow from a user unit through the command chain to an MMC and then, if necessary, to CONUS. Supplies return directly to the unit or to supply companies for distribution. Figure A.3-1 illustrates the overall flow of supplies.

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[1]The classes are: I, subsistence items; II, clothing and individual equipment; III, POL items; IV, construction materiel; V, ammunition; VI, nonmilitary sales items; VII, major end items; VIII, medical materiel; IX, repair parts; and X, nonmilitary program materiel.

[2]Requisitions and stocks of some specialized items are controlled solely through the TA MMC.

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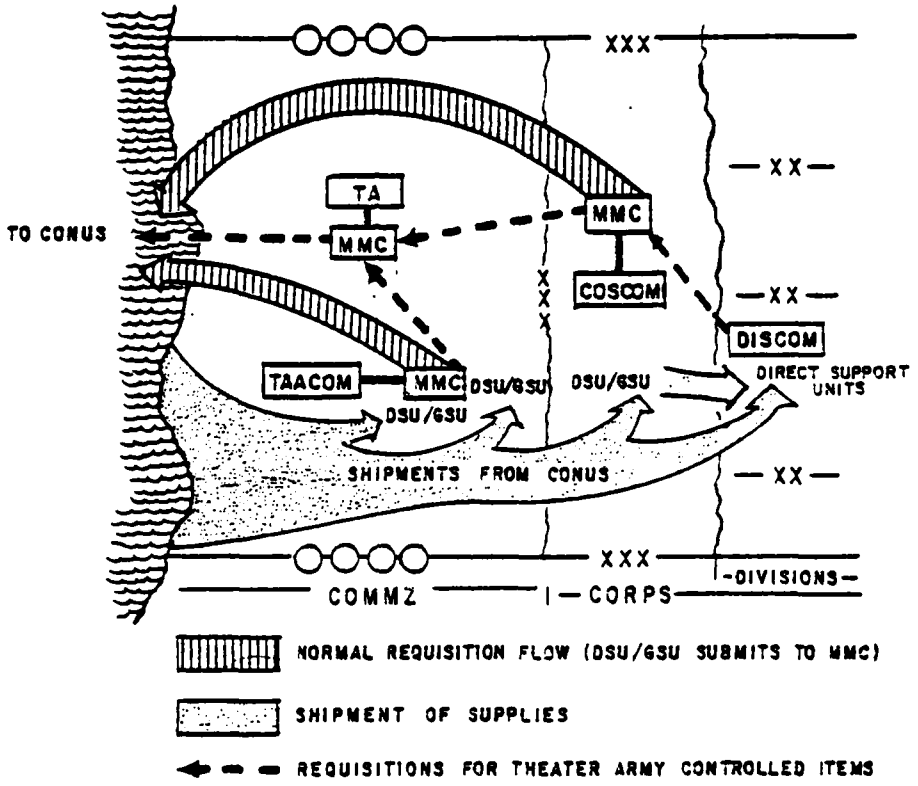
TABLE A.3-1. FY 82 TOTAL ARMY PROGRAM

Type of Logistics Unit and TOE Number		Total	AC	ARNG	USAR
SUPPLY		229	50	44	135
Ammunition					
9-38 Conventional Ammunition Supply Co.	Total	50	14	11	25
POL (Petroleum, Oils, & Lubricants)					
10-207 POL Pipeline & Terminal Operating Co.		8	3	0	5
10-227 POL Supply Co.		23	3	2	18
	Total	31	6	2	23
End Items & Repair Parts					
29-119 Repair Parts Supply Co.		25	4	0	21
29-127 Heavy Material Supply Co.		17	1	4	12
	Total	42	5	4	33
Other					
29-114 Field Service Supply Co., Forward, GS		21	4	4	13
29-118 General Supply Co.		31	5	8	18
29-147 Supply and Service Co.		51	15	15	21
10-407 Airdrop Supply Co.		3	1	0	2
	Total	106	25	27	54
MAINTENANCE		218	59	108	51
Vehicle					
29-134 Light Equipment Maintenance Co., GS		23	2	8	13
29-137 Heavy Equipment Maintenance Co., GS		55	11	39	5
29-207 Maintenance Co., Forward, DS		26	0	21	5
29-208 Maintenance Co., Rear, DS		9	4	1	4
29-209 Maintenance Co., Nondivisional, DS		47	28	11	8
29-427 Maintenance Co., DS		23	5	15	3
	Total	183	50	95	38
Water					
55-157 Floating Craft GS Maintenance Co.		2	1	1	0
55-158 Lighterage Maintenance Co.		1	0	0	1
	Total	3	1	1	1
Rail					
55-229 Railway Equipment Maintenance Co.		1	0	0	1
55-247 Diesel-Electric Locomotive Repair Co.		1	0	0	1
55-248 Railway Car Repair Co.		2	1	0	2
	Total	4	1	0	4
Air					
55-459 Aircraft Maint. Inter. Support Co.	Total	10	8	-	5
Special Functions					
29-129 Calibration Co.		1	0	1	0
29-139 Collection & Classification Co.		4	0	4	0
	Total	5	0	5	0
TRANSPORTATION		123	24	74	25
Vehicles					
55-[illegible] Light Truck Co.		13	5	7	1
55-19H610 Medium Truck Co., Cargo		60	24	16	18
55-19H620 Medium Truck Co., POL		27	6	8	13
55-19 Car Company, Command Transport		7	2	5	0
55-29 Heavy Truck Co.		16	3	4	9
55-[illegible] Light-Medium Truck Co.		47	16	22	9
	Total	170	56	64	50
Terminals					
55-[illegible] Terminal Service Co. (Break-Bulk)		10	1	1	8
55-118 [illegible]rminal Transfer Co.		13	4	0	9
55-119 Terminal Service Co. Container		3	3	0	0
	Total	26	8	1	17
Watercraft					
55-128 Medium Boat Co.		5	2	1	2
55-129 Heavy Boat Co.		5	3	0	2
55-138 Light Amphibian Co.		1	0	0	1
55-139 Medium Amphibian Co.		3	3	0	0
	Total	14	8	1	5
Air					
55-167 Medium Helicopter Co.		8	4	0	4
55-259 Heavy Helicopter Co.		6	0	6	0
	Tot	14	4	6	4

Source: Office of Force Development, Department of Army.

FIGURE A.3-1. THEATER ARMY SUPPLY SUPPORT



The supply companies receive supplies by truck, rail, or air (and perhaps by pipeline for petroleum) and store them in bins, bunkers, tanks, or parks for eventual issue. Supply companies are distributed along main supply routes (MSR). Direct support (DS) units are located in both the corps area and COMMZ while general support units are located only in the COMMZ. DS units in the corps area support divisional units through a division support command (DISCOM). Table A.3-2 provides the specific mission of each nondivisional supply company.

TABLE A.3-2. SUPPLY COMPANIES

Company	TOE	Mission
Conventional Ammunition Supply Company	9- 38	Establishes and operates ammunition supply facilities to receive, store and issue conventional ammunition (tank farms and bunkers), assigned to TRACOM and COSCOM and attached to a Conventional Ammunition Battalion.
POL Pipeline and Terminal Operating Company	10-207	Operates petroleum terminal and pipeline; ships bulk petroleum products through 100 Km of multiproduct pipeline; operates pump stations, tank farms, loading facilities; tactical marine terminals, theater reserves and fuel system supply points to support POL Supply Companies in theater; assigned to TRACOM or COSCOM and attached to a Petroleum Pipeline and Terminal Operating Battalion.
POL Supply Company	10-227	Establishes and operates 1-2 temporary storage facilities for wholesale transfer operations to division support commands and to other DS supply and service companies operates collapsible bulk tanks at 2 locations; maintains corps reserve stocks; assigned to COSCOM and attached to a Petroleum Supply Battalion.
Repair Parts Supply Company	29-119	Provides GS repair parts supply excluding aircraft and avionics parts in the COMMZ; assigned to TRACOM or COSCOM and attached to a Supply and Services Battalion.
Heavy Material Supply Company	29-127	Receives, stores, processes, performs in-storage organizational maintenance and issues all types of self-propelled towed, wheeled, and tracked equipment (save aircraft, marine, and rail mission equipment, to divisions and nondivisional DS units also bridging and construction supplies and some war reserves; assigned to TRACOM or COSCOM and attached to a Supply and Services Battalion.
Field Service, General Support Forward Company	29-114	Provides GS in the following services: laundry and lightweight textile renovation, graves registration, bread baking, and salvage collection; supplements the services of the DS field service company; assigned to COSCOM and attached to a Supply and Services Battalion.
General Supply Company	29-118	Establishes and operates a general supply facility, excluding medical, crypto, airdrop, marine, and rail supplies; provides refrigeration support and handles the receipt, storage, and distribution (but not requisition of Classes I, II, III (packaged), and VI supplies; assigned to TRACOM or COSCOM and attached to a Supply and Services Battalion.
Supply and Service Service Company	29-147	Supports nondivisional units with Classes I, II, III and VII supplies; issues bulk or packaged POL from organic fabric tanks; assigned to TRACOM or COSCOM and attached to a Supply and Services Battalion.
Airdrop Supply Company	10-407	Provides parachute packaging, temporary storage and rigging of supplies and equipment for airdrop; assigned to TRACOM and attached to a Supply and Service Battalion.

Most of the DS and GS supply companies are attached to Supply and Services (S&S) Battalions assigned to a TAACOM or COSCOM. Figure 3-2 shows the structure of the TAACOM and COSCOM S&S Battalions. Petroleum companies are attached to a Petroleum Pipeline and Terminal Operating Battalion in the TAACOM and to a Petroleum Supply Battalion in the COSCOM (Figure A.3-3). Conventional Ammunition Companies are assigned directly to an Ammunition Battalion in both the TAACOM and COSCOM (Figure A.3-3).

In peacetime, these supply units are not the main source of materiel. Consuming units maintain a unit supply of basic, high-volume items, many of which are shipped directly from CONUS. Supply companies store low-volume items which have unpredictable demand rates or require specialized equipment to offload and store. In wartime, shipments from CONUS direct to user units may not be possible; theater supply companies will become the major sources of supply.

Force Structure

In its FY82 force structure, the Army has 229 supply companies (Table A.3-3). Approximately 78 percent of those companies (179) are in the RC. The ARNG and USAR are assigned 36 of the 50 ammunition companies (72 percent), 25 of 31 POL companies (81 percent), 37 of 42 end items and repair parts companies (89 percent), and 81 of 106 general purpose supply companies (76 percent).[3]

Section 4 describes the logistics system supporting three high priority commodities in which the RC has most of the Army's capability: ammunition, petroleum and repair parts.

[3]Nondivisional aviation parts supply is provided by the Aviation Intermediate Maintenance Company.

FIGURE A.3-2. SUPPLY AND SERVICE BATTALIONS

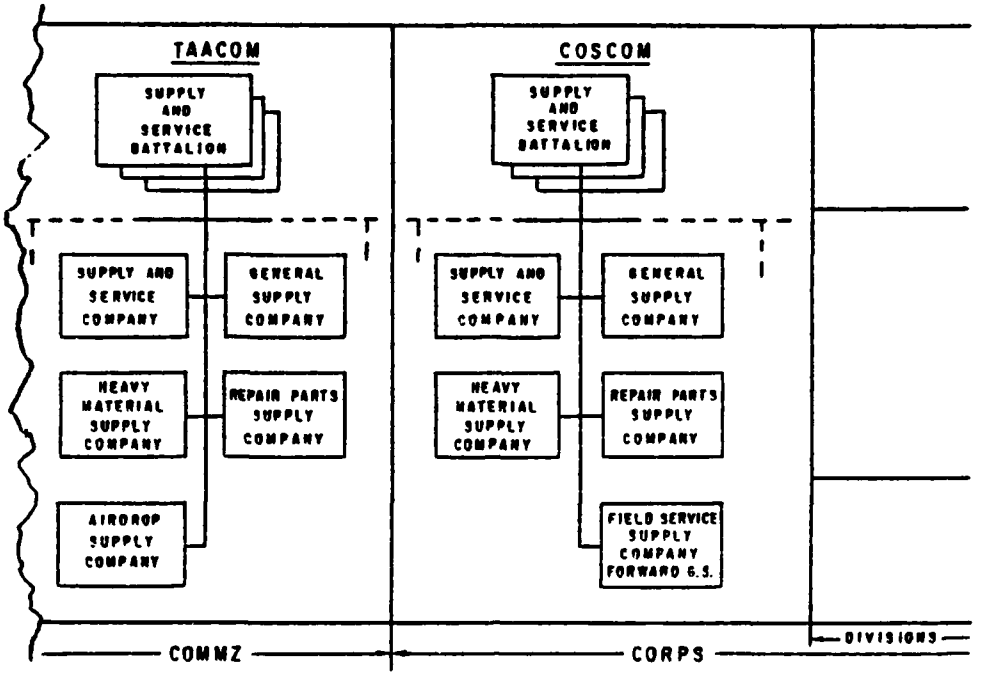


FIGURE A.3-3. PETROLEUM AND CONVENTIONAL AMMUNITION BATTALIONS

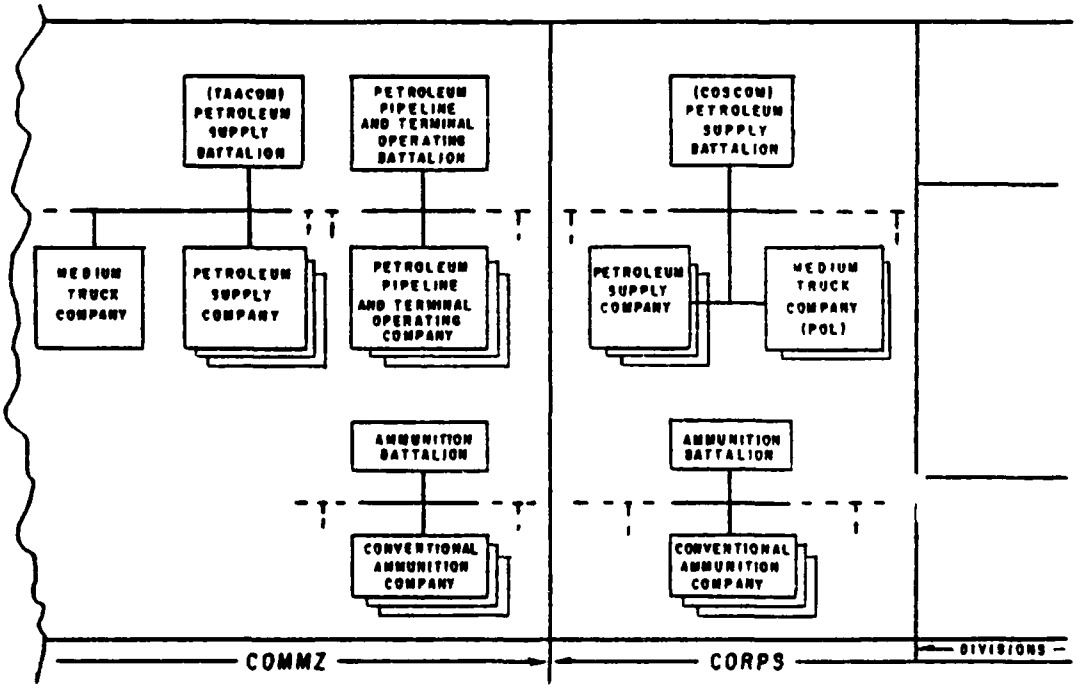


TABLE A.3-3. RC CONTRIBUTION TO SUPPLY

Type of Unit[1]	Total Units	Percent		
		ARNG	USAR	Total RC
Ammunition	50	22	50	72
POL	31	7	74	81
End Items & Repair Parts	42	10	79	89
Other	106	25	51	76
Total Supply	229	19	59	78

[1]Headquarters and Headquarters Companies are not included.

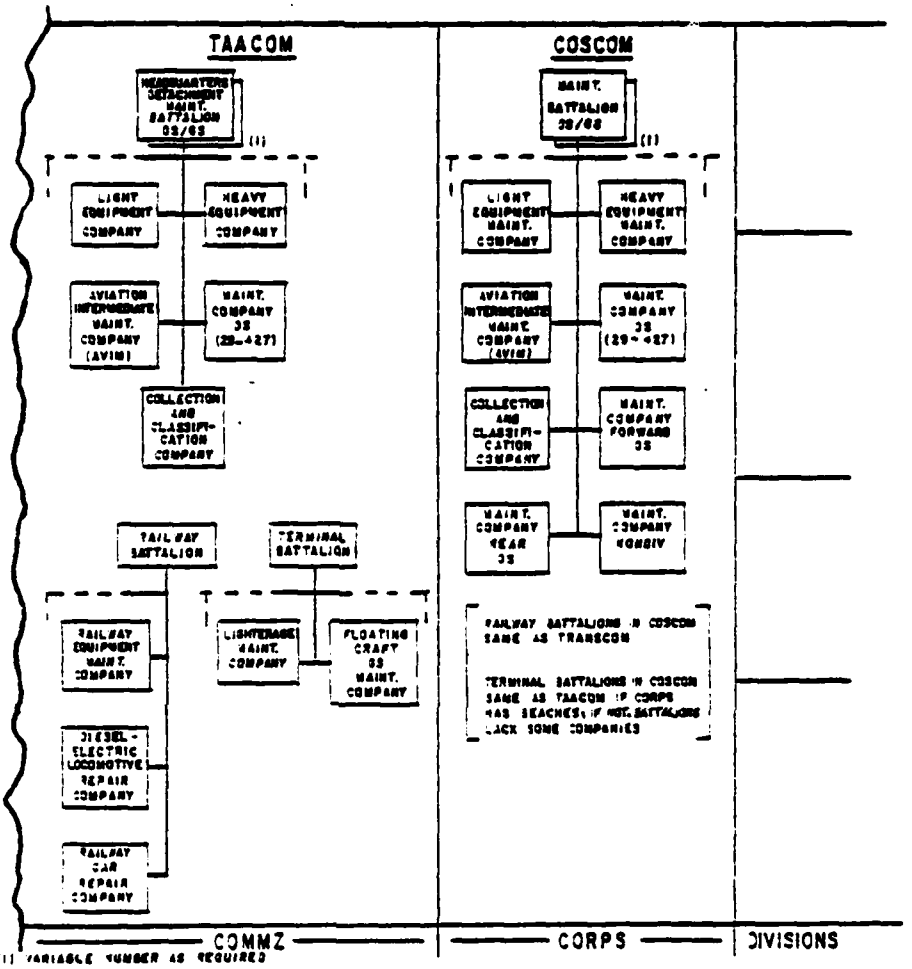
MAINTENANCE

Doctrine

The primary responsibility of nondivisional DS and GS maintenance companies is to provide intermediate maintenance in support of theater and corps equipment and back-up direct support for division equipment. Most nondivisional maintenance units are assigned to DS/GS Maintenance Battalions in a TAACOM or COSCOM. The doctrinal structure of the DS/GS Maintenance Battalion is displayed in Figure A.3-4; the specific mission of each company is defined in Table A.3-4.

DS companies repair end items and some modules as well as adjust, align, troubleshoot and calibrate designated items. They supply low dollar value, high demand repair parts to supported units as well as specialized components, critical items and assemblies. Corps DS Forward Maintenance Companies are located close to the division rear boundary and have less equipment and capability than a DS Rear Maintenance Company. Theater DS Maintenance Companies support units in the COMMZ only. All nondivisional DS maintenance companies, including the intermediate maintenance unit supporting aircraft, are assigned to a DS Maintenance Battalion.

FIGURE A.3-4. STRUCTURE OF DS/GS MAINTENANCE

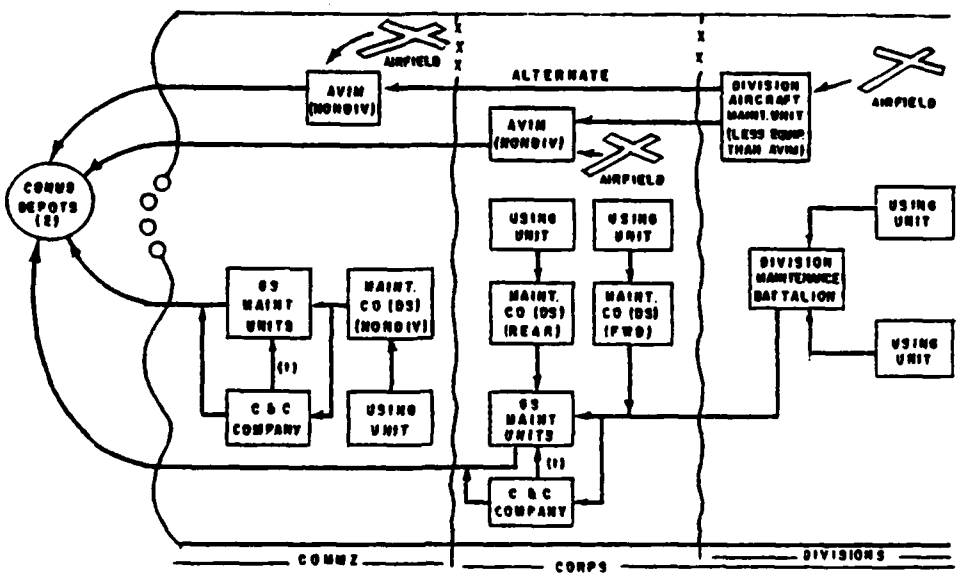


All overflow maintenance work or work that exceeds the capability of DS companies is directed to a GS company in the corps area or COMMZ. GS companies repair major assemblies, repair and return direct exchange items to units, evacuate materiel to CONUS for overhaul, operate a cannibalization and disposal point, and augment Collection and Classification (C&C) Companies. Figure A.3-5 shows the flow of materiel needing repair among these companies. Note that division unserviceable materiel goes directly to GS units, not to nondivisional DS units.

TABLE A.3-4. ARMY NONDIVISIONAL MAINTENANCE COMPANIES

Company	TOE	Mission
Light Equipment Maintenance Company, GS	29-134	Provides GS maintenance on communications, photographic, reproduction, survey, lighting, and air conditioning equipment; has limited parts supply capability; assigned to TAACOM or COSCOM and attached to Maintenance Battalion DS/GS.
Heavy Equipment Maintenance Company, GS	29-137	Provides GS maintenance on automotive and related items, combat vehicles, conventional artillery weapons and fire control systems, nonintegrated fire control instruments, construction equipment, materials handling equipment, laundry and baking equipment and fuel dispensing equipment, assigned to TAACOM or COSCOM and attached to a Maintenance Battalion DS/GS.
Forward DS Maintenance Company	29-207	Provides on-site DS maintenance in support of automotive and related items, artillery (conventional) weapons and fire control systems, small arms, nonintegrated fire control systems, communications construction, power generation, and air conditioning systems; have limited evacuation and repair parts supply support in corps service area; assigned to COSCOM and attached to a DS Maintenance Battallion.
Rear DS Maintenance Company	29-208	Provides supplemental support to Forward DS Company and on-site maintenance service to supported units when evacuation of heavy items is difficult; provides repair parts supply to supported units in a direct exchange system (same basic mission as Forward DS Company), assigned to COSCOM and attached to a DS Maintenance Battalion.
Maintenance Company, DS (Nondivisional)	29-209	Provides DS maintenance and repair parts supply service to nondivisional organizational units in the corps area, support vehicles, engineer equipment, small arms, and canvas repair as well as refrigeration, communications and power generation equipment; will replace 29-207 and 29-208 in mid 1980s; assigned to COSCOM and attached to a DS Maintenance Battalion.
Maintenance Company, DS/GS	29-427	Provides DS and GS level support to units assigned to or passing through the COMMZ (same range of missions as the Rear DS Maintenance Company); assigned to TAACOM and attached to a DS Maintenance Battalion.
Floating Craft GS Maintenance Company	55-157	Provides GS maintenance for landing craft and amphibians; provides DS and GS maintenance for harbor craft and for radio and radar equipment organic to Army marine craft; receives, stores, and issues marine peculiar repair items; assigned to TRANSCOM and attached to a Terminal Battalion.
Lighterage Maintenance Company, DS	55-158	Provides DS maintenance for wheeled amphibious and landing craft, and installed radio and radar equipment; also provides organizational level repair parts, components, and maintenance supplies to lighterage units; assigned to TRANSCOM and attached to a Terminal Battalion.
Railway Equipment Maintenance Company	55-228	Inspects, services, and repairs diesel-electric locomotives and railway stock; assigned to TRANSCOM and attached to a Terminal Battalion.
Diesel-Electric Locomotive Repair Company	55-247	Performs GS maintenance of diesel-electric locomotives and railway cranes; assigned to TRANSCOM and attached to a Railway Battalion.
Railway Car Repair Company	55-248	Performs GS maintenance of railway cars; supplies repair parts for organizational and DS maintenance of railway cars and locomotives; assigned to TRANSCOM and attached to a Railway Group.
Aircraft Maintenance Intermediate Support (AVIM) Company	55-459	Provides intermediate level maintenance support (including aircraft armament, avionics, aircraft peculiar items of ground support equipment, and level calibration service) and aircraft repair parts supply support (including avionics, aircraft, armament, aircraft peculiar items of ground support equipment) to nondivisional units; assigned to TAACOM or COSCOM and attached to a Maintenance Battalion.
Calibration Company (CRSC)	29-229	Provides calibration and repair of general purpose test, measurement and diagnostic equipment; provides area calibration labs and area TMDE support teams; assigned to COSCOM MMC.
Collection and Classification Service Company	29-139	Establishes and operates a Collection and Classification facility for the receipt, inspection, segregation, disassembly, and disposal of serviceable and unserviceable Class VII and IX material; assigned to TAACOM or COSCOM and attached to a GS Maintenance Battalion.

FIGURE A.3-5. FLOW OF UNSERVICEABLE MATERIEL



(1) FLOW OF REPAIRABLE MATERIEL FROM C & C CO TO MAINTENANCE UNITS.
(2) ITEMS REQUIRING DEPOT MAINTENANCE ARE EVACUATED TO CONUS.

SOURCE: FM 100-10

As a specialized service, C&C Companies perform equipment "triage"--classification of equipment for repair, cannibalization or disposal. The C&C Company is located as close as possible to both combat units and repair units in order to perform on-the-spot damage assessment. The Calibration Company calibrates and provides repair parts for all general purpose Test, Measurement and Diagnostic Equipment (TMDE), but calibrates only special purpose TMDE. In peacetime, TMDE calibration is normally accomplished at a CONUS base. The Light and Heavy Equipment Maintenance Companies and the Collection and Classification Company are assigned to a GS Maintenance Battalion. The Calibration Company, however, is assigned directly to the Theater Army.

Water and rail maintenance companies are included in the maintenance function even though organizationally they are transportation companies. The Floating Craft and Lightercraft Maintenance Companies are assigned to Terminal

Battalions. Their primary mission is to repair all harbor and landing craft in the Army's inventory. The Railway Equipment, Locomotive, and Railway Car Maintenance Companies are assigned to a Railway Battalion. Their mission includes the repair of locomotives and other rolling stock; they also provide railway equipment repair parts to Army Railway Operating Companies (none in force at present). Both the watercraft and rail maintenance companies are allocated to the TAACOM as needed.

From a semi-fixed location, the Aviation Maintenance Intermediate Support Company (AVIM) supports nondivisional units within a corps area or COMMZ. It repairs aviation equipment for the user and some components for supply stocks, operates a repair parts direct exchange and organic supply shop, provides aircraft recovery, evacuation and on-site maintenance through mobile contact teams, provides basic calibration for TMDE, and supplements the capabilities of divisional aviation maintenance units (not organized under the same TOE). Attached to DS/GS maintenance battalions, AVIM assignments are based on the density of the aircraft supported, averaging four per corps and five per Theater Army.

Force Structure

As shown in Table A.3-5, 73 percent of the Army's nondivisional vehicle maintenance capability is in the RC (134 of 183 companies). At the GS level, the AC has only 13 of 78 companies; the balance, or 83 percent, is assigned to the ARNG or USAR. The Army's dependence upon the RC for DS vehicle maintenance is somewhat lower (68 of 105 companies are in the RC, or approximately 65 percent).

For aircraft intermediate maintenance, 60 percent of the Army's capability is in the RC, with 35 percent in the ARNG and 25 percent in the USAR. The total Army capability to provide nondivisional aircraft maintenance consists of 20 companies.

TABLE A.3-5. RC CONTRIBUTION TO MAINTENANCE

Type of Unit[1]	Total Units	Percent		
		ARNG	USAR	RC Total
Vehicle	183	52	21	73
Water	3	33	33	66
Rail	4	0	100	100
Air	20	35	25	60
Special Functions	8	62	38	100
Total Maintenance	218	50	23	73

[1]Headquarters and Headquarters Companies are not included.

In the rail, calibration, and collection & classification areas, all of the Army's capability is in the RC. The USAR is assigned all four rail equipment maintenance companies. Of the seven C&C Companies in the Army, the ARNG has four and the USAR has three. The ARNG has the sole Calibration Company. Army capability to repair harbor and landing craft is split evenly among the Active Army, ARNG, and USAR -- each is assigned one unit.

TRANSPORTATION

Doctrine

Army nondivisional transportation units can be grouped into vehicle or truck companies, terminal services, watercraft, and aircraft. The responsibilities of these units are straightforward. The truck companies transport Army materiel from the port/terminal to DS or GS supply companies and user units within the theater or corps area. Terminal Service Companies offload both break-bulk and container ships, and operate cargo terminals. Terminal Transfer companies generally operate inland; they offload cargo at

rail, air and river terminals. The watercraft, amphibian and aircraft companies operate between ship and shore to augment the offload capability of the terminal companies. The amphibian and aircraft companies can move cargo directly inland and are preferred in "Logistics-Over-The-Shore" (LOTS) operations to eliminate shoreline rehandling of cargo. The watercraft companies also operate on rivers and large lakes. Figure A.3-6 shows schematically the position of these companies in the transportation network. Table A.3-6 identifies the specific mission of each transportation unit.

Figure A.3-7 shows the organization of the transportation battalions in the COMMZ and the corps area. In the COMMZ, truck companies are assigned to a Motor Transport Battalion in a TRANSCOM; some truck companies are assigned to other battalions as needed. The ship offload capability, exclusive of the aircraft, is assigned to the Terminal Battalion. The Terminal Transfer Company, which normally operates inland terminals, is not assigned to a particular battalion. The aircraft companies are assigned to a Aviation Battalion and used for cargo transport, when constrained inland air or water terminal conditions exist. In the corps area, these transportation companies are assigned to a Transportation Composite Group within the COSCOM.

Force Structure

As shown in Table A.3-7, the Army force structure has 170 nondivisional truck companies; only one-third of them are in the AC, the balance (114 companies) are in the ARNG and USAR. Similar situations exist for the nondivisional terminal, watercraft, and aircraft companies; the RC has 65 percent, 62 percent, and 71 percent, respectively, of the total Army capability. In general, the Army cannot conduct operations that involve more than one-third of its combat forces without drawing on truck and terminal companies of the RC.

FIGURE A.3-6. TRANSPORTATION NETWORK (SCHEMATIC)

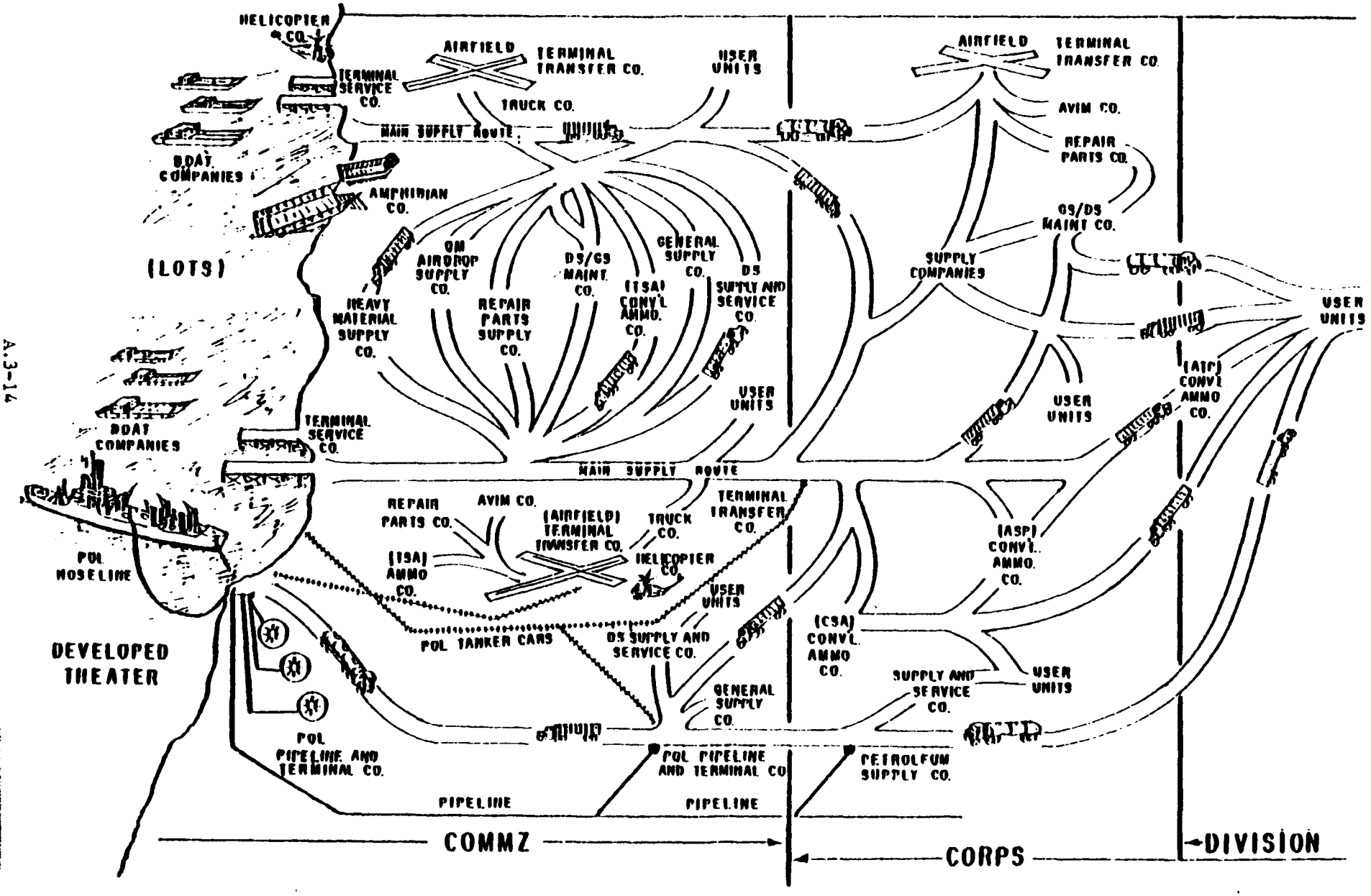


TABLE A.3-6. ARMY NONDIVISIONAL TRANSPORTATION COMPANIES

Company	TOE	Mission
Light Truck Company	55- 17	Provides truck transportation for the movement of general cargo and personnel; has off-road capability equipped with 2½ or 5 ton trucks; assigned to TAACOM or COSCOM and attached to Motor Transport Battalion.
Medium Truck Company (Cargo/POL)	55- 18	Provides transportation for the movement of general cargo, bulk petroleum or refrigerated cargo by motor transport from corps GS to DISCOM, COMMZ to corps, and to other division units; also used for retrograding material to the rear; has bulk petroleum and long cargo semitrailers for use on hard-surface primary and secondary roads.
Car (Command Transport) Company	55- 19	Transports personnel and light cargo by motor vehicles; may be equipped with sedans, ¼ ton trucks, 3/4 ton trucks, or a combina- a maximum of 60 vehicles; can be organized as a support command and as an airborne corps company; assigned to TRANSCON, TAACOM, or COSCOM, and attached to a Motor Transport Battalion or Airborne Corps.
Heavy Truck Company	55- 28	Provide truck transportation for the movement of heavy or outsize cargo and vehicles; has heavy equipment trailers and 60 ton semi-trailers; assigned to TAACOM or CASCOM and attached to Motor Trans-port Battalion.
Light-Medium Truck Company	55- 67	Provides transportation for movement of general cargo and personnel by motor transport; essentially a light truck company (2½ ton trucks) augmented by one medium truck squad; used primarily to move dry cargo in local haul operations; assigned to a TAACOM or COSCOM and attached to a Motor Transport Battalion.
Terminal Service Company	55-117	Discharges, backloads, and transships break-bulk and container cargo water terminals in ports or on beaches; also sorts and records cargo arrival and destinations; assigned to TRANSCOM and attached to a Terminal Battalion.
Terminal Transfer Company	55-118	Transships cargo at Army air, rail, motor, and inland barge termi-nals, also transships cargo/containers transported by Air Force air-craft; has three operating platoons that can function independently on different transportation modes at different locations; assigned to TAACOM, TRANSCOM or COSCOM and attached to Motor Transport, Terminal or Aviation Group.
Terminal Service Company (Container)	55-119	Discharges, backloads, and transships containerized cargo at water terminals located at beaches or fixed ports; requires Lighterage Maintenance Co. in beach operations; assigned to TRANSCOM and attached to a Terminal Battalion.
Medium Boat Company	55-128	Provides cargo and heavy lift transport from ship to shore in amphibious operations or shore-to-shore in Logistics-Over-the-Shore (LOTS) operations; assigned to TRANSCOM and attached to a Terminal Battalion or a shore party for combat service support amphibious operations.
Heavy Boat Company	55-129	Transports heavy vehicles, cargo, and personnel in navigable waters inland and open sea in LOTS or amphibious operations; assigned to TRANSCOM and attached to a Terminal Battalion.
Light Amphibian Company	55-138	Provides movement of general cargo ship-to-shore or shore-to-shore in LOTS operations; can move cargo directly to points inland to avoid congestion on beaches; company productivity related to the discharge rates of the Terminal Service Co. ship platoon working on the ship; assigned to TRANSCOM and attached to a Terminal Battalion.
Medium Amphibian Company	55-139	Same mission as Light Amphibian but augmented by greater equipment capability (15 tons instead of 5); assigned to TRANSCOM and attached to a Terminal Battalion.
Medium Helicopter Company	55-167	Provides air transport of personnel and cargo for combat service support and combat service operations. Maintains air lines of com-munication, supplements air ambulance service, and provides lighter-age capability and delivery inland; assigned to TAACOM and attached to an Aviation Battalion.
Heavy Helicopter Company	55-259	Airlifts heavy or outsize cargo and supplementary airlift of per-sonnel for combat support or service support operations; can be used as supplemental lighterage, discharging ships and delivering cargo on shore; assigned to TAACOM or COSCOM and attached to a Combat Aviation Battalion.

FIGURE A.3-7. STRUCTURE OF TRANSCOM TRANSPORTATION AND COSCOM TRANSPORTATION

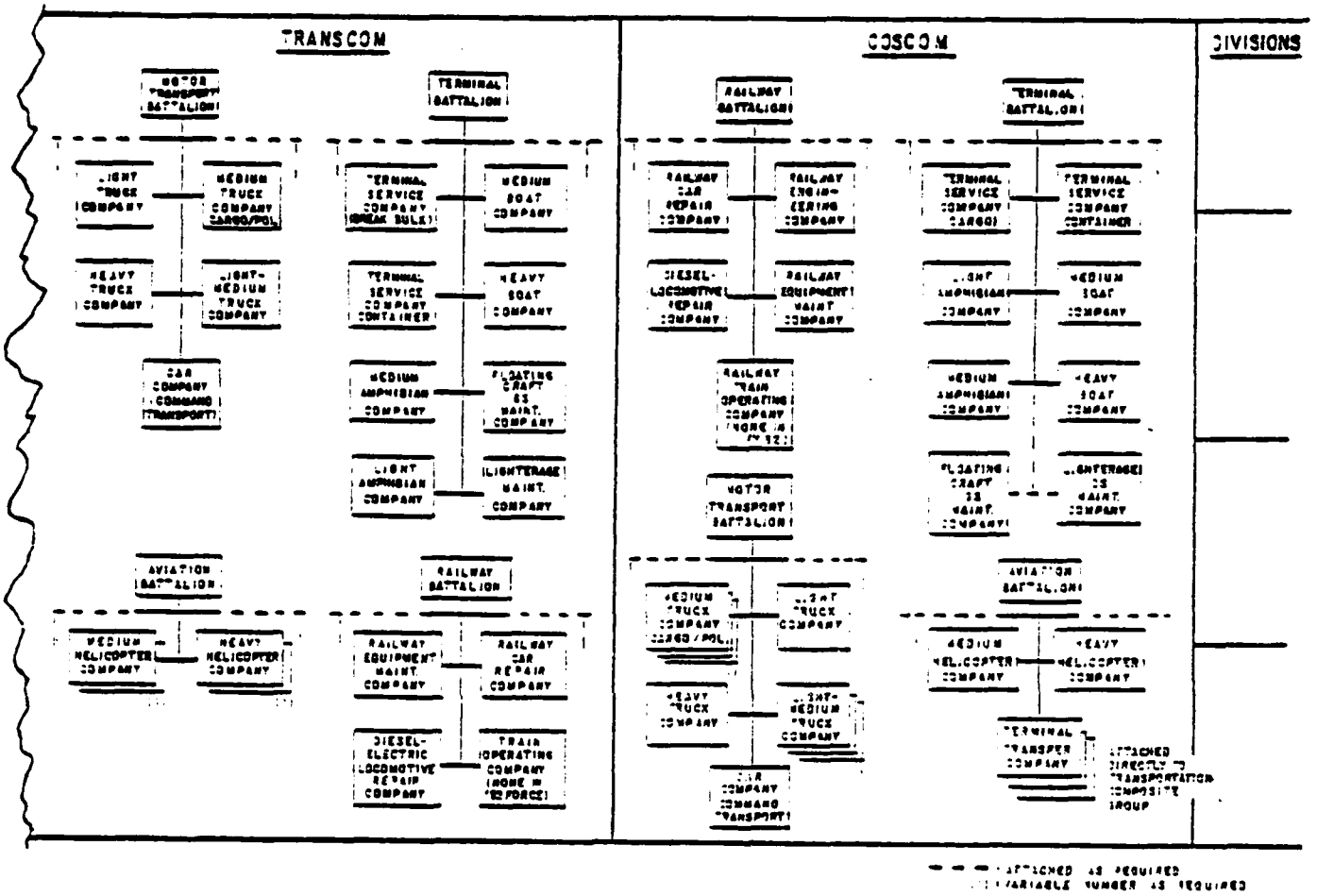


TABLE A.3-7. RC CONTRIBUTION TO TRANSPORTATION

Type of Unit[1]	Total Units	Percent		
		ARNG	USAR	RC Total
Vehicles	170	38	29	67
Terminals	26	4	61	65
Watercraft	13	8	54	62
Air	14	57	14	71
Total Transportation	223	33	34	67

[1]Headquarters and Headquarters Companies are not included.

A.4. COMMODITIES

Army FM 100-5, "Operations," identifies four crucial commodities for war: ammunition, fuel, repair parts and troops. This chapter describes the logistic systems supporting the first three commodities and the contribution of the ARNG and USAR to that support.

AMMUNITION

Conventional Ammunition will be moved from CONUS on pallets or in containers through an aerial port or ocean terminal, unloaded by Terminal Service Companies, and transported by Medium Truck Companies to a Theater Storage Area (TSA), Corps Storage Area (CSA), or Ammunition Supply Point (ASP) operated by a Conventional Ammunition Company.

Conventional ammunition support in the Army is structured as a continuous refill system to minimize the number of transshipments (Figure A.4-1). The typical ASP should receive 20 percent of its ammunition directly from the terminal, 30 percent from the TSA and 50 percent from the CSA. Army doctrine calls for a CSA to be established when the ammunition flow from the TSA to the ASP exceeds the immediate consumption of user units.[1] Eighty percent of the ammunition received at an Ammunition Transfer Point (ATP), operated by a Supply and Service Company within the division, should originate at the CSA, by-passing the ASP. The other 20 percent should come directly from the ASP.

The FY82 force structure includes 50 Conventional Ammunition Supply Companies, with 36 (72 percent) in the RC. These companies, as currently organized, operate the TSA, CSA, and all ASPs.[2]

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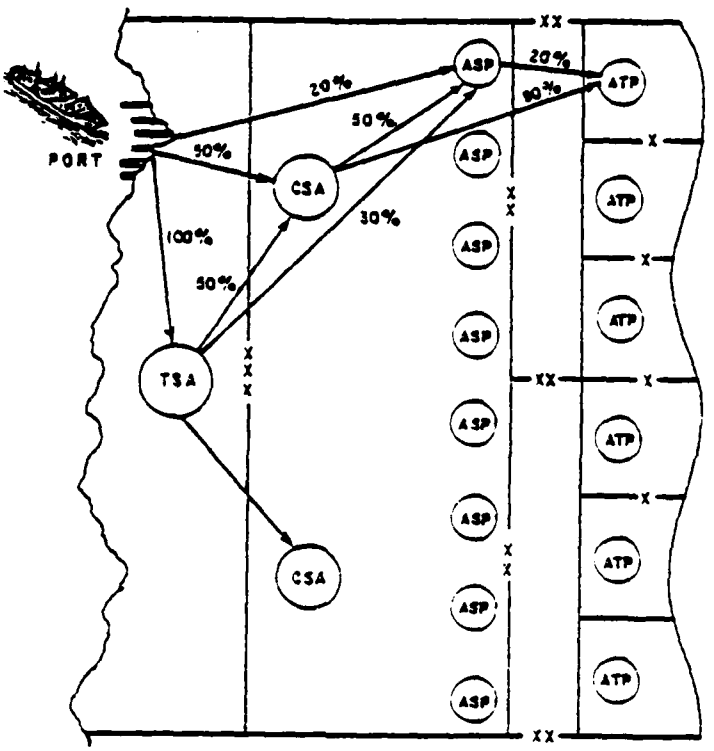
[1]Source: FM 9-6.

[2]During the 1980's the Conventional Ammunition Supply Company will be reorganized into GS and DS companies with roughly the same missions. The DS companies will operate forward CSAs and ASPs; either DS or GS companies will operate rear CSAs and TSAs.

FIGURE A.4-1. CONVENTIONAL AMMUNITION SYSTEM IN-THEATER

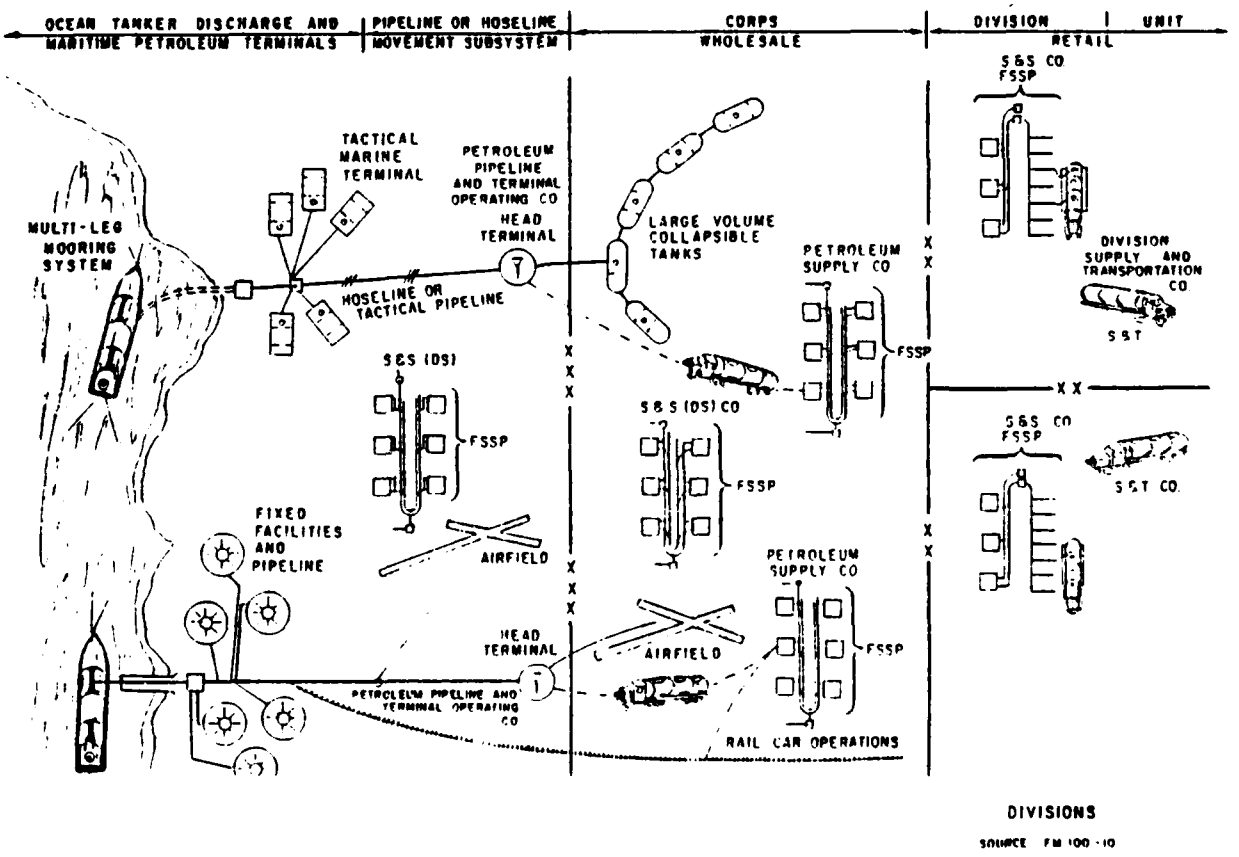


PETROLEUM, OILS AND LUBRICANTS (POL)

To accommodate the large volume of bulk petroleum required, pipelines will be used wherever possible in the Army fuel distribution system. A Petroleum Wharf Platoon (attached to a Terminal Battalion) offloads POL from the ship into the ship-to-shore pipeline. In the COMMZ, a POL Pipeline and Terminal Operating Company operates the pipeline and offloads the fuel at air bases or into corps storage tanks operated by Petroleum Supply Companies. It may also load rail tank cars or truck tankers for delivery to supply companies. A Supply and Service Company receives the fuel and packaged petroleum products from the POL Pipeline and Terminal Operating Company and issues them to units in the COMMZ. In the corps area, the Petroleum Supply Companies perform many of the same functions as the Pipeline and Terminal Operating company.

A Petroleum Supply Company receives and stores the fuel in Fuel Service Supply Points (FSSP) located in the corps area. It also issues fuel to local Supply and Service (S&S) Companies, with POL Medium Truck Company transporting the POL. The S&S Companies operate their own FSSPs and issue fuel using trucks from a division's Supply and Transoort Battalion. In a European theater with long distance pipeline distribution systems, host nation support personnel will distribute fuel in the COMMZ while POL Supply Companies will support mobile Army units in the corps area. In an undeveloped theater of equivalent scope, additional POL Supply Companies and Truck Companies are needed to substitute for pipeline capacity. Figure A.4-2 outlines a theater petroleum supply structure for a theater with no host nation support but some pipeline capability.

FIGURE A.4-2. BULK PETROLEUM DISTRIBUTION SYSTEM IN THEATER



The Army has eight POL Pipeline and Terminal Operating Companies in its force structure; five of them are in the RC. It also has 23 POL Supply Companies, with 20 in the RC, and 51 Supply and Service Companies that distribute the POL to users, with 36 in the Guard and Reserve. Consequently, the RC is critical to the storage and distribution of POL; it has 61 of the Army's 82 petroleum distribution companies or 74 percent.[3]

REPAIR PARTS

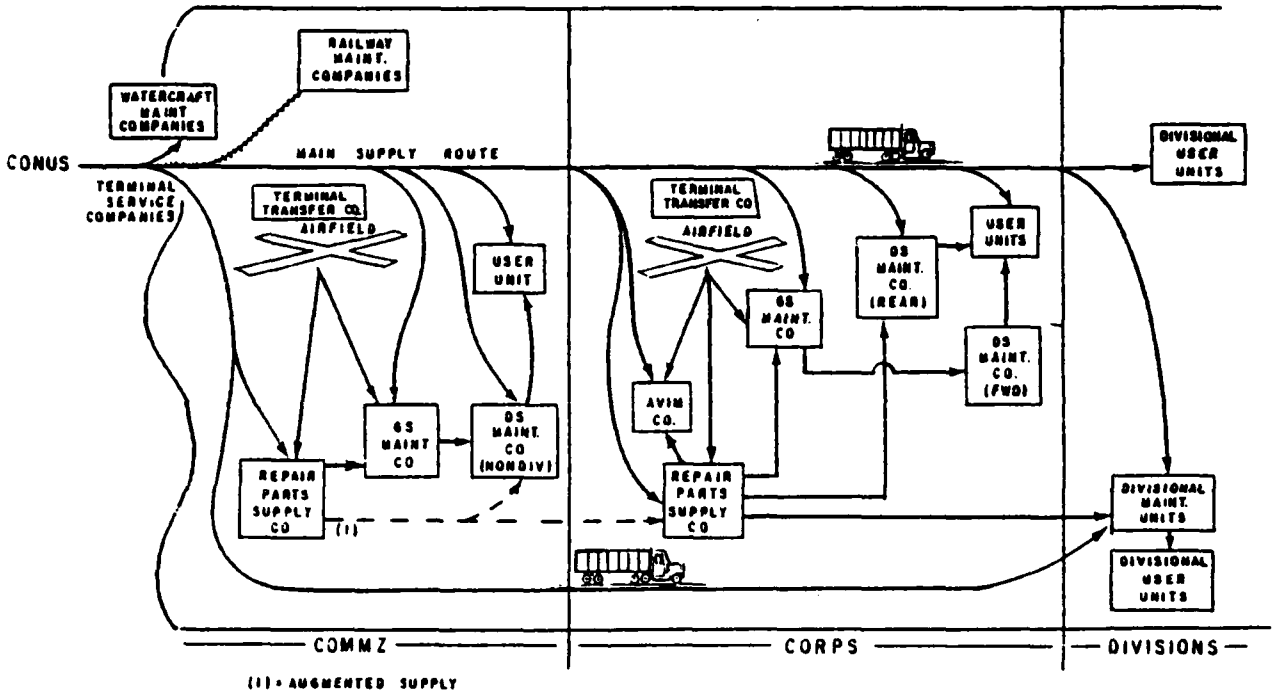
While maintenance companies stock and issue some low-cost, high-demand repair parts to user units, most repair parts are provided by Repair Parts Supply Companies to both maintenance and user units. The authorized stockage list of a Repair Parts Supply Company is tailored for the units in its area. Where feasible, repair parts are transported to the theater by airlift and then offloaded by a Terminal Transfer Company onto trucks, provided by a Medium Truck Company. Parts arriving by sea are offloaded by Terminal Service Companies onto trucks or rail cars. Organizational maintenance parts may be shipped either directly to a user unit or to a maintenance company that operates a direct exchange program. If the repair parts are required by a DS or GS maintenance company, they are transported directly to the company. For watercraft and railway repair parts, the dedicated maintenance companies are the sole supply source in theater and receive all repair parts.

If the repair parts are slow moving or highly specialized, the Repair Parts Supply Company receives and stocks them along with its basic load of organizational, DS and GS maintenance parts. It does not normally stock aviation and airdrop items, cryptographic and topographic materiel, missile

[3]If the General Supply Companies are included, the numbers grow to 87 of 113 companies or 77 percent.

system and medical items, and ammunition maintenance materiel. However, to augment the capability of a corps Aviation Intermediate Maintenance Company, it will stock avionics equipment. If the Repair Parts Supply Company is in the COMMZ, it will not stock avionics items. Repair Parts Supply Companies in the COMMZ provide backup support for similar companies in the corps area. Figure A.4-3 shows the flow of repair parts into a theater.

FIGURE A.4-3. FLOW OF REPAIR PARTS IN A THEATER OF OPERATIONS



Of the 25 Repair Parts Supply Companies in the FY82 Total Army, 21 are in the RC, all in the USAR. Almost 74 percent of the Army's nondivisional maintenance companies (159 out of 218) are in the RC, 108 companies in the ARNG and 51 in the USAR. The Army has 243 companies that stock and issue repair parts; 180 of these companies are in the RC, or 74 percent of the Army's capability to stock and issue repair parts.

A.5. READINESS

UNITREP SYSTEM

The JCS UNITREP System is the single automated system that reports the current status of selected Active and Reserve Component units. It gives the overall unit status on each of four categories (personnel, personnel training, equipment stocks, and equipment readiness) and an overall rating. The category ratings are combined into an overall "C" rating, ranging for most units from C-1 to C-4.[1] The overall rating can be no higher than the lowest rating on any of the categories unless altered by the commander's judgment. Table A.5-1 defines the combat readiness rating order.

TABLE A.5-1. CATEGORIES OF COMBAT READINESS

C-1 - Fully Combat Ready. A unit possesses its prescribed levels of wartime resources and is trained so that it is capable of performing the wartime mission for which it is organized, designed, or tasked.
C-2 - Substantially Combat Ready. A unit has only minor deficiencies in its prescribed levels of wartime resources or training which limit its capability to perform the wartime mission for which it is organized, designed, or tasked.
C-3 - Marginally Combat Ready. A unit has major deficiencies in prescribed wartime resources or training which limit its capability to perform the wartime mission for which it is organized, designed, or tasked.
C-4 - Not Combat Ready. A unit has major deficiencies in prescribed wartime resources or training and cannot effectively perform the wartime mission for which it is organized, designed, or tasked.

Units which report their readiness include divisions, separate brigades, divisional brigades operating separately, armored cavalry regiments, and parent-level TOE units of company size or larger that are not organic to a

[1] There is also a C-5 rating for specialized units such as training units.

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division, separate brigade or regiment. Examples of the latter type units are on-site air defense and PERSHING battalions.

Active units report their readiness monthly while RC units report semi-annually. Some selected RC units report quarterly as required by their major commands. POMCUS[2] units have two C ratings: one for organic resources that will deploy with the unit and one with the POMCUS set. Table A.5-2 shows the categories of rated unit assets.

TABLE A.5-2. READINESS CATEGORIES AND COMBAT RATING LEVELS

Category	Rating			
	C-1	C-2	C-3	C-4
Personnel[1]				
Total End-Strength	≥90%	≥80%	≥70%	<70%
Critical Skills	≥85%	≥75%	≥65%	<65%
Senior Strength (Optional)	≥85%	≥75%	≥65%	<65%
Training[2]				
Weeks of Training Required	<2	>2<4	>4<6	>6
Or, Percent of Combat Ready Aircrews	≥85%	≥70%	≥55%	<55%
Or, Percent of Unit Training Completed	≥85%	≥70%	≥55%	<55%
Equipment On-Hand[3]				
Combat-Essential Equipment				
Aircraft	≥90%	≥80%	≥60%	<60%
Other Equipment	≥90%	≥80%	≥65%	<65%
End-Items, Support Equipment & Supplies	≥90%	≥80%	≥65%	<65%
Equipment Readiness[4]				
Combat-Essential Equipment				
Aircraft	≥75%	≥60%	≥50%	<50%
Other Equipment	≥90%	≥70%	≥60%	<60%
End-Items	≥90%	≥70%	≥60%	<60%

[1]The "Senior Strength" category applies to senior noncommissioned officers or senior petty officers in grades E-5 through E-9, and to all commissioned officers.

[2]The C-rating is based on either the number of weeks required to attain fully trained status, the percentage of wartime-required aircrews formed, combat ready and available, or the percentage of unit training completed.

[3]A unit may have several types of combat-essential equipment, end-items, support equipment, or supplies for which on-hand percentages are separately computed, the lowest C-rating assigned for these categories determines the C-rating for equipment and supplies on-hand.

[4]The C-rating criteria are based on the percentage of weapon systems and equipments required to perform the unit's wartime mission that are on-hand and fully capable.

[2]Prepositioned Material Configured to Unit Sets (POMCUS) is that part of a unit's equipment "prepositioned" or stored overseas to lessen the potential airlift burden after mobilization.

Not all unit assets are included in these categories. Table A.5-2 does not show any "pacing items," which are critical to the unit's basic mission. They are so essential that they are tracked separately. Tanks in armored units and aircraft in aviation units are examples of pacing items. The readiness of these pacing items is determined by monthly averages for active units and 90-day averages for RC units. Table A.5-3 lists the published pacing items for nondivisional logistics units.[3] Nondivisional maintenance units do not have pacing items.

TABLE A.5-3. PACING ITEMS FOR NONDIVISIONAL LOGISTICS UNITS

Type of Unit	Pacing Item
Supply	
Conventional Ammunition Company	Rough Terrain Fork Lift Truck (6,000 & 10,000 lb.)
Supply & Service Company, Forward	Cargo Truck (2½ ton), Tractor Truck (5 ton)
Transportation	
Light Truck or Light-Medium Truck Company	Cargo Truck (2½ ton)
Medium Truck Company, Cargo	Tractor Truck (5 ton)
Medium Truck Company, POL	Tractor Truck (5 ton), Tank Fuel Servicing Semi-Trailer (4,000 - 6,000 Gallons)
Heavy Truck Company	Tractor Truck (Heavy Equipment)
Medium Amphibious Company	Amphibious Lighter (15 ton)
Medium Boat Company	Medium Landing Craft
Heavy Boat Company	Utility Landing Craft
Medium Helicopter Company	Chinook - 47
Heavy Helicopter Company	Chinook - 54

Source: AR 220-1, "Unit Status Reporting," 1 June 1981.

The UNITREP system does not reflect the mission-essential equipment of some logistics units. These units often need a variety of low-density, specialized equipment to accomplish their missions, equipment that may be distributed sparsely or shared between companies. Reporting on the number or condition of any of this equipment is specifically left optional in Army

[3]Source: AR 220-1.

Regulation 220-1. The C ratings give only a snapshot of an individual unit's readiness and appear more appropriate for combat units and their equipment than logistics units.

CADRE UNITS

Units organized at an authorized strength level of C-3 are called cadre units. Upon mobilization, they will be augmented with additional personnel and equipment to meet C-1 levels. In general, the unmanned billets in those units are low-skilled billets which could be filled by foreign nationals.

Table A.5-4 shows the total number of logistics units in the Army, the number of ARNG and USAR cadre units, and the percent of Army logistics units which are RC cadre units. Approximately 53 percent of the total Army non-divisional supply units are cadre units, 30 percent of the maintenance units, and 17 percent of the transportation units. The significance of these percentages will be addressed in the final report.

TABLE A.5-4. RC CADRE UNITS IN THE TOTAL FORCE

Type of Unit	Total Army Units	ARNG Cadre Units	USAR Cadre Units	RC Percent of Total
Supply				(%)
Ammunition	50	4	24	56
POL	31	0	21	68
End Items and Repair Parts	42	4	25	69
Other	106	18	25	41
Total	229	26	95	53
Maintenance				
Vehicle	183	47	9	30
Water	3	0	0	0
Rail	4	0	3	75
Air	20	0	0	0
Special Function	8	4	3	88
Total	218	51	15	30
Transportation				
Vehicle	170	16	9	15
Terminals	26	0	13	50
Watercraft	13	0	0	0
Air	14	0	0	0
Total	223	16	21	17
Total	670	93	131	33

A.6. OBSERVATIONS

Even without an analysis of OPLANS, our review of the distribution of the Total Army logistic support capability among force components prompts some interesting observations. In each of the three major functional areas -- supply, maintenance, and transportation -- most of the Army's capability to provide nondivisional logistics support resides in its RC. The percentages of capability in the RC are consistently high: 78 percent of the supply companies, 73 percent of the maintenance companies, and 67 percent of the transportation companies.

The Army's dependence on the ARNG and USAR for nondivisional logistics support also goes beyond a simple percentage calculation. The dependence is directly related to the industrial development of the Theater of Operations. Deployment of significant forces into a developed theater with substantial host nation support capabilities will require less immediate support from the RC than would a deployment into a undeveloped theater. For example, the commercial logistics infrastructure (ports, railroads, pipelines, etc.) present in a developed theater together with a host nation commitment could reduce the early need for RC Terminal Service and Petroleum Pipeline Companies.

Even in a developed theater, however, the early reliance on some RC units will be significant. They will be called upon to transport and distribute high volumes of ammunition and fuel through the corps rear area to forward deployed divisions; requirements for RC maintenance support will be immediate and large because of the uniqueness of U.S. equipment. Maintenance is one logistic area that is not amenable to host nation support.

In an underdeveloped theater of operation, RC logistics units will be required immediately in nearly all functions. Many functional capabilities of the RC logistics units are either not present or extremely limited in the Active Component. Those capabilities are critical to the early establishment of any logistic system to support combat units.

With the heavy dependence on the RC for establishment and operation of the theater logistic system to support any significant Army operations, the number of RC units in a cadre status affects the Army's ability to carry out those operations. The current and proposed future sophistication of the logistic system increases the need for skilled technicians and modern equipment in logistics units and decreases the need for unskilled labor. The dependence of a modern logistic system on highly skilled personnel may make the concept of cadre units infeasible--especially if these units are needed soon after mobilization.

BACKGROUND NOTES: HISTORY AND STRUCTURE OF RESERVE COMPONENTS[1]

HISTORY

Historical Background of the ARNG

The ARNG traces its roots to local militia organizations in colonial times and to the militiamen who responded to General George Washington's call for troops to fight the British in 1776.

The modern history of the ARNG began in 1903 when Congress legislated the Regular Army to play a direct role in organizing, training and equipping ARNG units. The ARNG became a component of the organized peacetime military establishment in 1916 with the National Defense Act which provided that it become part of the Active Army when called into federal service. In 1956 Congress made the ARNG part of the Ready Reserve and, in 1967, part of the Selected Reserve.

Mission of the ARNG

The ARNG has a dual federal-state mission. In its federal mission, it provides trained units and qualified individuals for active duty in the Army in time of war or national emergency and at such times as the national security requires. In its state mission, it provides a force for the internal protection of life and property and the preservation of peace, order and public safety.

Historical Background of the USAR

The USAR began as an organized component of the U.S. military in 1908 when Congress established the Army Medical Reserve Corps. Legislation in 1912 provided for an Enlisted Army Reserve Corps and the National Defense Act of 1916 created an Officer Reserve Corps.

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[1]LMI Working Paper ML804, April 1979.

Following World War I, Congress established the Organized Reserve Corps which consolidated the Enlisted and Officer Reserve Corps. The Reserve Forces Act of 1955 bolstered the USAR by prescribing an enlistment for six months of active training followed by duty in a USAR unit to complete the military obligation.

In 1963 Congress authorized the Ready Enlistment Program (REP), which established a six-year Ready Reserve obligation upon enlistement in the USAR and ARNG. The REP also required a minimum of four months of active duty training. The REP was responsible for keeping the USAR manned at desired levels throughout the Vietnam War; it ended with the abolition of the draft.

Mission of the USAR

The mission of the USAR is to provide trained units and qualified individuals for active duty in the Army in time of war or national emergency.

STRUCTURE OF THE RESERVE COMPONENTS

Categories of Reservist

The Reserve Components can be divided into three major categories: Retired Reserve, Standby Reserve and Ready Reserve. For the Army, the Retired Reserve and Standby Reserve are both composed of only USAR members; the Ready Reserve has USAR and ARNG membership.

The Retired Reserve consists of individuals in a retired status. Under certain conditions in time of war or national emergency declared by Congress, they are subject to call-up. In September 1980, the Retired Reserve of the USAR had a force level of 147,441.

The Standby Reserve consists of individuals who have not maintained minimum Ready Reserve participation, have completed Ready Reserve and active duty portions of their military obligation, or have been transferred to the Standby Reserve upon request. The Standby Reserve may be called to active

duty in the event of war or national emergency declared by Congress. The Standby Reserve of the USAR had a force level of 19,407 in September, 1980.

The Ready Reserve consists of members of the Individual Ready Reserve (IRR) and the Selected Reserve. Members of the IRR are those who have recently served in the Active Army or Selected Reserve and have some period of obligation remaining. The Selected Reserve consists principally of individuals enlisted in the USAR or ARNG and organized into units. The IRR consist of 212,521 USAR members and 9,199 ARNG members (October 1981), while the Selected Reserve includes 206,370 in the USAR and 350,699 in the ARNG (October, 1981). Table A.A-1 summarizes the categories and the conditions for recall to active duty.

TABLE A.A-1. RESERVE CALL-UP CONDITIONS

Reserve Category	Call-Up Conditions
Ready Reserve	
Selected Reserve Units	Within 24 hours; 100,000 can be called for not more than 3 months without war declaration or national emergency
Individual Ready Reserve	Up to 1 million (including selected SR reserve) can be called; requires presidential declaration of national emergency; service not more than 24 consecutive months.
Standby Reserve	
Active/Inactive Status	Requires time of war or national emergency declared by Congress and exhaustion of all equivalent Ready Reserves.
Retired Reserve	Time of war or national emergency; service for the duration plus 6 months.

Structure of the Chain of Command For Each Component

Army National Guard. ARNG units have both a state mission (i.e., protection and safety of the citizenry) and a federal mission (i.e., preparation for mobilization in a national emergency). Unit training in peacetime is

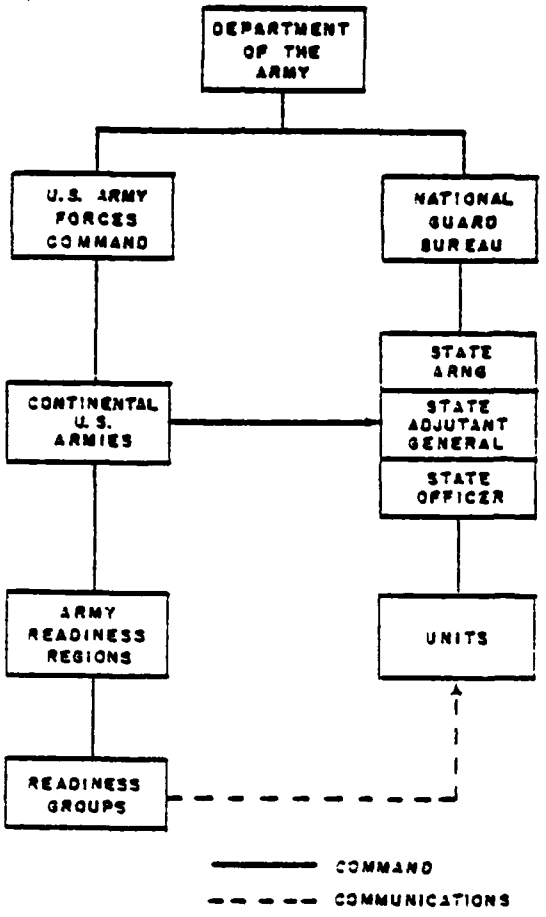
conducted within the organization for the state mission. That organization is similar among the 53 militia (i.e., the ARNG of each of the 50 states, the District of Columbia, Puerto Rico, and Guam).

The governor of each state is commander-in-chief but, on a day-to-day basis, the state ARNG is under control of the state Adjutant General (AG). Below the AG are standard divisional and nondivisional forces. Military operations follow the military command structure within the state. Divisional logistics battalions are under control of division support commands (8 states are headquarters for ARNG divisions) and nondivisional logistics companies are under control of nondivisional battalions, reporting to support groups.

For its federal mission, the ARNG is subject to several organizational influences superimposed upon the state organization. Figure A.A-1 displays the overall organization of the ARNG. The National Guard Bureau (NGB), a unique staff organization in the Department of the Army (DA), provides staff support to the ARNG.[2] This role is necessary because: (1) the ARNG is mostly federally funded and equipped, and (2) the ARNG must follow organizations and procedures that are compatible with the U.S. Army. The NGB guides the states by issuing policies and regulations which appear to have the force of controlling documents. As a matter of fact, the NGB has no actual control over the ARNG. Under the U.S. Army Forces Command (FORSCOM), the three Continental Armies (CONUSAs) provide the ARNG with guidance and assistance limited to various inspections, scheduling of annual training and evaluation of annual training effectiveness. The services of the ARRs and RGs are also available to ARNG units but visits by advisors from these organizations are limited to occasions when the unit requests assistance.

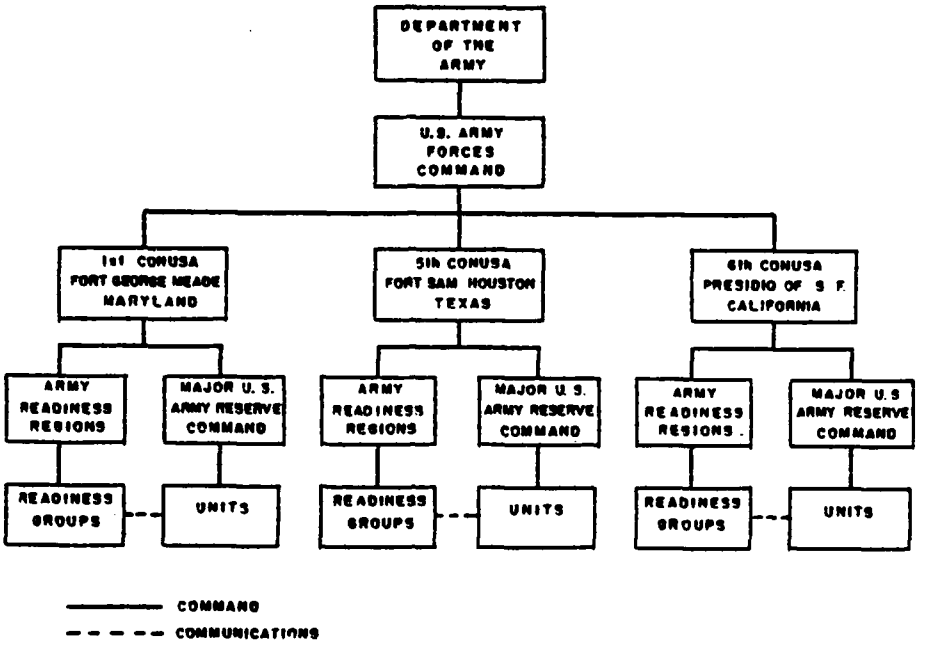
[2]Technically, the NGB is a joint bureau of the Department of the Air Force and the Department of the Army.

FIGURE A.A-1. ARNG PEACETIME ORGANIZATION



U.S. Army Reserve. Figure A.A-2 displays the organization of the USAR. The Department of the Army, through the Office of the Chief of Army Reserve, has overall responsibility for the USAR. FORSCOM is responsible for the training and readiness of the USAR but has delegated much of its responsibility to the CONUSAs. These armies have responsibility for a specific geographic area in CONUS. The CONUSAs, through a full-time staff, provide guidance to Major U.S. Army Reserve Commands (MUSARCs) which carry out the day-to-day administration, training and preparedness activities.

FIGURE A.A-2. USAR PEACETIME ORGANIZATION



There are two types of MUSARCs: Army Reserve Commands (ARCOMs) and General Officer Commands (GOCOMs). Within a CONUSA, MUSARCs have specific geographic areas of responsibility although a few are both functionally and geographically aligned. All are staffed with full-time personnel, while subordinate TOE organizations are staffed primarily with Reservists in a part-time training status. In most cases, both ARCOMs and GOCOMS are independent commands but, in a few cases, a GOCOM may be subordinate to an ARCOM.

The 19 ARCOMs are Table of Distribution and Allowance (TDA) organizations not subject to mobilization. The subordinate TOE units (e.g., support groups, battalions, and companies) may be deployed and would be attached to standard TOE organizations.

The 44 GOCOMs are TOE organizations subject to mobilization. The entire GOCOM may not be deployed as an entity. In some cases, just the GOCOM headquarters would mobilize and deploy. Most of the subordinate TOE organizations (e.g., support groups, battalions, and companies) would deploy separately and be attached to other commands. There are several types of GOCOMs, including support brigades, military police brigades, hospitals, and engineer brigades.

USAR TOE companies are located throughout CONUS under various MUSARCs. Logistically-oriented MUSARCs are support brigades and corps commands concerned with logistics; they may be assigned various types of companies over which they have command authority.

The CONUSAs also provide staff advice and assistance directly to units but outside command channels. Each CONUSA is geographically divided into several Army Readiness Regions (ARRs), which are futher subdivided into Readiness Groups (RGs). The 9 AARs and 27 RGs are both staffed with full time Active Army advisors in various specialties, including maintenance. The RG advisors, and the ARR advisors to a lesser extent, visit units on a regular basis. The purpose of these visits is to provide assistance in training and administration. There is no management authority vested in the ARRs and RGs.

GLOSSARY

ASP	ammunition supply point
ASGP	area support group
AVIM	aviation intermediate maintenance
C&C	collection and classification
CA	civil affairs
CO	company
COMMZ	communications zone
CONUS	continental United States
COSCOM	corps support command
CSA	corps storage area
DET	detachment
DS	direct support
DSU	direct support unit
EOD	explosive ordnance disposal
FSSP	fuel service supply point
GP	group
GS	general support
HHC	headquarters and headquarters company
LOC	line of communication
MAC	Military Airlift Command
MCC	movement control center
MMC	materiel management center
MT	maintenance
OPLANS	operations plans

POL	petroleum, oil, and lubricants
POMCUS	prepositioned materiel configured to unit sets
SPT	support
SUP	supply
S&S	supply and service
TA	theater army
TAACOM	theater army area command
TOE	table of organization and equipment
TRANSCOM	transportation command
TSA	theater storage area

APPENDIX B

WORKING NOTE: AIR FORCE LOGISTICS AND THE RESERVE COMPONENTS

(ML206-2)

August 1982

Edward D. Simms
Chris C. Demchák

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APPENDIX B

PREFACE

This working note documents the dependency of the Total Air Force on Reserve Component logistic units, concentrating on the missions of Reserve Component logistic units and providing a snapshot of the wartime Air Force logistic system as programmed for 1982. Comments and corrections to the factual content of the working note are invited.

APPENDIX B

TABLE OF CONTENTS

B.1. INTRODUCTION

PURPOSE

The study plan for LMI Task ML206, "Readiness of Reserve Logistics Units," calls for the preparation of three working notes. This working note presents data on the wartime logistics support functions supplied by the Reserve Components (RCs) of the U.S. Air Force: the Air National Guard (ANG) and the United States Air Force Reserve (USAFR).[1,2]

SCOPE

Our review of the ANG and USAFR focuses on units[3] which provide transportation, maintenance and supply support outside the combat wing. Preliminary analysis indicates there is negligible dependence on the RC for logistic support within active combat wings. Like Army divisions, combat wings are largely self-sufficient. Both Active and RC combat wings rely on organic assets for direct logistics support. There are some exceptions. Some wing personnel, especially those in supply, are vulnerable to wartime assignments separate from their peacetime wing. Our investigations, however, show that this cross-wing support, Reserve to Active, is minimal.

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[1]The Air Force refers to the Air National Guard and Air Force Reserve forces as Air Reserve Forces (ARF). To maintain consistency among our working notes and final report, we use the term Reserve Components to designate the Guard and/or Reserve units of any military department.

[2]See Background Notes in this appendix for a history of the ANG and USAFR.

[3]We look specifically at the Selected Reserve which comprises all individuals organized into peacetime drilling units.

In reviewing the transportation, maintenance and supply structures of the Total Air Force, we identified several functional areas in which RC logistics units have a significant role:

- Transportation: provision of strategic and tactical air transportation, and terminal services (on/off-loading of aircraft and documentation of cargo)
- Maintenance: damage assessment and repair of battle-damaged aircraft
- Supply: strategic aerial refueling

During the balance of the task, we will augment the data presented in this working paper with:

- time phasings of RC units after mobilization for European and Southwest Asia scenarios
- ANG and USAFR functions affected by force modernizations
- adequacy of existing readiness indicators for ANG and USAFR logistics units.

STUDY APPROACH

Our review of logistics functions supplied by RC units draws upon existing doctrine in Air Force regulations and elaboration gained from interviews. Because the size and activities of Air Force units vary with different contingencies, actual wartime functions and personnel fills are available in detail only in Air Force classified war plans. Although the actual wartime roles of some logistics units may differ in a designated contingency from what we present, we are able to capture the overall missions of these units by using a "generic" theater of operations.

We standardize units in this study in order to compare active and RC units. We aggregate Air Force units with the same missions into "squadron-equivalent" units. A flying squadron-equivalent has 16 aircraft; in our figures therefore, two eight-aircraft peacetime squadrons are combined to form one sixteen-aircraft wartime squadron-equivalent. For nonflying units, two

flights (each with roughly half the personnel of a squadron) count as one squadron-equivalent and squadron size in terms of personnel is standardized.[4] Using these squadron-equivalent definitions, we then define the RC's contribution to the Total Air Force's wartime requirement for logistics functions.

[4]Since the personnel fill of an active Aerial Port Squadron varies according to the peacetime passenger and cargo throughput, Aerial Port Squadrons in the Active Component are standardized in this report to the 123-person squadron used by USAFR. The data base is authorized billets.

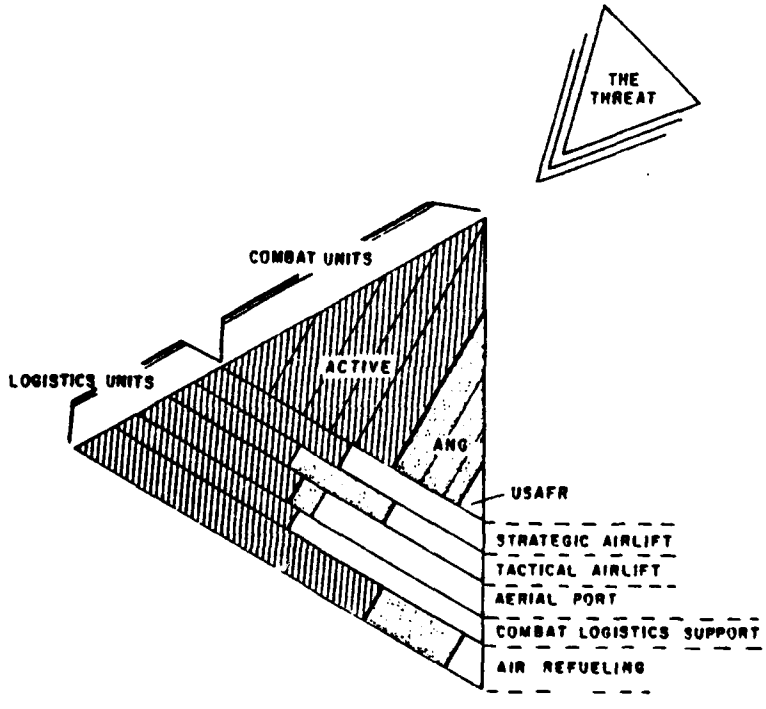
B.2. AIR FORCE LOGISTICS AND RESERVE LOGISTICS UNITS

COMBAT AND LOGISTICS UNITS

The "Total Force" concept, announced in late 1969 by the Secretary of Defense, sets the stage for today's Total Air Force. The Active and Reserve Components now form a unified Air Force in which the ANG and USAFR capabilities are crucial to the total structure.

The magnitude of RC contribution to that structure is obvious from a partial breakout of the Air Force structure (Figure B.2-1). Approximately 25 percent of the Air Force's combat capability is in its RC (21 percent in the ANG and 4 percent in the USAFR). The RC is assigned 990 of 3,924 combat

FIGURE B.2-1. TOTAL AIR FORCE COMBAT AND LOGISTICS UNITS BY COMPONENT
(in squadron-equivalents)



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aircraft, with 835 in the ANG and 165 in the USAFR. Of the 230 squadron-equivalent logistics units (transportation, maintenance, and supply units) 126, or 55 percent, are in the RC. The RC also constitutes 22 percent of the Total Air Force's uniformed personnel.

AIR FORCE LOGISTICS SYSTEM

The Air Force theater logistic system is a closed loop among CONUS depots,[1] base supply activities on main operating bases (MOBs) and forward bases, and the units or activities requesting the supplies. Each base has a supply activity that monitors and maintains stock levels of items of supply required by units and personnel stationed at the base. For example, base supply performs stockage, inventory control, requisitioning and delivery functions as well as maintaining the bench stocks for the maintenance shops. The base supply fuels section receives, stores and distributes fuel as well as food during wartime using military members of the commissary. Munitions are the exception, managed by a special section of base maintenance.

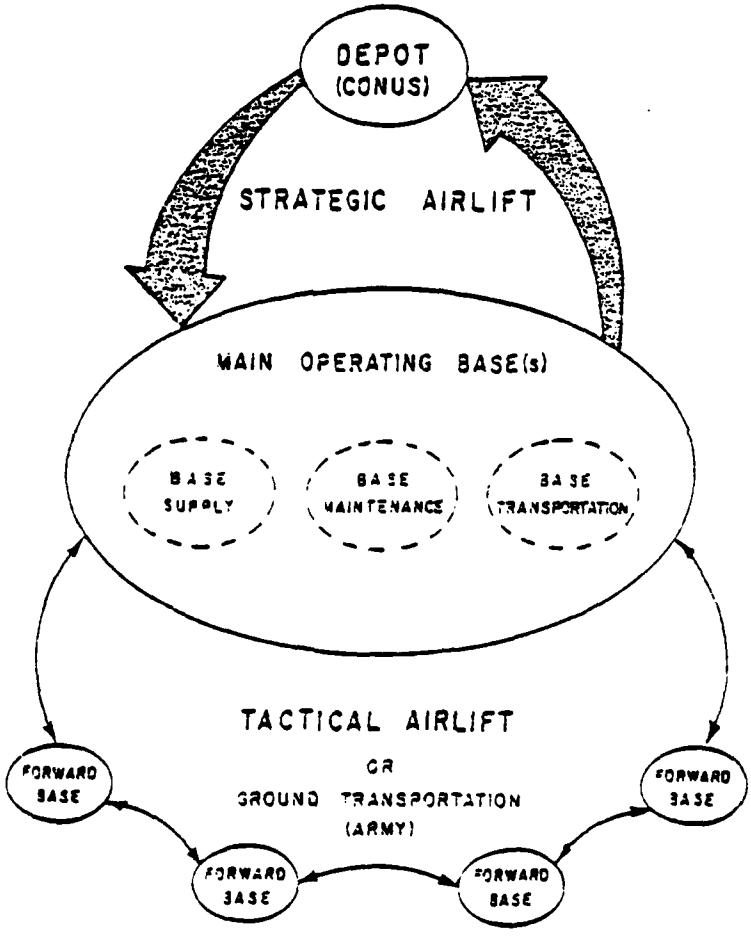
Requirements flow from the supply activity at forward bases to the nearest MOB. If a MOB cannot fill a unit's requirement from its inventory, the MOB passes a requisition to a CONUS depot or another source (Army, Navy, DLA, GSA or local purchase). The requisitioned materiel is shipped from CONUS to the MOB. The materiel may then be placed on trucks (from the base transportation squadron) for local delivery, Army ground transportation, commercial carrier (under Army contract) or intra-theater airlift for delivery to the forward bases. Figure B.2-2 shows this logistic system schematically.

Aside from host wings, other wings that deploy to MOB's or forward bases use the existing base facilities to connect into the Air Force supply system,

[1]Depots are largely civilian operations augmented in wartime by single individuals, not units.

and for access to fuel, housing, food, etc. These deploying wings bring their own logistics personnel who assist base logistics personnel to alleviate the increased logistics burden on the base. These logistics personnel remain wing assets and leave when the deploying wing leaves the base.

FIGURE B.2-2. AIR FORCE LOGISTICS SYSTEM



B.3. LOGISTICS FUNCTIONS

The RC has 126 of 230[1] noncombat wing transportation, maintenance, and supply units in the FY83 Total Air Force. Sixty-one percent of the Air Force's airlift and aerial port capability is in its RC (12 percent in the ANG, 49 percent in the USAFR) as well as 55 percent of the Combat Logistics Support Squadrons (only in USAFR). The RC also has 23 percent of the aerial refueling units (17 percent in the ANG, 5 percent in the USAFR). Table B.3-1 shows the logistics units.

TABLE B.3-1. NONCOMBAT WING LOGISTICS UNITS, TOTAL AIR FORCE
(in squadron-equivalents)

Type of Unit	Total Units	Percent		
		Active	ANG	USAFR
TRANSPORTATION				
Strategic Airlift (C-5, C-141 aircraft)	34	50	0	50[a]
Tactical Airlift (C-7, C-130 aircraft)	31	36	35	29
Aerial Port[b] (includes mobile sqdns)	116	36	10	54
Total	181	39	12	49
MAINTENANCE				
Combat Logistics Support	11	45	0	55
SUPPLY				
Air Refueling (KC-135, KC-10 aircraft)	38	77	18	5

[a]USAFR provides 50 percent of the air crews and, as of yet, 36 percent of the maintenance assets in these collocated strategic airlift squadrons.

[b]In our figures, two flights or one squadron equal one squadron-equivalent unit of 123 personnel. Since active squadrons vary in size from 85 to 300 (excluding civilians), active squadrons authorizations have been divided into 123 person squadron-equivalent units. The active, ANG and USAFR authorized personnel numbers are, respectively, 5229, 1297 and 7629. The 1556 civilians attached to active units and the active flying units with some limited aerial port capability are not included.

Source: Aggregated data from: MAC HQ; HQ AFLC; HQ AFRES; HQ USAF.

[1]All squadron-equivalent figures rounded up.

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TRANSPORTATION

Airlift is, in essence, the transportation function remaining outside the combat wing structure. Forward deployed units in a developed theater depend on airlift for the movement of rapid reinforcing units and high priority cargo. Air lines of communication are equally critical for the initial projection of forces into an undeveloped theater. Air Force units support these airlift operations through aircraft, personnel and equipment that load, fly, unload and manage aircraft, cargo and passengers.[2] RC units provide over one-half of this airlift capability.

Missions

Military airlift requires two basic types of units: flying units and aerial port units. Flying units are either strategic (moving cargo from CONUS to bases in theater) or tactical (moving cargo within the theater). Aerial port squadrons (APS) are classified as heavy (strategic) or mobile (tactical); the difference is essentially that mobile APS personnel train for more primitive base conditions.

Strategic airlift squadrons fly either C-141 "Starlifter" or C-5 "Galaxy" aircraft from CONUS aerial ports to designated theater locations.[3] The C-141 is used to move troops, general cargo and large items while the C-5 primarily moves equipment that exceeds the C-141's capability. The C-5 is essential for drive-on/drive-off rapid deployment operations involving large, wheeled and tracked vehicles. The maintenance assets of these squadrons will operate either at CONUS bases, enroute bases or forward locations.

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[2]Military Airlift Command (MAC) is the military command responsible for airlift.

[3]The KC-10 tanker/cargo and C-130 E/H can also be used for strategic airlift.

Tactical airlift units fly C-130s (A, B, D, E, or H models).[4] The C-130s are used primarily to move general cargo between bases in theater. They can airdrop paratroops and cargo. Late model C-130s can be used for strategic lift operations if required.

Tactical airlift units will deploy to operating bases in theater, bringing their own maintenance assets and spares. They will require basic logistics support from the host unit on the base.

Aerial port units provide the terminal services associated with loading/unloading, sorting, storing and repackaging of cargo in transit; they also prepare and manage passenger lists. Strategic Aerial Port Squadrons (APS) train for terminal operations in established bases, using wide-body loaders, computerized passenger and cargo listing systems and other equipment similar to that used by commercial air lines. Mobile APS train for more primitive tactical conditions using a smaller loader and less sophisticated techniques. The units are not directly interchangeable; however, about 60 percent of their training is the same.

These units mobilize in squadrons or flights but are employed as teams to either augment or establish airlift terminal services. The teams are tailored in size and specialty to the type of cargo and the anticipated intensity of airlift operations. Mobile APSs tend to be tasked to locations in smaller groups than the strategic APSs. Aerial port teams, both strategic and tactical, are required early in the initial stages of a major conflict to accommodate the surge in airlift operations.

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[4] One squadron flies the propellor-driven C-7 "Caribou." Its conversion to a C-130E squadron will be complete in FY 1984; it is included in our FY83 C-130 figures.

Force Structure

There are 17 active strategic airlift squadrons and 17 USAFR associate squadrons. The associate squadrons provide maintenance[5] and air crews but do not own any aircraft. Each USAFR associate squadron is collocated with an active unit. The organization of the USAFR unit during peacetime has a separate command structure that works closely with the active unit. Upon mobilization, the maintenance sections of the collocated active and USAFR squadrons will merge in order to increase the utilization rate of the aircraft; flying personnel will continue to fly as two squadrons that share aircraft.

About two-thirds of the Air Force's tactical airlift (20 of the 31 squadrons) are in the RC, 11 in the ANG and 9 in USAFR.[6] Unlike the associate squadrons, these squadrons own the aircraft and are organized as deployable units. Table B.3-2 shows the force structure distribution of strategic and tactical squadrons by aircraft type.

TABLE B.3-2. AIRLIFT SQUADRONS, TOTAL AIR FORCE

Type of Squadron	Number of Squadron-Equivalents				Percent
	Active	ANG	USAFR	Total	RC
Strategic					
C-141	13	0	13	26	50
C-5	4	0	4	8	50
Tactical					
C-130 (A,B,&D)	0	7	6	13	100
C-130 (E&H)	11	4	3	18	39

[5]Some aircraft maintenance in peacetime is performed by civil service technicians who also are members of the Reserve unit flying that aircraft. Both strategic and tactical airlift units use technicians. See Appendix A.

[6]Many RC squadrons have one-half as many aircraft as an equivalent active squadron in peacetime. The ANG has 17 8-aircraft airlift squadrons, while the USAFR has 12 plus one 6-aircraft squadron. In wartime, RC airlift squadrons with like-model aircraft will be combined to form full-size squadrons.

More than half of the dedicated aerial port capability authorized for the Air Force is found in the USAFR. Of the 116 squadron-equivalent units, 63 are in the USAFR or 54 percent. Together with the ANG's 11 squadrons, the RC contribution to the Air Force's aerial port capability is 64 percent.[7]

The two critical elements in an air line of communication are airlift and terminals. The RC provides 57 percent of the Air Force's airlift capability. It heavily supports the terminals by providing 64 percent of the aerial port units. Overall the RC provides 61 percent of the DoD's air lines of communication structure.

MAINTENANCE

In peacetime, wings use organic assets to perform organizational and intermediate level maintenance. Equipment requiring a higher level of repair is returned to the depot. Wartime operations, however, will require a rapid turn-around capability not available from over-committed wing maintenance assets and needed too urgently for reliance on depot repair. To support that requirement, the Air Force established Combat Logistics Support Squadrons (CLSS) under the Air Force Logistics Command (AFLC).

Missions

Each CLSS specializes in temporary repair of damaged aircraft in order to maximize the number of aircraft available to support the wartime mission. Mobile CLSS teams, varying in size and dedicated to specific aircraft, will deploy to forward locations and provide technical assistance, battle damage assessment and rapid battle damage repair. There are two types of battle damage repair teams: Combat Aircraft Repair Team and Rapid Area

[7]Seven active Mobility Support units have some aerial port capabilities, as do three active airlift squadrons. These capabilities, however, are limited and, therefore, not included.

Maintenance Team. These teams differ in the level of repair performed and the number of personnel involved (from 18 to 33 although several unique teams have seven). In wartime, these teams will perform maintenance "triage" at a forward site, deciding whether to repair, evacuate or cannibalize the damaged aircraft. They are trained to use expedient methods to get the plane operational.

Small supply and packaging teams, part of the CLSS and numbering in size from four to six individuals, will also deploy in support of the battle damage repair function. These teams provide packaging, supply and distribution support to the maintenance teams or maintenance section.

Each CLSS is authorized 300 personnel composed primarily of highly skilled enlisted personnel. One CLSS can be deployed as many as 11 teams or as few as 3 according to the intensity of combat and the aircraft involved. Their deployment is determined by the Air Force War Mobilization Plan and depends upon the type and quantity of aircraft bedded down at any given location. In the initial stages, these teams are likely to be widely distributed. Once the surge is over, they will regroup and provide depot-level maintenance in the theater.

Force Structure

Six of the eleven CLSSs in the Total Air Force are in the USAFR. The dependence upon the USAFR units is more apparent when the repair teams are identified by the aircraft they support. Table B.3-3 shows that, aside from the A-10, the USAFR CLSS repair teams are critical to battle damage repair of key Air Force weapon systems. For one system, the C-130, ninety percent of the battle damage repair is provided by USAFR teams.

TABLE B.3-3. CLSS REPAIR TEAMS BY AIRCRAFT

Aircraft	Active Teams	Active People	USAFR Teams	USAFR People	Percent of Teams in USAFR
A-10	7	140	4	80	36
F-15	2	52	5	142	71
F-16	2	60	3	90	60
F-4	8	184	10	210	55
C-130	1	16	9	144	90
C-141	1	17	1	17	50
KC-135	1	32	1	32	50
B-52	2	36	2	36	50
Engine Teams	34	64	40	82	54

Source: AFLC

SUPPLY

Every base has a supply function connected directly to the automated Air Force supply system. Such supply organizations range in size from large supply operations with numerous personnel to one or two persons on a forward base. Few supply functions exist outside the wing/base or depot structure. Supply assets will deploy along with their wing to a wartime base and form a base supply organization. Normally deploying wings will bring a 30-day supply of essential parts and other support equipment.[8] They will merge their supply personnel into the existing base supply system. They will establish their own system if none exists on a forward base. RC combat wings contain approximately the same support structure as active combat wings and, accordingly, the number of supply personnel deployed with the RC combat wing is tailored to offset the increased supply burden at the wartime base. The exception to this closed-loop supply system is external to the wing: aerial refueling.

[8] In the Guard and Reserve, except for filler aircraft, most of the aircraft units have this 30 day supply in their War Reserve Supply Kit (WRSK).

Missions

Without aerial refueling, SAC bombers can neither stay continuously aloft on alert nor carry out their wartime missions; tactical fighters will not be able to deploy efficiently to overseas theaters; and strategic airlift aircraft will require additional enroute bases on long hauls and will be more vulnerable as they refuel on the ground in theater.

Aerial refueling squadrons fly either the KC-135 "Stratotanker" or the KC-10 cargo/tanker. The squadrons fly refueling missions for MAC, SAC, TAC and any other command with aircraft that need and can accommodate aerial refueling. Tanker crews fly to meet certain aircraft at a predetermined place, altitude and time for the refueling. A portion of the Air Force's tanker fleet is on alert at all times to support the strategic bomber fleet.

Force Structure

Of the 38 aerial refueling squadron-equivalents, the RC provides 9 squadron-equivalents (7 in the ANG and 2 in the USAFR),[9] or 23 percent of the Air Force's total. Even though the RC contribution to the Air Force supply is quantitatively less dramatic than maintenance or transportation, the RC still provides nearly one-quarter of the Air Force's aerial refueling capability.

[9]These are distributed over 13 ANG squadrons and 3 USAFR squadrons that have frequently less than one-half the aircraft of an active squadron; the fourth USAFR squadron is an associate KC-10 squadron, with no aircraft.

B.4. READINESS

The JCS UNITREP System is the single automated system that reports the current status of selected Active and Reserve Components units. It gives the status of each unit in terms of personnel, personnel training, equipment stocks and equipment readiness. The ratings of each category are combined into an overall "C" rating, ranging for most units from C-1 to C-4.[1] The overall rating must be the lowest rating on any of the categories unless raised or lowered by the subjective judgment of the unit commander. The individual rating of each measured resource area must be reported without modification.

In the Air Force, SAC bomber and missile units, MAC strategic airlift units and TAC airborne warning and control units report at the wing level while squadrons and deployable or deployed detachments report separately. Active units report weekly; RC flying units report monthly or as changes occur. RC logistics units report quarterly or as changes occur. Table B.4-1 shows the categories for rating unit assets.

The Personnel ratings are based on total end-strength and critical skills; the optional "senior strength" category is not included. The Training ratings focus on combat-ready aircrews and ICBM missile crews. The training level of other personnel are reflected only in the "critical skills" criterion under Personnel. The ratings for Equipment and Supplies On-Hand consider only "combat essential equipment" (aircraft), but major commands may require additional information on other end-items, support equipment, and supplies. The Equipment Readiness rating is based only on aircraft for flying units and missiles for ICBM units; other end-items are not considered.

[1]There is also a C-5 rating for specialized units such as training units or units undergoing conversion to new equipment. The categories of combat readiness are listed in Appendix A.

TABLE B.4-1. READINESS CATEGORIES AND COMBAT RATING LEVELS

Category	Rating			
	C-1	C-2	C-3	C-4
Personnel[1]				
Total End-Strength	>90%	≥80%	≥70%	<70%
Critical Skills	≥85%	≥75%	≥65%	<65%
Senior Strength (Optional)	≥85%	≥75%	≥65%	<65%
Training[2]				
Weeks of Training Required	<2	>2<4	>4<6	>6
Or, Percent of Combat Ready Aircrews	≥85%	≥70%	≥55%	<55%
Or, Percent of Unit Training Completed	≥85%	≥70%	≥55%	<55%
Equipment On-Hand[3]				
Combat-Essential Equipment				
Aircraft	>90%	≥80%	≥60%	<60%
Other Equipment	≥90%	≥80%	≥65%	<65%
End-Items, Support Equipment & Supplies	≥90%	≥80%	≥65%	<65%
Equipment Readiness[4]				
Combat-Essential Equipment				
Aircraft	>75%	≥60%	≥50%	<50%
Other Equipment	≥90%	≥70%	≥60%	<60%
End-Items	≥90%	≥70%	≥60%	<60%

[1]The "Senior Strength" category applies to senior noncommissioned officers or senior petty officers in grades E-6 through E-9, and to all commissioned officers.

[2]The C-rating is based on either the number of weeks required to attain fully trained status, the percentage of wartime-required aircrews formed, combat ready and available, or the percentage of unit training completed.

[3]A unit may have several types of combat-essential equipment, end-items, support equipment, or supplies for which on-hand percentages are separately computed, the lowest C-rating assigned for these categories determines the C-rating for equipment and supplies on-hand.

[4]The C-rating criteria are based on the percentage of weapon systems and equipments required to perform the unit's wartime mission that are on-hand and fully capable.

Not all unit assets are included in the ratings. Support units often do not have items to be monitored. The resources of direct support units (e.g., the wing's ground maintenance organizations) are considered part of the flying unit's resources for readiness reporting. Furthermore, the UNITREP system does not always reflect the mission essential equipment of separate logistics units apart from the wing structure. For example, aerial port squadrons must have specialized materiel handling equipment at their wartime location to carry out their wartime mission; yet no equipment ratings are included in the readiness ratings of these units.

B.5. OBSERVATIONS

The dependence of the Air Force upon its Reserve Components is similar to that of the Army. Approximately one-half of the logistics capability outside the combat wing is in the ANG and USAFR. As a result, it is unlikely the Air Force could engage in or support a major conflict without extensive reliance upon the logistics capability in its RC.

The ANG and USAFR make a major contribution to military airlift in the provision of aircraft, mechanics, aircrews and cargo handlers. Any contingency requiring rapid movement of significant military forces and supplies from CONUS to a theater of operations will immediately require assets from the ANG and USAFR. Futhermore, the more distant the theater, the more critical aerial refueling becomes to deploy forces and expedite resupply across areas lacking enroute bases or sea avenues of approach. In short, the ANG and USAFR are crucial to effective and responsive air lines of communication.

The more undeveloped the theater, the more likely it is that tactical airlift will be required. Tactical airlift in undeveloped areas means rugged deliveries close to the battle and a probable increase in aircraft battle damage. Not only does the RC dominate the loading and flying of tactical airlift but it also provides 90 percent of the CLSS teams dedicated to battle damage repair of the C-130s.

The Air Force can accommodate a shortage of aircraft only by increasing sortie rates through additional pilots, greater efficiency on the ground and fewer refueling stops. Air Force plans depend substantially on fully staffed, trained and equipped ANG and USAFR logistics units. Some of these units are required to be ready to deploy within 48 hours after mobilization has been

declared. If those units are not ready, any projection of force involving Air Force assets will be seriously hampered.

BACKGROUND NOTES: HISTORY AND STRUCTURE OF THE AIR NATIONAL GUARD AND AIR FORCE RESERVE[1]

The national defense missions of the ANG and the USAFR are identical. The ANG has the additional state mission of protecting life and property and preserving peace, order and public safety within the state under the direction of either federal or state authorities. This state responsibility, along with membership in the total force, gives the National Guard (both Air and Army) a status unique among our reserve forces. In contrast, the USAFR operates exclusively under federal control.

AIR NATIONAL GUARD

History

The history of the National Guard, oldest established military organization in the United States, began more than 340 years ago. Other than observation balloons during the Civil War, aviation did not formally enter the National Guard until 1908 when the Aeronautic Corps was organized in New York's National Guard (1st Company, Signal Corps). In 1911 other aviation units were formed in Missouri and California. The first federally recognized unit was established in 1915: the 1st Aero Company of the New York National Guard.

The 1916 National Defense Act made official the term "National Guard." It recognized the Guard as a part of the federal peacetime military force, further providing that, upon call to active federal service, the Guard became an integral part of the US Army. Formerly located in the Division of Militia Affairs, the Guard's administrative center became the Militia Bureau until 1933 when it was renamed the National Guard Bureau.

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[1]Source: Material taken in large measure from "Managing The Air Force," Chapter 23, DLSI Report No. ADB043054, 1980.

Although individual National Guard aviators served in World War I, no air units were mobilized. Several years later, however, flying units were fully integrated into the National Guard structure. Mobilization of 29 Army Guard observation squadrons prior to World War II formed the nucleus of the Army Air Corps.

In 1946, the first post-war Air National Guard unit, the 120th Fighter Squadron of Colorado received federal recognition. Later that year, the Secretary of War reorganized the Guard, assigning it a dual federal-state status and providing substantial federal assistance. The 1947 National Security Act established the ANG as a component of the United States Air Force, officially sanctioning the title "Air National Guard."

Command Structure

National Guard Bureau. The National Guard Bureau (NGB) is a joint bureau of the Departments of the Army and Air Force, serving as both a staff and operating agency. The NGB consists of the Chief's office with joint offices serving both the Army National Guard (ARNG) and the Air National Guard directorates and staffs. The NGB formulates and administers programs to insure the continued development and maintenance of ANG (and ARNG) units throughout the various states, the District of Columbia, Guam, Virgin Islands and Puerto Rico, in accordance with DoD policies, state and federal laws, and National Guard regulations.

The Director of the Air National Guard is a member of the Air Staff and works directly with the Air Force Chief of Staff. While possessing no command authority, the Director directs and controls Air National Guard programs through the governors and adjutants general of the various states (as illustrated in Figure B.B-1).

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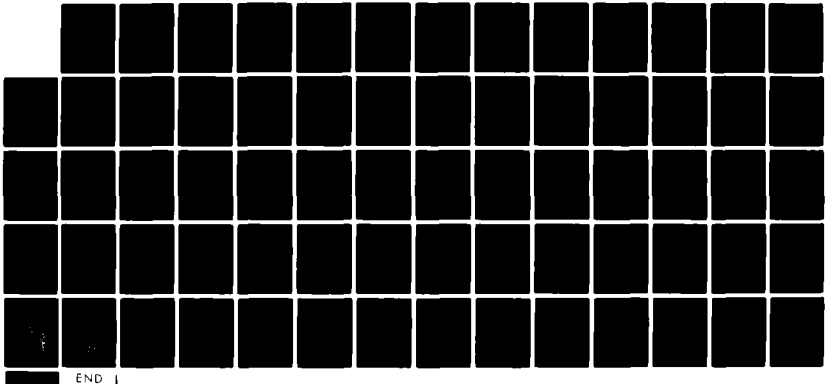

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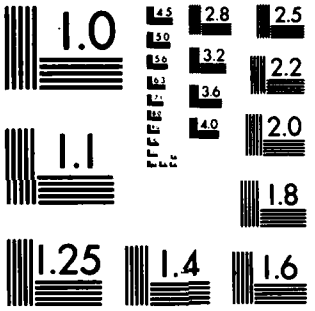

MICROCOPY RESOLUTION TEST CHART
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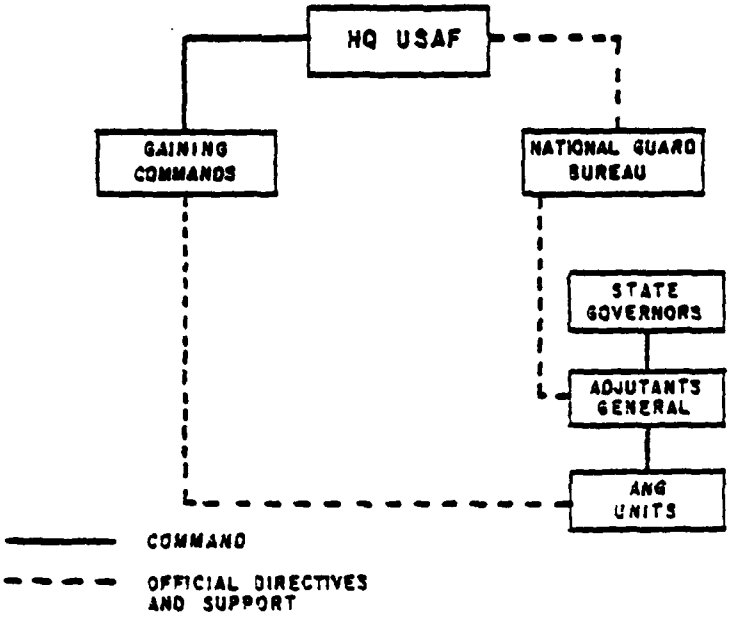
FIGURE B.B-1. AIR NATIONAL GUARD MANAGEMENT STRUCTURE



SOURCE: HQ USAF

Units. Air National Guard flying units are staffed and organized in accordance with gaining major command mobilization requirements. Each flying unit location has either a wing/squadron or a group/squadron organization. Day-to-day management of the unit is provided by full-time, civil service personnel called "Air Technicians" (ATs).[2] These technicians are military reservists whose specialties correspond with their civilian technician jobs. The senior air technician is usually the unit military commander. This position is comparable to a wing and/or base commander in the Active Air Force.

Gaining Command. All ANG units are functionally aligned with gaining major commands. The gaining command is responsible for setting training standards, monitoring the safety program and insuring readiness by conducting inspections. While not formally in the ANG chain-of-command, the gaining

[2]Air technicians must hold military positions in the units to which they are assigned. The technician force represents roughly 25 percent of the total ANG strength. The state adjutants-general administer the technician force in accordance with regulations prescribed by the National Guard Bureau.

commands play an important role in the overall management of the Air National Guard. They provide advisors to each unit to assist as required.

THE AIR FORCE RESERVE (USAFR)

History

The ancestry of USAFR can be traced to the National Defense Act of 1916. The Act authorized the first air reserve program composed of 296 officers and 2,000 enlisted personnel of the Aviation Section, Signal Reserve Corps. The first organized air reserve unit (the 1st Aero Reserve Squadron at Mineola, New York) was activated on 26 May 1917 and three months later deployed to France.

By 1940, there were 800 Army Air Corps pilots on extended active duty; they were joined by 700 others after Pearl Harbor. These pilots, plus a contingent of nonrated officers and enlisted personnel, gave the Army Air Corps a small trained cadre of personnel critical in the early months of the war.

In 1948 the Air Staff created the Continental Air Command (CONAC) under which six numbered air forces administered both the Guard and Reserve. The active Air Force retained management of the Reserve at the middle and upper echelons; reservists commanded operating units only. In 1957 the Reserve Technician Plan was implemented. During 1960-1961, six regional headquarters replaced the numbered air forces and reservist leadership extended to the regional levels. To more clearly connect reserve training and the Air Force wartime mission, the gaining commands were given responsibility for Reserve training criteria and inspection responsibilities.

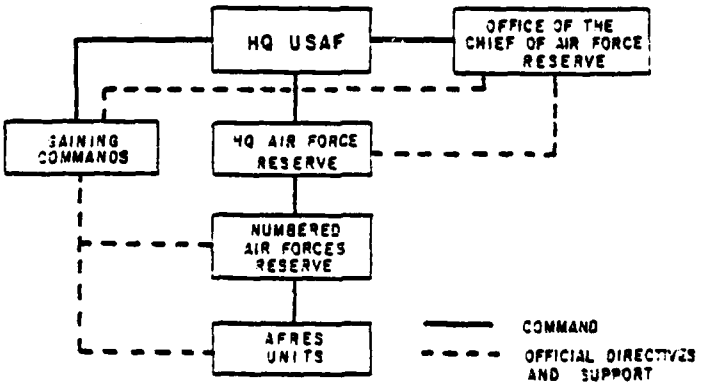
Another management reorganization in 1968 followed the enactment of Public Law 90-168. Pursuant to the law's provisions, the Office of Air Force Reserve (AF/RE) replaced the fifteen year old Office of Assistant Chief of

Staff for Reserve Forces; Reservists were given approximately 40 percent of the office staff positions. Headquarters Air Force Reserve (HQ, AFRES Robins AFB, Georgia) became a field extension of AF/RE (similar to a major command) replacing CONAC. In March 1972, the positions of Chief USAFR and Commander HQ AFRES were consolidated. Four years later the three numbered air forces were placed under AFRES management.

Command Structure

HQ Air Staff. A USAFR major general (on active duty) serves as the Chief of Air Force Reserve in the Office of Air Force Reserve (AF/RE). As the principal advisor to the Air Force Chief of Staff on all USAFR matters, the Chief of USAFR is responsible for planning, programming, and coordinating the USAFR mission, budget, and force structure. As the Commander of HQ AFRES, the Chief also is responsible for the supervision, management, training, and safety of USAFR forces (Figure B.B-2). Since the majority of the Chief's time is spent in the Pentagon, day-to-day management of HQ AFRES is delegated to the Vice Commander, a Reserve major general also on active duty.

FIGURE B.B-2. AIR FORCE RESERVE MANAGEMENT STRUCTURE



SOURCE: HQ USAF

Organizationally structured and staffed similar to a major command, the HQ AFRES provides administrative support and monitors unit training of

three numbered air forces--the Fourth Air Force at McClellan AFB, California, the Tenth Air Force at Bergstrom AFB, Texas, and the Fourteenth Air Force at Dobbins AFB, Georgia. These numbered air forces supervise field-level reserve units. In addition, they interact with the gaining command structure at the intermediate management level. The Fourth and Fourteenth Air Forces oversee units gained predominantly by the MAC. Under the gaining command concept, USAFR units and Individual Ready Reservists will be integrated into these commands upon mobilization. The Tenth Air Force, which manages the remaining units, is not aligned with an active numbered air force and provides units to TAC, AFLC and SAC.

Units. Air Force Reserve flying units are categorized as either "equipped" or "associate." Equipped units own, maintain and operate their own aircraft. An associate unit is collocated with an active unit and flies and maintains aircraft assigned to the active unit. At the wing or group level, an Air Reserve Technician (ART) normally commands[3] but a reservist usually commands a squadron. Reservists in associate units fly about 30 percent of the flying time allotted to active pilots.

The gaining commands of equipped units are MAC, SAC or TAC; MAC and SAC also gain associate units. Equipped units are assigned active duty advisors from the gaining command; however, associate units need no advisors because of their close connection to the active unit.

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[3]A large portion of USAFR full-time personnel consists of ARTs who combine the role of reservist and federal civil service employee. In the latter position, ARTs work at their respective units during the normal duty week, maintaining continuity in the operation of the unit. Their primary function is to conduct reserve training. As members of the Selected Reserve, they attend unit training assemblies along with other reservists during off-duty hours. At mobilization, they are called to active duty with their unit. About 75 percent of the approximately 7,000 ARTs currently in the USAFR system support aircraft maintenance functions. The total ART strength provides about 15 percent of the total USAFR Selected Reserve personnel assigned to units.

APPENDIX C

WORKING NOTE: NAVY RESERVE AND LOGISTIC SUPPORT FUNCTIONS

(ML206-3)

September 1982

Edward D. Simms
Joseph R. Wilk
William A. Woodring

APPENDIX C

PREFACE

This working note documents the dependence of the "Total Navy" on Reserve logistics units. It concentrates on Naval Reserve organizations that support the predominant providers of logistic support to the fleet. The working note, therefore, does not account for every Reserve augmentation situation. In other respects, the note may also be at variance with current or planned Reserve staffing levels. Specifically, Reserve staffing increases are planned, or underway, for some shore maintenance organizations, supply centers and depots, weapons stations, sealift offices, and several naval aviation organizations. To this extent, the portrayal of Reserve dependency may, in some cases, be unintentionally understated. This should not significantly diminish the usefulness of this note.

Comments and corrections to the factual content of this working note are invited.

APPENDIX C

TABLE OF CONTENTS

C.1. INTRODUCTION

PURPOSE

The study plan for "Readiness of Reserve Logistics Units" (LMI Task ML206) calls for the preparation of several informal working notes. This working note documents the Navy's dependence upon its Reserve logistics units. It addresses the extent to which Naval Reserve units are expected to support maintenance, supply, and transportation functions in time of war.

SCOPE

This working note is primarily concerned with the Reserve augmentation of Active Navy units whose mission is to provide second and third echelon support to the operating forces. Second echelon support includes that provided by tenders, repair ships, and fleet issue ships of the Mobile Logistics Support Force and by overseas depots, stations, facilities, and advance bases. Third echelon support is provided primarily from the continental U.S. (CONUS) tide-water centers. Organizational maintenance and supply aboard task force combatants (i.e, first echelon support) is excluded.

The assessment of the Navy's dependency on Reserve logistics support is based upon the percentage of logistics billets expected to be filled by Reservists upon mobilization. This approach differs from that used in the Army and Air Force assessments in which the focus was on homogeneous logistics units (i.e., number of companies, squadrons of a given type, etc.). The unit measure is not universally applicable to the Navy.

ORGANIZATION OF THE WORKING NOTE

This working note presents an overview of the Navy Reserve within the perspective of the "Total Navy" and an introduction to the Navy logistics

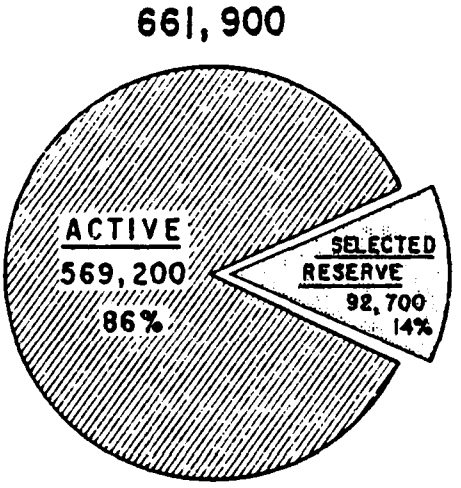
structure. The Navy's dependency on the Naval Reserve for maintenance, supply and transportation is then depicted. Next, the readiness reporting for units of the Naval Reserve is described and, finally, several observations are made about the Navy's dependency on its Reserves for logistical support. Information on the history, mission, description, and organization of the Naval Reserve is in the section entitled "Background Notes."

C.2. OVERALL PERSPECTIVE

TOTAL FORCE OVERVIEW

The "Total Force" policy is often referred to in discussions of Navy strength and capability. The term expresses the view that Active and Reserve Components working together form a single Navy, each dependent on the other. The contribution of the Navy's Selected Reserve (SELRES) to the "Total Navy" is portrayed in Figure C.2-1. Even though the Selected Reserve constitutes only 14 percent of the "Total Navy," it is the most important of the Reserve categories because of its year round training requirement, its organization of members into units, and its susceptibility to immediate mobilization.

FIGURE C.2-1. TOTAL NAVY MILITARY PERSONNEL*
(FY 83 End Strength Requirements)



*Data are from "Manpower Requirements Report for Fiscal Year 1983," Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), February 1982.

LOGISTICS SUPPORT OVERVIEW

Navy Logistics Structure

The Navy has a three-level logistics support structure for both maintenance and supply. System and equipment maintenance of ships and

aircraft is performed at organizational, intermediate, and depot levels. Organizational and intermediate maintenance are both performed largely by military mechanics while depot maintenance is performed primarily by civilians (i.e., civil service employees or contractor personnel). Intermediate maintenance is performed afloat and ashore, with shore facilities located both in CONUS and outside CONUS (OCONUS).

Supply support is based upon organizational supply and two echelons of resupply. The first backup echelon, combat resupply, is provided by replenishment ships in forward areas. Second echelon resupply is provided by supply centers in several CONUS tidewater areas. Supply centers store material received from manufacturers and other supply systems for subsequent issue to replenishment ships or directly to operating forces. Navy supply doctrine provides for 90-day endurance levels aboard combatants, with sustainability extended an additional 90 days through stores provided by replenishment ships.

The Navy's organic transport capability consists of replenishment ships, carrier onboard delivery (COD) aircraft, and air transport squadrons supporting intratheater fleet operations.

Assessing Reserve Logistics

The assessment of the Navy's dependence upon Reserves is based on an examination of the manpower source programmed for mobilization of selected logistics support organizations.[1] The objectives of that examination are to establish the extent of "Total Force" dependence on the Navy's Selected Reserve for each logistics function and to determine the distribution of that

[1]The military manning data used for this analysis is from the Navy's Manpower Authorization Document, commonly referred to as the "SMD" or "OPNAV 1000/2," which is contained in the "Manpower Allocation Plan--Management Information System (MAPMIS)," Office of the Chief of Naval Operations (OP-113C1), 30 June 1981.

dependence among afloat, OCONUS, and CONUS organizations. The specific types of organizations within each logistics function considered in the assessment are shown in Table C.2-1.

TABLE C.2-1. SELECTED TYPES OF NAVY LOGISTICS ORGANIZATIONS

Function/Type of Organization
MAINTENANCE:
Destroyer Tenders and Repair Ships
Shore Intermediate Maintenance Activities
Submarine Tenders
Submarine Support Facilities
Aircraft Intermediate Maintenance Departments
Naval Stations (Aircraft Support)
SUPPLY:
Underway Replenishment Ships
Supply Centers and Depots
Air Station Supply Departments
Weapons Stations
Advance Supply Bases
TRANSPORTATION:
Underway Replenishment Ships
Fleet Logistics Support Squadrons
Carrier On-Board Delivery Squadrons
Military Sealift Command Offices
Naval Control of Shipping Offices
Cargo Handling Battalions

C.3. NAVAL RESERVE LOGISTICS SUPPORT

This chapter documents the extent of the Navy's dependence upon the Naval Reserve for maintenance, supply and transportation support during wartime.

MAINTENANCE

Surface Ships

System and equipment maintenance of surface ships is generally performed at three levels: (1) organizational (i.e., onboard the ship by the ship's crew), (2) intermediate (i.e., at afloat and ashore intermediate maintenance activities by military personnel), and (3) depot (i.e., at a shipyard or other designated overhaul point by either civil service or contractor personnel).

The extent of organizational maintenance performed on specific equipment varies by ship type and class. Larger ships are much more self-sufficient than smaller ships, which are limited by personnel, tools, test equipment, and shop space. Aircraft carriers have extensive organizational maintenance capability. In contrast, smaller, austerely manned ships, such as the FFG-7 class frigate, have much less organizational maintenance capability.

Intermediate maintenance is maintenance that is beyond the capability or capacity of the organizational level and does not require the capability of a shipyard to accomplish. It includes assembly and end-item repair and rebuild, calibration and alignment, manufacture/fabrication of parts/fixtures, and technical assistance. Surface ship intermediate maintenance is generally performed in U.S. ports where fleet units are heavily concentrated or in overseas ports accessible to forward deployed fleet units.

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The Navy has 20 primary intermediate maintenance activities (IMAs) to support surface ships: 9 destroyer tenders (ADs), 4 repair ships (ARs), and 7 shore IMAs (SIMAs). The destroyer tenders and repair ships provide the Navy with mobile facilities for intermediate maintenance. Their primary mission is to accomplish those ship repairs not requiring the use of a drydock or heavy industrial facilities, including maintenance and repair of electronics equipment and hull, mechanical, and electrical (HM&E) equipment, fabrication of parts and fixtures, and some underwater repairs. Operating in fixed facilities, SIMAs support the same ships serviced by destroyer tenders and repair ships.[1] The nature and complexity of the maintenance support provided by a SIMA is comparable to that provided by a modern destroyer tender.

Based on authorized Active billets and funded SELRES billets, both officer and enlisted, SELRES manning for destroyer tenders and repair ships ranges from 71 on the USS Prairie to 636 on the USS Yellowstone (Table C.3-1). Overall, Reservists provide 20 percent of the Navy's afloat IMA staffing, with individual ship percentages varying from 7 to 36 percent.

To assess the magnitude of the Navy's dependence upon Reserves for afloat intermediate maintenance, the Repair and Weapon Repair Departments' staffing were examined separately. SELRES augmentation for several ADs and ARs is shown in Table C.3-2. The overall average repair function dependency is 19 percent.

SELRES manning for SIMAs is substantially higher than that for ADs and ARs. Table C.3-3 shows that SIMA wartime manning is 46 percent dependent on SELRES augmentation, with individual SIMAs varying from 42 percent at San Diego to 57 percent at Charleston (exclusive of SIMA, NAS Norfolk which has no

[1]The SIMA at the Naval Air Station, Norfolk is an exception; it primarily supports aircraft carriers.

TABLE C.3-1. DESTROYER TENDER AND REPAIR SHIP: RESERVE DEPENDENCY*

Ship	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Dixie (AD-14)	31	895	926	7	65	72	38	960	998	7
USS Prairie (AD-15)	32	901	933	7	64	71	39	965	1,004	7
USS Piedmont (AD-17)	31	769	800	7	154	161	38	923	961	17
USS Sierra (AD-18)	31	810	841	12	146	158	43	956	999	16
USS Yosemite (AD-19)	31	802	833	7	148	155	38	950	988	16
USS Samuel Gompers (AD-37)	39	1,165	1,204	6	193	199	45	1,358	1,403	14
USS Puget Sound (AD-38)	42	1,276	1,318	7	269	276	49	1,545	1,594	17
USS Yellowstone (AD-41)	36	1,085	1,121	12	624	636	48	1,709	1,757	36
USS Acadia (AD-42)	36	1,087	1,123	12	362	374	48	1,449	1,497	25
USS Cape Cod (AD-43)	—	1,075	1,075	—	612	612	—	1,687	1,687	36
USS Vulcan (AR-5)	29	705	734	11	293	304	40	998	1,038	29
USS Ajax (AR-6)	28	852	880	12	137	149	40	989	1,029	14
USS Hector (AR-7)	29	774	803	11	161	172	40	935	975	18
USS Jason (AR-8)	29	845	874	11	84	95	40	929	969	10
Total	424	13,041	13,465	122	3,312	3,434	546	16,353	16,899	20

*USS Dixie has been decomissioned and USS Piedmont is scheduled for decommissioning at the end of FY 82.

TABLE C.3-2. REPAIR FUNCTION: RESERVE DEPENDENCY

Ship	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Prairie (AD-15)	11	403	414	-	49	49	11	452	463	11
USS Piedmont (AD-17)	11	364	375	-	90	90	11	454	465	19
USS Sierra (AD-18)	11	368	379	-	83	83	11	451	462	18
USS Samuel Gompers (AD-37)	14	521	535	-	99	99	14	620	634	16
USS Acadia (AD-42)	13	558	571	3	206	209	16	764	780	27
USS Vulcan (AR-5)	9	374	383	3	156	159	12	530	542	29
USS Hector (AR-7)	9	384	393	3	96	99	12	480	492	20
USS Jason (AR-8)	9	429	438	3	49	52	12	478	490	11
Total	87	3,401	3,488	12	828	840	99	4,229	4,328	19

SELRES billets assigned). Since virtually all billets at a SIMA are directly associated with the repair function, it is not necessary to further subdivide this dependency.

TABLE C.3-3. SIMA: RESERVE DEPENDENCY

Location	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
Charleston, South Carolina	5	425	430	14	551	565	19	976	995	57
Little Creek, Virginia	6	467	473	16	488	504	22	955	977	52
Mayport, Florida	7	582	589	14	559	573	21	1,141	1,162	49
Norfolk, Virginia (NAVSTA)	8	552	560	22	526	548	30	1,078	1,108	49
Norfolk, Virginia (NAS)	3	171	174	—	—	—	3	171	174	—
Pearl Harbor, Hawaii	10	484	494	—	387	387	10	871	881	44
San Diego, California	40	1,850	1,890	24	1,350	1,374	64	3,200	3,264	42
Total	79	4,531	4,610	90	3,861	3,951	169	8,392	8,561	46

In addition to the tenders, repair ships, and SIMAs, the Navy has Advance Base Functional Components (ABFCs) for surface ship maintenance.[2] An ABFC is a grouping of *personnel*, *facilities*, *equipment*, and material designed to perform a specific function or to accomplish a particular mission at an advance base. ABFCs are created to fill a wartime need where no peacetime organization exists, or where additional capacity is needed to augment peacetime organizations. They may be only a planning tool or they may be a technically operational entity with all of the personnel, structures, equipment, and material necessary to perform the mission, needing only transportation to and assembly at their destination. As a rule, Reservists are programmed to staff virtually all ABFCs. The Navy has developed approximately 185 different ABFCs; current plans call for the use of 75. For surface ship maintenance, the Navy has six types of ABFCs (which require personnel), with a total staffing requirement of 236 billets.

[2]ABFCs have been established for a wide variety of functions, including maintenance. They are described in this section for convenience.

Submarines

As with surface ship maintenance, system and equipment maintenance of submarines is also performed at three levels. Unlike surface ships, however, the levels of maintenance are more specifically defined for submarines, especially at the organizational level. The extent of organizational maintenance performed on specific equipment is generally consistent for submarines in contrast to surface ships for which the maintenance performed on specific equipment varies by ship type and class.

Intermediate maintenance of submarines is that maintenance beyond the capability or capacity of the submarine crew. It is generally performed between regular overhauls and includes assembly/equipment repair and rebuild, equipment calibration and system alignment, fabrication, and technical assistance. Since submarines are limited in organizational capability and capacity (e.g., space, parts, staffing, test equipment, etc.), extensive work is performed at the intermediate level. As with surface ships, submarine intermediate maintenance is performed either on or off the submarine by military personnel in afloat and ashore IMAs. Submarine intermediate maintenance is generally performed in U.S. ports which have a heavy concentration of submarines or in overseas ports accessible to forward deployed submarines.

The Navy has 15 submarine intermediate maintenance activities: 13 submarine tenders (ASs) and 2 shore support facilities. Eight of the submarine tenders support attack submarines (SS/SSN) while five support fleet ballistic missile submarines (SSBN). The submarine tenders provide mobile facilities for the maintenance and repair of HM&E and electronics equipment, fabrication of parts and fixtures, and some underwater repairs.

Two shore facilities (the Naval Submarine Support Facility (NSSF) at New London (Groton), Connecticut and the Submarine Base at Pearl Harbor,

Hawaii)[3] also provide intermediate maintenance support to submarines. Both are located in fixed facilities ashore and staffed primarily with military personnel. The nature and complexity of the maintenance performed by the NSSFs is similar to that performed by modern ASs, although shore facility capacities are greater.

Table C.3-4 shows Active and Reserve staffing data for 12 of 13 submarine tenders and both shore support facilities. SELRES manning ranges from 18 on the USS Frank Cable to 501 at NSSF Pearl Harbor. The dependencies also vary considerably--from 2 percent on the USS Frank Cable to 31 percent at NSSF Pearl Harbor. Overall, 15 percent of the Navy's wartime submarine IMA manning is in the Reserve.

TABLE C.3-4. SUBMARINE TENDER AND SUPPORT FACILITY: RESERVE DEPENDENCY*

Unit	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Fulton (AS-11)	41	917	958	38	338	376	79	1,255	1,334	28
USS Sperry (AS-12)	38	944	982	34	276	310	72	1,220	1,292	24
USS Orion (AS-18)	41	922	963	33	285	318	74	1,207	1,281	25
USS Proteus (AS-19)	42	957	999	12	58	70	54	1,015	1,069	7
USS Hunley (AS-31)	54	1,146	1,200	12	59	71	66	1,205	1,271	6
USS Holland (AS-32)	58	1,146	1,204	13	58	71	71	1,204	1,275	6
USS Simon Lake (AS-33)	57	1,148	1,205	13	60	73	70	1,208	1,278	6
USS Canopus (AS-34)	56	1,128	1,184	13	58	71	69	1,186	1,255	6
USS L. Y. Spear (AS-36)	45	1,076	1,121	20	141	61	65	1,217	1,282	13
USS Dixon (AS-37)	44	1,175	1,219	20	142	162	64	1,317	1,381	12
USS Emory S. Land (AS-39)	46	1,076	1,122	20	141	161	66	1,217	1,283	13
USS Frank Cable (AS-40)	47	1,073	1,120	18	--	18	65	1,073	1,138	2
NSSF Groton	28	1,077	1,105	24	250	274	52	1,327	1,379	20
NSSF Pearl Harbor	23	1,072	1,095	19	482	501	42	1,554	1,596	31
Total	620	14,857	15,477	289	2,348	2,637	909	17,205	18,114	15

*Excludes USS McKee (AS-41) which does not yet have SELRES billets assigned. USS Sperry is scheduled for decommissioning at the end of FY 1982.

[3]These facilities both are referred to as NSSFs in this report.

Using a sample of five submarine IMAs, SELRES augmentation to the Repair and Weapon Repair Departments is shown in Table C.3-5. The average dependency of the repair function is 23 percent, although the percentage varies from 9 percent on the USS Holland to 34 percent at NSSF Pearl Harbor. The repair function dependence is somewhat higher than that for the entire IMA.

TABLE C.3-5. REPAIR FUNCTION: RESERVE DEPENDENCY

Unit	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Orion (AS-18)	15	472	487	18	193	211	33	665	698	30
USS Proteus (AS-19)	14	444	458	6	49	55	20	493	513	11
USS Holland (AS-32)	24	604	628	6	54	60	30	658	688	9
USS Emory S. Land (AS-39)	17	505	522	9	76	85	26	581	607	14
NSSF Pearl Harbor	20	937	957	17	469	486	37	1,406	1,443	34
Total	90	2,962	3,052	56	841	897	146	3,803	3,949	23

Aircraft

Maintenance of naval aircraft is performed at three levels: organizational (i.e., in the operating squadrons on the "flight line"), intermediate (i.e., at specifically designated aircraft intermediate maintenance departments (AIMDs)), and depot (i.e., at naval air rework facilities or other designated overhaul points).

Organizational maintenance of aircraft includes those functions normally performed on a day-to-day basis by maintenance personnel assigned to operating squadrons. The day-to-day functions include inspections, servicing and handling, incorporation of designated equipment modifications, and preventive and corrective maintenance by "on-system" repair and removal/replacement of parts and components.

Aircraft intermediate maintenance is primarily "off-system" maintenance performed by designated AIMDs in support of using organizations. It

includes calibration, repair, test, inspection, modification, and check of components/equipments/assemblies and related support equipment. Intermediate maintenance also includes the manufacture of parts and the repair or replacement of damaged or unserviceable parts, components, and assemblies. Some periodic inspections and technical assistance are also provided by AIMDs. As with surface ships and submarines, aircraft intermediate maintenance is primarily performed by military personnel in afloat and ashore AIMDs at a variety of aircraft operating locations. Afloat, it is performed aboard aircraft carriers and amphibious assault ships.[4] OCONUS shore activities which perform aircraft intermediate maintenance are at several locations, most notably the Mediterranean, Hawaii, and Western Pacific. CONUS locations are widely scattered, but those AIMDs supporting tactical and patrol aircraft are situated along the eastern and western seaboards.

There are 59 AIMDs to support Navy missions (Table 3-6).[5] Those aboard aircraft carriers (CVs) support embarked tactical and patrol aircraft; the AIMDs at fleet naval air stations/naval air facilities (NAS/NAF) also support tactical and patrol aircraft. The "NAS/NAF: Reserve" and "NAS: Air Training" organizations support the Reserve training mission and the pilot training mission, respectively. "Other NAS/NAF" are mostly special purpose AIMDs which support missions of the Naval Material Command. Of the five types of AIMDs shown in Table C.3-6, we examine the first two (i.e., aircraft carriers and fleet naval air stations/facilities).

AIMDs are staffed with a core of permanently assigned personnel, supplemented by system-peculiar technicians on temporary additional duty from squadrons supported by the AIMD. The functions performed by permanent AIMD

[4]AIMDs aboard amphibious assault ships support Marine Corps missions.

[5]There are also 33 AIMDs which support Marine Corps missions.

personnel include management, production control, work center supervision, maintenance of tools, facilities and support equipment, material control, and administration. Squadron personnel generally fill the repair technician billets.

TABLE C.3-6. TYPES OF NAVY AIMDs

Type	Number
Aircraft Carrier	14[1]
NAS/NAF: Fleet	25[2]
NAS/NAF: Reserve	8
NAS: Air Training	6
Other NAS/NAF	6
Total	59

[1]Includes aviator training carrier.

[2]Twelve are OCONUS.

Total aircraft carrier staffing shows that Reservists are programmed to fill approximately 3 percent of all billets, with individual carriers varying from 0 to 6 percent. Table C.3-7 shows that the dependency of five carrier AIMDs upon Reserve personnel is at most three percent. The AIMDs are no more dependent upon Reservists than the ship as a whole.

TABLE C.3-7. CARRIER AIMD: RESERVE DEPENDENCY

Ship	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Forrestal (CV-59)	7	196	203	-	1	1	7	197	204	-
USS Independence (CV-62)	7	195	202	-	2	2	7	197	204	1
USS Kitty Hawk (CV-63)	7	180	187	1	3	4	8	183	191	2
USS Enterprise (CVN-65)	8	185	193	-	6	6	8	191	199	3
USS J. F. Kennedy (CV-67)	7	198	205	-	4	4	7	202	209	2
Total	36	954	990	1	16	17	37	970	1,007	2

Reserve dependency is significantly higher at shore-based activities than aboard carriers. Based on a sample of nine stations/facilities, average Reserve dependency is 17 percent, with a range from 9 to 28 percent (Table C.3-8).

TABLE C.3-8. FLEET NAS/NAF: RESERVE DEPENDENCY

Unit	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
NAS Barbers Point	36	579	615	14	62	76	50	641	691	11
NAS Cecil Field	63	871	934	12	205	217	75	1,076	1,151	19
NAS Cubi Point	63	995	1,058	19	127	146	82	1,122	1,204	12
NAS LeMoore	49	970	1,019	3	101	104	52	1,071	1,123	9
NAF Misawa	21	345	366	6	70	76	27	415	442	17
NAS Moffet Field	41	482	523	6	202	208	47	684	731	28
NAS Oceana	58	1,007	1,065	21	315	336	79	1,322	1,401	24
NAF Sigonella	73	873	946	6	152	158	79	1,025	1,104	14
NAS Whidbey Island	51	792	843	14	189	203	65	981	1,046	19
Total	455	6,914	7,369	101	1,423	1,524	556	8,337	8,893	17

A closer examination of the manpower authorization documents for these nine stations/facilities indicates that the repair function is slightly more dependent upon Reservists than the total activity. Table C.3-9 shows that Reserve personnel comprise 23 percent of AIMD staffing versus 17 percent for the entire station/facility.

TABLE C.3-9. FLEET NAS/NAF AIMD: RESERVE DEPENDENCY

Unit	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
NAS Barbers Point	6	179	185	7	33	40	13	212	225	18
NAS Cecil Field	13	349	362	4	121	125	17	470	487	26
NAS Cubi Point	11	390	401	7	78	85	18	468	486	17
NAS LeMoore	9	360	369	-	76	76	9	436	445	17
NAF Misawa	6	122	128	2	41	43	8	163	171	25
NAS Moffet Field	9	218	227	1	71	72	10	289	299	24
NAS Oceana	14	510	524	8	216	224	22	726	748	30
NAF Sigonella	12	174	186	1	84	85	13	258	271	31
NAS Whidbey Island	11	354	365	5	77	82	16	431	447	18
Total	91	2,656	2,747	35	797	832	126	3,453	3,579	23

Reserve augmentation to Active aircraft squadrons was also examined. Based on a sample of six patrol (VP) and six anti-submarine warfare (VS) squadrons, Reservists are programmed to fill less than one percent of the intermediate maintenance billets, although overall squadron dependence on Reserves is 10 percent.

In addition to aircraft carriers and the primary air stations and facilities, four naval stations provide logistics support to fleet aircraft. Although they are not large, they are of interest because of their OCONUS locations. Table C.3-10 shows the total military manning for these stations and their Reserve dependencies. Repair function manning was not examined.

TABLE C.3-10. NAVAL STATIONS WITH AIRCRAFT SUPPORT MISSIONS

Location	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
Adak	31	587	618	8	195	203	39	782	821	25
Keflavik	62	600	662	4	132	136	66	732	798	17
Rota	80	670	750	3	181	184	83	851	934	20
Roosevelt Roads	57	926	983	4	171	175	61	1,097	1,158	15
Total	230	2,783	3,013	19	679	698	249	3,462	3,711	19

Location

This subsection summarizes the dependence upon Reserves for maintenance by type of organization and location. The term "location" refers to whether the maintenance organization operates in fixed facilities in the United States (i.e., CONUS), overseas (OCONUS), or is mobile (e.g., an afloat unit or a deployable aircraft squadron, etc.).

Table C.3-11 shows the Reserve dependency of seven types of organizations with equipment maintenance missions. The Shore IMAs show the greatest Reserve dependency (nearly one-half of their capability is in the SELRES); other CONUS organizations are much less dependent. Mobile organizations are

the least dependent (averaging somewhat less than 20 percent), while OCONUS organizations average approximately 21 percent.

TABLE C.3-11. MAINTENANCE DEPENDENCE BY LOCATION

Organization	Sample Billets		Dependence (%)		Location
	Total	SELRES	Range	Average*	
Shore IMAs	8,561	3,951	42 - 57	46	CONUS
NSSFs	1,443	486	--	34	CONUS
Fleet NAS/NAF AIMDs	2,651	619	17 - 30	23	CONUS
Destroyer Tenders/Repair Ships	4,328	840	11 - 29	19	MOBILE
Submarine Tenders	2,506	411	9 - 30	16	MOBILE
Aircraft Carrier AIMDs	1,007	17	1 - 3	2	MOBILE
Fleet NAS/NAF AIMDs	928	213	17 - 31	23	OCONUS
Naval Stations (Aircraft Support)	3,711	698	15 - 25	19	OCONUS

*Weighted average to accommodate different sizes of organizations.

SUPPLY

Supply Support Doctrine

The Navy's fleet supply support is based on an organizational level of supply and two echelons of resupply. The organizational level of supply is carried aboard each combatant ship and is tailored to the particular needs of that ship. The range and depth of material carried is generally demand-based (except for bulky consumables and critical insurance items), with a planned 90-day endurance level.

The first echelon of resupply (i.e., combat resupply) is carried by Mobile Logistics Support Force (MLSF) ships. The MLSF provides backup to organizational supply by carrying high demand consumables and some repair parts. The MLSF ships link the fleet combatants to sources of supply and are capable of ship-to-ship or helicopter-to-ship transfers at sea in forward areas. The MLSF is augmented by Naval Supply Depots (NSDs) and supply departments established at overseas air stations and facilities.

The second echelon of resupply is generally provided by Naval Supply Centers (NSCs) located in major tidewater areas of the United States. The NSCs serve as material reservoirs between industry and other supply sources and the fleet. The NSCs issue material to MLSF ships or directly to operating forces. Some air stations have large supply departments which provide some second echelon resupply.

The Navy's dependence on the Reserve for the resupply function in wartime is documented in five categories of activity: mobile logistics ships, supply centers and depots, air stations, weapons stations, and advance supply bases.

Mobile Logistics Ships

Two types of auxiliary ships--support and mobile logistics--sustain the operating forces. Support ships include special purpose ships such as towing, salvage, rescue, survey, cable repair, and hospital services.[6] The mobile logistics ships are subdivided into material support and underway replenishment (UNREP). Material support ships are destroyer tenders, repair ships, and submarine tenders, previously discussed. The UNREP ships are:

- ammunition ships (AE)
- combat stores ships (AFS)
- fleet oilers (AO)
- fast combat support ships (AOE)
- replenishment oilers (AOR).

They provide direct support to deployed forces in the forward area of operations. Although primarily Navy manned, some of these ships are manned by the Military Sealift Command (MSC) using civil service crews. We address only the Navy manned UNREP ships.

[6]These ships are outside the scope of this study.

Ammunition UNREP ships (AEs) are fitted out for rapid underway transfer of missiles and other munitions to combatant ships. Approximately 17 percent of the wartime manning of the Navy's 13 ammunition ships are Reservists (Table C.3-12).

TABLE C.3-12. AMMUNITION SHIP: RESERVE DEPENDENCY*

Ship	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Suribachi (AE-21)	16	313	329	—	69	69	16	382	398	17
USS Mauna Kea (AE-22)	10	312	322	—	67	67	10	379	389	17
USS Nitro (AE-23)	16	316	332	—	63	63	16	379	395	16
USS Pyro (AE-24)	10	269	279	—	58	58	10	327	337	17
USS Haleakala (AE-25)	16	304	320	—	77	77	16	381	397	19
USS Kilauea (AE-26)	—	—	—	—	—	—	—	—	—	—
USS Butte (AE-27)	17	325	342	1	75	76	18	400	418	18
USS Santa Barbara (AE-28)	17	331	348	2	74	76	19	405	424	18
USS Mount Hood (AE-29)	17	306	323	1	65	66	18	371	389	17
USS Flint (AE-32)	17	328	345	1	68	69	18	396	414	17
USS Shasta (AE-33)	17	323	340	1	72	73	18	395	413	18
USS Mount Baker (AE-34)	17	336	353	1	68	69	18	404	422	16
USS Kiska (AE-35)	17	327	344	2	70	72	19	397	416	17
Total	187	3,790	3,977	9	826	835	196	4,616	4,812	17

*Data reflect the recent transfer of two AEs from the Naval Reserve Force to the Active fleet: the USS Mauna Kea on January 1, 1982 and the USS Pyro on June 1, 1982.

Combat stores ships (AFSs) provide rapid underway transfer of dry and refrigerated stores. Manning data for the AFSs are shown in Table C.3-13. Since all seven ships are from the same class, they are staffed with approximately the same size crew. Reserve manning of the AFSs is minimal.

TABLE C.3-13. COMBAT STORES SHIP: RESERVE DEPENDENCY

Ship	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Mars (AFS-1)	25	408	433	—	4	4	25	412	437	1
USS Sylvania (AFS-2)	25	412	437	—	—	—	25	412	437	—
USS Niagara Falls (AFS-3)	25	395	420	—	19	19	25	414	439	4
USS White Plains (AFS-4)	25	390	415	—	11	11	25	401	426	3
USS Concord (AFS-5)	25	397	422	—	8	8	25	405	430	2
USS San Diego (AFS-6)	24	402	426	—	2	2	24	404	428	—
USS San Jose (AFS-7)	25	398	423	—	11	11	25	409	434	3
Total	174	2,802	2,976	—	55	55	174	2,857	3,031	2

Fleet oilers (AOs) provide petroleum products to the operating forces. A few also provide a limited amount of ammunition and refrigerated stores. Table C.3-14 shows that fleet oiler dependency on Reservists averages 8 percent overall, but only three oilers are assigned SELRES billets. The dependency for those oilers ranges from 10 to 15 percent.

TABLE C.3-14. FLEET OILER: RESERVE DEPENDENCY*

Ship	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Ashtabula (AO-51)	20	330	350	—	38	38	20	368	388	10
USS Caloosahatchee (AO-98)	20	323	343	—	59	59	20	382	402	15
USS Canisteo (AO-99)	20	330	350	—	39	39	20	369	389	10
USS Cimarron (AO-177)	11	186	197	—	—	—	11	186	197	—
USS Monongahela (AO-178)	12	185	197	—	—	—	12	185	197	—
USS Merrimack (AO-179)	12	185	197	—	—	—	12	185	197	—
Total	95	1,539	1,634	—	136	136	95	1,675	1,770	8

The fast combat support ships (AOEs) provide rapid underway replenishment of petroleum products, munitions, dry and refrigerated stores, and fleet freight. SELRES manning of AOEs varies from 6 to 10 percent, as shown in Table C.3-15.

TABLE C.3-15. FAST COMBAT SUPPORT SHIP: RESERVE DEPENDENCY

Ship	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Sacramento (AOE-1)	24	544	568	—	60	60	24	604	628	10
USS Camden (AOE-2)	24	556	580	—	54	54	24	610	634	9
USS Seattle (AOE-3)	23	547	570	—	41	41	23	588	611	7
USS Detroit (AOE-4)	23	557	580	—	37	37	23	594	617	6
Total	94	2,204	2,298	—	192	192	94	2,396	2,490	8

The primary task of the replenishment oiler (AOR) is to provide rapid transfer of petroleum products and munitions to combatant ships. It

also has some capability to provide dry and refrigerated stores and fleet freight. The AORs, with the exception of the USS Roanoke, have minimal dependence upon the Reserve for wartime manning (Table C.3-16).

TABLE C.3-16. REPLENISHMENT OILER: RESERVE DEPENDENCY

Ship		Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
		Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
USS Wichita	(AOR-1)	20	406	426	1	25	26	21	431	452	6
USS Milwaukee	(AOR-2)	20	330	350	-	4	4	20	334	354	1
USS Kansas City	(AOR-3)	20	426	446	-	2	2	20	428	448	—
USS Savannah	(AOR-4)	20	419	439	-	19	19	20	438	458	4
USS Wabash	(AOR-5)	20	422	442	-	12	12	20	434	454	3
USS Kalamazoo	(AOR-6)	20	314	334	1	17	18	21	331	352	5
USS Roanoke	(AOR-7)	20	407	427	-	64	64	20	471	491	13
	Total	140	2,724	2,864	2	143	145	142	2,867	3,009	5

Supply Centers and Depots

The Navy's six supply centers act as pipelines from industry and other sources of supply. They receive, store, and issue materials to the operating forces, mobile logistic support ships, and shore activities. They are staffed with both military and civilian personnel. We did not ascertain exact staffing figures for the civilians; only estimates of current civil service positions were obtained. Those data and Active and Reserve military data are displayed in Table C.3-17. The size of the SELRES augmentation varies greatly. NSC Bremerton has 62 Reserve billets, while NSC Oakland has 481. The table shows a range of Reserve dependencies, from 10 percent at both NSC Bremerton and NSC Pearl Harbor to 26 percent at NSC Charleston, with an overall average of 16 percent.

The three supply depots located overseas augment the stocks of the mobile logistics support ships. They are staffed with military and civilian (both United States and foreign national) personnel. Table C.3-18 shows the military staffing for the three depots. Civilian staffing data were not obtained.

TABLE C.3-17. NAVAL SUPPLY CENTERS: RESERVE DEPENDENCY*

Unit	Active Billets			SELRES Billets			Total Military Billets			Estimated Civilian Billets	Estimated Total Billets	Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total			
NSC Bremerton	15	2	17	11	51	62	26	53	79	550	629	10
NSC Charleston	21	3	24	60	279	339	81	282	363	950	1,313	26
NSC San Diego	27	6	33	39	241	280	66	247	313	1,200	1,513	19
NSC Norfolk	40	33	73	64	374	438	104	407	511	3,500	4,011	11
NSC Oakland	41	27	68	70	411	481	111	438	549	2,000	2,549	19
NSC Pearl Harbor	18	12	30	12	68	80	30	80	110	700	810	10
Total	162	83	245	256	1,424	1,680	418	1,507	1,925	8,900	10,825	16

*Does not reflect civilian workforce increases during mobilization.

TABLE C.3-18. MILITARY STAFFING OF NAVAL SUPPLY DEPOTS

Unit	Active Billets			SELRES Billets			Total Military Billets		
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total
NSD Guam	17	49	66	14	15	29	31	64	95
NSD Subic Bay	26	125	151	22	119	141	48	244	292
NSD Yokosuka	23	148	171	13	59	72	36	207	243
Total	66	322	388	49	193	242	115	515	630

Air Stations

Naval air forces also requisition material from supply departments aboard aircraft carriers and at naval air stations/facilities. As noted earlier, Reserve augmentation of aircraft carriers is minimal. In contrast, the Reserve augmentation at nine NAS/NAF supply departments averages 14 percent and varies from 1 percent at NAS Lemoore to 29 percent at NAS Moffet Field (Table C.3-19).

Weapons Stations

The functions of Naval Weapons Stations (NWS) include the overhaul, rework, production, storage, transshipment, and distribution of ordnance and weapons. Because of their multiple logistics missions, NWSs can be classified as either a supply or a maintenance activity.

TABLE C.3-19. NAS/NAF SUPPLY DEPARTMENTS: RESERVE DEPENDENCY

Unit	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
NAS Barbers Point	6	85	91	1	13	14	7	98	105	13
NAS Cecil Field	8	97	105	3	19	22	11	116	127	17
NAS Cubi Point	11	113	124	1	25	26	12	138	150	17
NAS Lemoore	9	89	98	1	—	1	10	89	99	1
NAF Misawa	2	59	61	1	7	8	3	66	69	12
NAS Moffet Field	6	44	50	2	18	20	8	62	70	29
NAS Oceana	8	71	79	-	8	8	8	79	87	9
NAF Sigonella	7	104	111	2	3	5	9	107	116	4
NAS Whidbey Island	6	81	87	-	31	31	6	112	118	26
Total	63	743	806	11	124	135	74	867	941	14

The Navy has five weapons stations--all in CONUS. They are predominantly staffed by civil service personnel; however, a large number of Reservists are programmed to augment the stations at mobilization. Civilian and military manning data for each station are shown in Table C.3-20. Although total military manning amounts to approximately 3,800 positions, more than 6,200 positions are assigned to civilians. Reserve dependency is strong, as evidenced by the 41 percent shown for the ammunition outload ports at NWS Earle and NWS Concord.

TABLE C.3-20. NAVAL WEAPONS STATION: RESERVE DEPENDENCY*

Location	Active Billets			SELRES Billets			Total Military Billets			Civilian Billets	Total Billets	Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total			
Earle	21	164	185	37	579	616	58	743	801	704	1,505	41
Charleston	22	172	194	32	266	298	54	438	492	779	1,271	23
Concord	21	124	145	16	865	881	37	989	1,026	1,101	2,127	41
Seal Beach	19	84	103	32	370	402	51	454	505	2,027	2,532	16
Yorktown	31	345	376	35	574	609	66	919	985	1,624	2,609	23
Total	114	889	1,003	152	2,654	2,806	266	3,543	3,809	6,235	10,044	28

*Does not reflect civilian workforce increases during mobilization.

Advance Supply Bases

Naval supply support is predominantly provided by mobile logistics ships, supply centers and depots, air stations, and weapons stations. Some advance supply bases (i.e., ABFCs) are required for certain contingencies. Those ABFCs (which include personnel) supporting the most demanding operations plans require 833 billets (Table C.3-21). Since the SELRES is programmed to staff these ABFCs, the Reserve dependence is 100 percent.

TABLE C.3-21. STAFFING OF SUPPLY ABFCs

Title	Billets Per Unit			No. of Reserve Units	Total Reserve Billets
	Officer	Enlisted	Total		
Supply Storage (Small)	5	30	35	6	210
Supply Storage (Large)	23	160	183	1	183
Supply Storage (Medium)	13	80	93	1	93
Material Handling Facility (Medium)	1	36	37	2	74
Tank Farm (Medium)	1	13	14	4	56
Overseas Air Cargo Terminal	1	21	22	2	44
Aviation Tank Farm (Basic)	1	12	13	2	26
Other	--	--	--	13	147
Total	--	--	--	31	833

Location

Table C.3-22 summarizes the Reserve dependency by type of supply organization and location (CONUS, OCONUS, and mobile). CONUS organizations

TABLE C.3-22. SUPPLY DEPENDENCE BY LOCATION

Organization	Sample Billets		Dependence (%)		Location
	Total	SELRES	Range	Average*	
Supply Centers	10,825	1,680	10 - 26	16	CONUS
NAS/NAF Supply Departments	606	96	1 - 29	16	CONUS
Weapons Stations	10,044	2,806	16 - 41	28	CONUS
Ammunition Ships	4,812	835	16 - 19	17	MOBILE
Combat Stores Ships	3,031	55	1 - 4	2	MOBILE
Fleet Oilers	1,770	136	0 - 15	8	MOBILE
Fast Combat Support Ships	2,490	192	6 - 10	8	MOBILE
Replenishment Oilers	3,009	145	0 - 13	5	MOBILE
NAS/NAF Supply Departments	335	39	4 - 17	12	OCONUS
Supply ABFCs	--	833	--	100	OCONUS

*Weighted average to accommodate different sizes of organizations.

have a consistently higher dependence than the overall SELRES average of 14 percent; the mobile UNREP ships are only minimally dependent, except for ammunition ships at 17 percent. The OCONUS supply ABFCs are totally dependent upon the SELRES while the OCONUS NAS/NAF supply departments average only 12 percent.

TRANSPORTATION

The Navy's primary organic transport capabilities are the UNREP ships of the MLSF, naval aircraft in transport squadrons supporting intratheater fleet operations, and carrier onboard delivery aircraft (COD). These are supported by ABFCs for cargo handling and for other organizations charged with management, coordination, and control of cargo.

UNREP Ships

The UNREP ships of the MLSF are both a supply and a transportation resource. Although they are documented in detail as a part of the supply function, their Reserve dependence is reiterated as a part of transportation. The dependency varies by ship type but, in the aggregate, it is approximately 9 percent.

Air Transportation

The Navy has 14 squadrons of transport aircraft: 11 squadrons are for fleet logistics support (VR) and three are for COD (VRC). The mission of the VR squadrons is to provide a rapid transportation link between the theater aerial or sea ports of debarkation and the air facilities in close proximity to the operating fleet. The VRC squadrons, with carrier-capable aircraft, transport the cargo from the air facilities to the fleet.

One VR squadron is in the Active Component; 10 are in the Reserve. Table C.3-23 shows billet data for the Reserve VR squadrons. The dependence on the Reserves for the 10 Reserve VR squadrons is virtually 100 percent

because the active duty billets shown in Table C.3-23 are filled by Reservists on full-time active duty (i.e., Training and Administration of the Reserve (TARs)).[7]

TABLE C.3-23. RESERVE FLEET LOGISTICS SUPPORT SQUADRONS

Squadron	TAR Billets			Drill Status Billets			Total Reserve Billets		
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total
VR-46	2	34	36	38	112	150	40	146	186
VR-48	2	34	36	27	95	122	29	129	158
VR-51	4	86	90	92	258	350	96	344	440
VR-52	4	68	72	73	224	297	77	292	369
VR-53	4	68	72	73	224	297	77	292	369
VR-54	2	43	45	45	131	176	47	174	221
VR-55	9	60	69	31	119	150	40	179	219
VR-56	9	60	69	31	119	150	40	179	219
VR-57	9	60	69	31	119	150	40	179	219
VR-58	9	61	70	31	120	151	40	181	221
Total	54	574	628	472	1,521	1,993	526	2,095	2,621

The VRC squadrons, all Active, are shown in Table C.3-24. Dependence on the Reserves for wartime manning of the VRC squadrons is 7 percent.

TABLE C.3-24. ACTIVE COD SQUADRONS: RESERVE DEPENDENCY

Squadron	Active Billets			SELRES Billets			Total Billets			Reserve Dependency (%)
	Officer	Enlisted	Total	Officer	Enlisted	Total	Officer	Enlisted	Total	
VRC-30	40	205	245	1	15	16	41	220	261	6
VRC-40	40	206	246	7	11	18	47	217	264	7
VRC-50	56	325	381	19	17	36	75	342	417	9
Total	136	736	872	27	43	70	163	779	942	7

Advance Base Functional Components

Additional wartime transportation support, including management, coordination, routing, and handling of cargo, is to be provided by several

[7]The one Active VR squadron, VR-24, has 519 total billets with 87 (17 percent) assigned to the Reserves.

other organizations. The Naval Reserve is programmed to augment many of them, but in a relatively minor role. A few transportation ABFCs, however, will require a large contribution from the SELRES.

The Military Sealift Command Offices (MSCOs), which assist in coordinating the loading and unloading of ship cargo, require a variety of staffing. Some offices are in operation; most are not. Some will be staffed exclusively by Reservists; others will be staffed by civil service personnel; and still others will be augmented by foreign nationals under host nation support agreements. Despite the ambiguity of staffing sources, an estimate of the Reserve contribution to MSCOs can be made. MSC has approximately 1,250 peacetime billets for its ashore field operations (i.e., excluding the MSC headquarters and afloat billets). These plus the Reserve mobilization staffing of MSCOs equal 3,300 billets, for an approximate 62 percent Reserve dependency. The Naval Control of Shipping Offices (NCSOs), which are primarily concerned with routing ocean traffic, will be staffed exclusively by Reservists. The cargo handling battalions are predominantly staffed by Reservists, with six of seven battalions in the Reserves, or 86 percent of the Navy's shore-based cargo handling capability. Table C.3-25 displays the total Reserve staffing of these ABFCs.

TABLE C.3-25. RESERVE STAFFING OF TRANSPORTATION ABFCs

Unit/Office	No. of Units/ Offices	Approximate No. of Billets
Navy Control of Shipping Office	52	2,450
Military Sealift Command Office*	25	2,050
Cargo Handling Battalion	6	1,700
Total	--	6,200

*Not all are ABFCs; includes Area headquarters and other staffs.

Location

Table C.3-26 summarizes the dependence upon Reserves for six types of transportation organizations by location. The dependencies vary widely by organization and location.

TABLE C.3-26. TRANSPORTATION DEPENDENCE BY LOCATION

Organization	Sample Billets		Dependence (%)		Location
	Total	SELRES	Range	Average[1]	
Control of Shipping Office	1,470	1,470	--	100	CONUS
MSC Office[2]	990	615	--	62	CONUS
UNREP Ships	15,112	1,363	0-19	9	MOBILE
Fleet Logistics Support Squadron	3,140	2,708	--	86	MOBILE
Carrier On-Board Delivery Squadron	942	70	6- 9	7	MOBILE
Cargo Handling Battalion	1,975	1,700	--	86	OCONUS
Control of Shipping Office	980	980	--	100	OCONUS
MSC Office[2]	2,310	1,435	--	62	OCONUS

[1]Weighted average to accommodate different sizes of organizations.

[2]Dependence is assumed to be the same for CONUS and OCONUS.

C.4. READINESS REPORTING

UNITREP SYSTEM

The Unit Status and Identity Report (UNITREP) is the single automated system which reports the current readiness status of selected Active and Reserve units. The reporting of unit (e.g., ship, aircraft squadron, etc.) readiness indicates, at a given point in time, that unit's capability to perform its assigned missions. Active and Reserve naval units report their readiness every 6 months, whenever changes in status occur, and whenever the unit is to deploy for more than 2 months.[1]

The readiness of each unit is based upon four resource readiness areas as well as several other factors. The resource readiness areas are: (1) personnel, (2) training, (3) equipment and supplies on hand, and (4) equipment readiness. The other factors include morale, environment, and day-to-day performance in primary mission areas.

The personnel rating compares the assigned strength of the unit with its authorized strength. This rating is based upon the unit attaining percentage goals for total strength, mission-essential petty officers, and mission-essential skills (i.e., Navy Enlisted Classifications). The training rating compares unit training with prescribed standards. The equipment and supplies on-hand rating compares available mission-essential equipment and supplies, regardless of condition, with the unit's allowance. The equipment readiness rating addresses the operating condition of mission-essential equipment. Table C.4-1 provides the rating criteria for each of the resource readiness areas.

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[1] A unit's overall readiness rating is generally characterized by one of five conditions listed in Appendix A.

TABLE C.4-1. COMBAT READINESS RATING CRITERIA

(Percentage)

Resource Area	Rating			
	C-1 ≥	C-2 ≥	C-3 ≥	C-4 <
Personnel				
Total End-Strength	90	80	70	70
Critical Skills[1]	85	75	65	65
Senior Strength[1]	85	75	65	65
Training[2]				
Weeks of Training Required	<2	>2<4	>4<6	>6
Or, Combat Ready Aircrews	85	70	55	55
Or, Unit Training Completed	85	70	55	55
Equipment & Supplies On Hand[3]				
Combat-Essential Equipment				
Aircraft	90	80	60	60
Other Equipment	90	80	65	65
End-Items, Support Equipment & Supplies	90	80	65	65
Equipment Readiness[4]				
Combat-Essential Equipment				
Aircraft	75	60	50	50
Other Equipment	90	70	60	60
End-Items	90	70	60	60

[1]Applies to petty officers in grades E-5 through E-9 and all commissioned officers.

[2]Based on either the number of weeks required to attain fully trained status, the percentage of wartime-required aircrews formed, combat ready and available, or the percentage of unit training completed. For Navy air squadrons, combat ready aircrews is the exclusive criterion.

[3]The lowest C-rating assigned for any type of combat-essential equipment, end-item, support equipment, or supplies, for which on-hand percentages are separately computed, determines the C-rating. For Navy air squadrons, only aircraft are used in the computation.

[4]Based on weapon systems and equipments to perform the unit's wartime mission that are on-hand and fully capable. For Navy air squadrons, only aircraft are used in the computation.

Units with multiple missions, such as ships, compute resource readiness ratings for each mission area. The lowest rating for any mission area is the overall mission readiness rating for the unit, provided that at least one other mission is rated as low. If there is only one low-rated mission area, then the unit's aggregate rating is the next highest mission rating. If the resource readiness rating, measured across all mission areas, is lower than the aggregate mission rating, then the resource readiness rating is the unit's overall combat rating.

NAVAL RESERVE UNIT REPORTING

Only two types of the Naval Reserve units that we categorize as logistics support are required to report readiness in accordance with the UNITREP system. They are the cargo handling battalions and the fleet logistics support (VR) squadrons. These units submit UNITREP readiness reports to: (1) their gaining command (i.e., Commander in Chief, U.S. Atlantic Fleet, Commander in Chief, U.S. Pacific Fleet, or Commander in Chief, U.S. Naval Forces, Europe), (2) their operational commander, and (3) the Chief of Naval Reserve (CNAVRES).

The other logistics units of the Naval Reserve are augmentation units with a reinforcing and sustaining mission. Since these units do not have any equipment, they can report only on personnel and training. That readiness is not directly reported by the units, however. Higher level commands (including CNAVRES) determine the readiness of each unit based upon information obtained from the unit's report on Individual Readiness Measurement (IRAD). The IRAD indicates the readiness of each individual in the unit to perform the duties of a specific mobilization billet. It identifies whether (a) the individual is qualified, (b) the individual has the appropriate rate/rating, if not qualified, or (c) the billet is vacant. For each qualified individual, the IRAD shows the time and method of qualification (e.g., formal schools, drills, active duty for training, etc.). For each unqualified individual, it provides information about the time and feasibility for the individual to become qualified based upon approved qualification programs and training plans, and any additional training support required to expedite the qualification process. For vacant billets, the IRAD provides information about billet vacancy rates, qualification levels of individuals previously assigned to that billet, and billet refill prospects.

From the IRAD report, CNAVRES and subordinate commands determine the personnel and training readiness of the individual units. Personnel readiness is defined as the total number of personnel assigned divided by the unit's personnel allowance, expressed as a percentage. Training readiness is defined as the total number of qualified personnel (in accordance with the IRAD system) divided by the total number of personnel that will mobilize with the unit, expressed as a percentage. Officer and enlisted readiness are computed separately for both the personnel and training categories. Overall unit readiness is the lower of personnel or training readiness. Personnel and training readiness is described by four readiness levels; these levels and their criteria for assignment are given in Table C.4-2.

TABLE C.4-2. READINESS CRITERIA FOR AUGMENTATION UNITS

Readiness Level	Personnel (Percent Assigned)	Training (Percent Qualified)
1	90 - 100	85 - 100
2	80 - 89	70 - 84
3	70 - 79	55 - 69
4	0 - 69	0 - 54

C.5. OBSERVATIONS

Under the "Total Force" policy, the Selected Reserve will contribute approximately 14 percent of the Navy's mobilized force. Those Reservists will generally augment Active capability to accommodate the increased workload associated with wartime operations. The Navy's dependence upon Reserve logistics units is approximately 29 percent[1] (Table C.5-1), or twice the overall SELRES dependence.

TABLE C.5-1. RESERVE LOGISTICS DEPENDENCE BY FUNCTION*

Function	Dependence (Percent)
Maintenance	25
Supply	18
Transportation	38
Weighted Average	29

*UNREP ship dependence is reflected in both supply and transportation functions but counted only once in the weighted average.

The Navy Reserve provides many of the key transportation elements in support of the fleet. The air link between the theater port of debarkation and the fleet is supplied by the fleet logistics support squadrons from the Naval Reserve. The single active Navy squadron is able to meet peacetime requirements only with frequent Reserve augmentation; it will not be able to satisfy the wartime workload. This link is critical in moving high priority repair parts and personnel to the fleet.

[1]Based on a unit-by-unit tabulation of the staffing data presented earlier; where only sample data were available, straight line extrapolations were made to extend the data to the Navy's total logistics force structure.

A large part of the coordination and control of strategic sealift is also accomplished by Reserve elements. If large sustained volumes of seaborne supplies are required in the theater, numerous shipping offices will be needed to assist the sealift effort. This expansion will be executed by Reservists.

The manning of ABFCs (especially cargo handling battalions) is dominated by Reservists. Any contingency that requires new logistic bases in an undeveloped theater will require extensive Reserve assets.

The large expansion of the CONUS-based SIMAs will be accomplished principally by Reserve units. Similarly, two Naval Weapons Stations--the ammunition outload ports at Earle, New Jersey and Concord, California--are highly dependent upon Reservists. Overall, the CONUS logistics shore establishment will receive the major share of Reserve augmentation. The Navy's OCONUS dependence, although proportionately higher, is in the overseas sealift coordinating and control offices scattered worldwide.

BACKGROUND NOTES: HISTORY, MISSION, DESCRIPTION AND ORGANIZATION OF THE NAVAL RESERVE

HISTORY AND MISSION

Historical Background

The establishment of a naval militia was first suggested by President Thomas Jefferson in 1805. By the start of the Civil War, the need for officers in the Union Navy resulted in the establishment of a quasi-naval reserve. An Act of 24 July 1861 authorized the temporary appointment of about 7,500 volunteer officers to serve during that war.

After the war, public interest in a naval militia waned until 1888 when Massachusetts established a naval battalion as part of its state militia. Other states soon followed and the value of the naval militiamen was realized in the Spanish-American War when militia units provided many trained men.

That contribution sparked the Navy Department to recommend establishment of a national Naval Reserve. The ensuing Congressional activity resulted in three legislative steps. The first was the Naval Militia Act of February 1914 which authorized the Navy Department to formulate a plan for the coordination of all states' naval militia. The second step occurred on 3 March 1915 when Congress legislated the establishment of the Federal Naval Reserve to be composed of volunteers who had seen service in the Regular Navy. The final step occurred on 29 August 1916 when Congress passed an act which established a Naval Reserve Force and federalized the naval militia during World War I.

The Naval Reserve began mobilizing on a voluntary basis in 1939. By June 1941, all members not in a deferred status were called to active duty.

When the war ended, many returning veterans joined Naval Reserve units in their hometown.

Since 1945, the Naval Reserve has continued to serve in times of crisis. The Korean conflict and the Berlin crisis both required activation of Naval Reservists. The Reserves were also mobilized during the Vietnam era, although on a much more limited scale.

Mission

The mission of the Naval Reserve is to provide trained units and qualified individuals to augment active Navy forces in time of war or national emergency. Major Naval Reserve units include ships, aircraft squadrons, mobile inshore undersea warfare units, mobile construction battalions, and cargo handling battalions. The remaining units consist of trained individuals organized into separate entities, such as detachments, components, offices and other units, in support of a wide variety of Naval programs.

DESCRIPTION

Reserve Categories[1]

The Navy Reserve can be divided into three major categories: Retired Reserve, Standby Reserve, and Ready Reserve. The Retired Reserve consists of Naval Reserve personnel in a retired status. Under certain conditions in time of war or national emergency declared by Congress (or when otherwise authorized by law), members of the Retired Reserve may be called to active duty. The Retired Reserve of the Navy has a force level of 116,678.

The Standby Reserve consists of individuals who are either (a) completing a small remaining period of military service, (b) former members of the Ready Reserve transferred to the Standby Reserve for a variety of reasons,

[1]Strength levels are from "Official Guard and Reserve Manpower: Strengths and Statistics," Office of the Deputy Assistant Secretary of Defense (Reserve Affairs), January 1982.

(c) members of Congress or holders of other key positions at any level of government, or (d) voluntarily retaining their Reserve affiliation in a nonparticipating status or holding a skill of potential military value. The Standby Reserve may be called to active duty in the event of a war or in a national emergency declared by Congress (or when otherwise authorized by law). However, no Standby Reservist individual may be ordered to active duty unless the Secretary of Defense determines that there are not enough units or individuals with requisite capabilities available in the Ready Reserve. The Standby Reserve of the Navy has a force level of 19,660.

The Ready Reserve consists of the Selected Reserve, the Individual Ready Reserve (IRR), and the individuals in the training pipeline. The SELRES consists principally of individuals (organized into units) who are subject to minimum participation requirements at weekend drills and annual periods of active duty for training. The IRR consists of all members of the Ready Reserve not belonging to the SELRES, including individuals who are subject to maximum participation requirements at annual periods of active duty for training, who voluntarily perform active duty for training without pay, or who are involved in certain categories of specialized training.

Members of the Ready Reserve, in numbers up to 1 million (for all Military Services), may be called to active duty involuntarily (for a maximum of 24 consecutive months) in time of national emergency declared by the President. Up to 100,000 members of the Selected Reserve may be ordered to active duty (other than training) for not more than 90 days by the President without a prior declaration of war or national emergency.[2] The Navy Selected Reserve currently has a force level of 87,690 while the IRR numbers 90,339 and the training pipeline is at 1,765.

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[2]This activation may be terminated by a concurrent resolution of both Houses of Congress.

ORGANIZATION

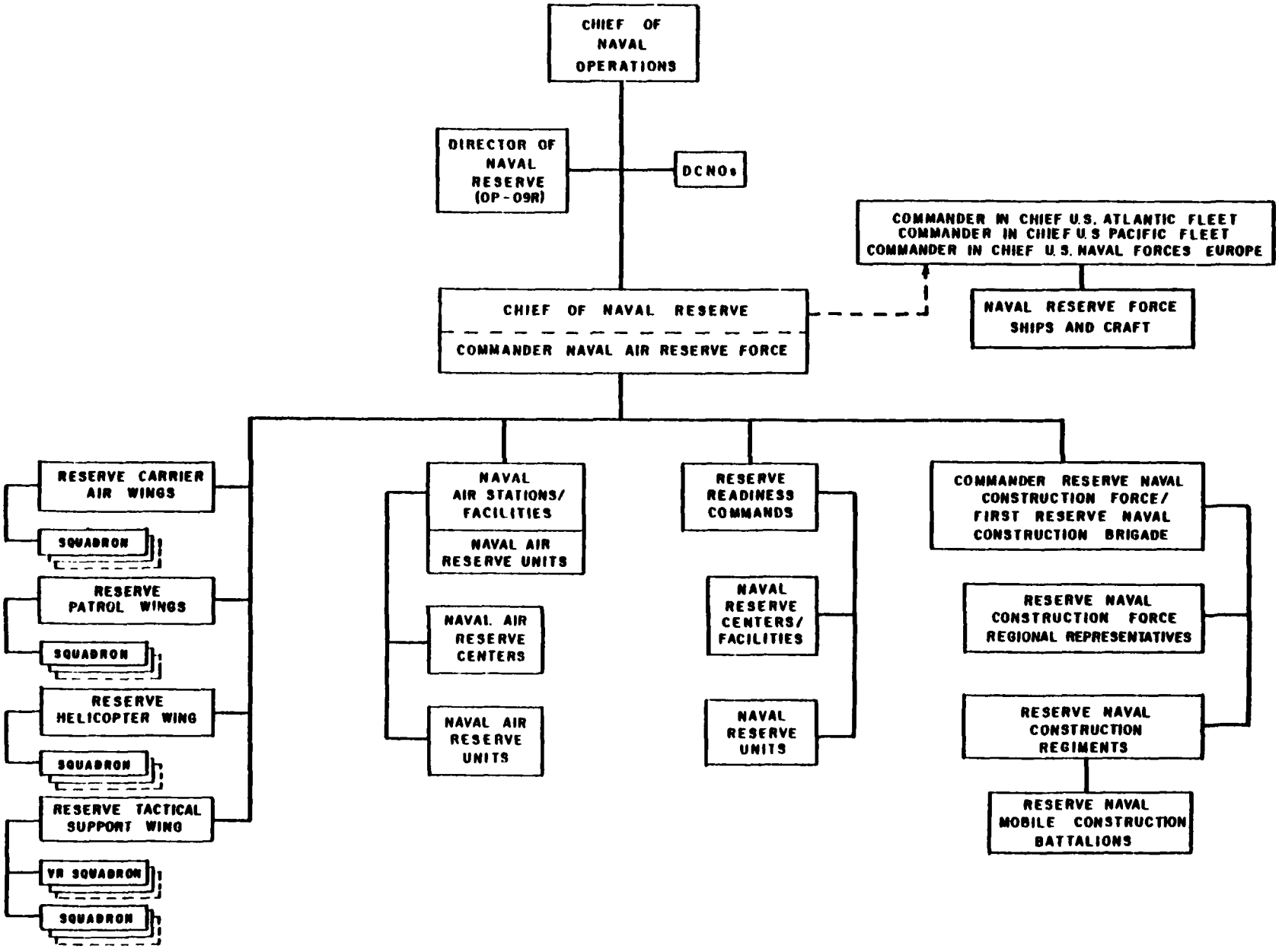
The Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) has principal responsibility for Reserve Component matters in the Department of Defense. In the Navy Secretariat, the principal responsibility for Naval Reserve matters is assigned to the Assistant Secretary of the Navy (Manpower, Reserve Affairs, and Logistics). Command of Naval Reserve activities is exercised by the Chief of Naval Operations (CNO) through the Chief of Naval Reserve. Figure C.C-1 displays the peacetime organization of the Naval Reserve.

The CNO, in addition to his command authority, determines Naval Reserve requirements and provides policy direction for the organization, administration, training, and support of the Naval Reserve. The Director of Naval Reserve (OP-09R), acting for the CNO, exercises policy direction, control, administration, and management of the Naval Reserve.

The CNAVRES commands the Naval Reserve Command. The Naval Reserve Command is composed of the CNAVRES staff, the Commander, Naval Air Reserve Force, and assigned shore activities. CNAVRES reports directly to the CNO as the Director, Naval Reserve (OP-09R) and for additional duty to: (1) Commander in Chief, U.S. Atlantic Fleet, (2) Commander in Chief, U.S. Pacific Fleet, and (3) Commander in Chief, U.S. Naval Forces Europe.

The Commander, Naval Air Reserve Force (COMNAVAIRESFOR) exercises overall authority, direction, operational control, and coordination of Selected Air Reserve squadrons/units. Currently, there are approximately 50 Air Reserve Force squadrons organized into four different types of Reserve wings: (1) carrier air wing, (2) patrol wing, (3) helicopter wing, and (4) tactical support wing. COMNAVAIRESFOR also controls several naval air stations/facilities with Reserve air training missions as well as Naval Air Reserve Centers, and Naval Air Reserve Units.

FIGURE C.C-1. ORGANIZATION OF THE NAVY RESERVE



The 16 Naval Reserve Readiness Commanders located throughout the United States exercise command of Naval Reserve Centers/Facilities and Naval Reserve Units within geographical areas. Their primary missions are to assist the Reserve units in their area to enhance their mobilization readiness.

The Commander, Reserve Naval Construction Force/First Reserve Naval Construction Brigade exercises overall authority, direction, operational control and coordination of the Naval Reserve construction forces personnel, equipment, and other resources.

The Commanders in Chief U.S. Atlantic and Pacific Fleets and U.S. Naval Forces Europe: (1) exercise operational and administrative control of all assigned Naval Reserve Force ships and craft, (2) assign wartime, emergency, and contingency response tasks to SELRES forces, (3) assist in the training and readiness of Reserve units designated in contingency response plans, and (4) perform several other functions such as aiding Reserve training opportunities and advising CNAVRES of projected Reserve manpower needs.

APPENDIX D

WORKING NOTE: MARINE CORPS RESERVE AND LOGISTIC SUPPORT FUNCTIONS

(ML206-4)

October 1982

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APPENDIX D

PREFACE

This working note documents the dependency of the Total Marine Corps on Reserve logistics units. It concentrates on the missions of those units and provides a snapshot of the wartime Marine Corps logistics system as programmed for FY82. Comments on the factual content of the working note are invited.

APPENDIX D

TABLE OF CONTENTS

D.1. INTRODUCTION

PURPOSE

The study plan for LMI Task ML206, "Readiness of Reserve Logistics Units," calls for the preparation of working notes documenting the logistics mission of the Reserves in each Military Service. This working note addresses Reserve logistics units in the U.S. Marine Corps.

SCOPE

Marine Corps Reserve Component logistics units are integral to four Force Service Support Groups (FSSGs), each designed to support a Marine Amphibious Force (MAF). Units in the FSSG provide supply, maintenance and transportation support not available in the ground or air combat elements of a deploying force.

Reserve FSSG units contribute to the support of the combat ground and air elements in several functional areas including:

- Transportation: operate trucks and tankers; establish and operate beach terminals; and sort and direct the distribution of Marine cargo through fixed port facilities.
- Maintenance: repair and maintain vehicles and engineer or electronics equipment and provide contact teams for forward support.
- Supply: provide ammunition, petroleum, oils and lubricants (POL), repair parts, food and all other classes of supply to divisional or wing units in theater.

STUDY APPROACH

The review of logistics functions supplied by Reserve units draws upon existing doctrine and force structure and upon elaboration gained from interviews. Because the size of deploying Marine forces is tailored to each contingency, the overall mission of these units is portrayed by means of a "notional" wartime theater. Therefore, the actual role of specific logistics units in a particular contingency may differ from what is presented.

D.2. THE TOTAL MARINE CORPS AND RESERVE LOGISTICS UNITS

MARINE TOTAL FORCE

Under the Total Force Policy, each Service is to integrate its Active and Reserve Components to form a single responsive unit. The Marine Corps has 17 percent of its programmed FY82 unit personnel in the Reserve.[1,2]

The 4th Division-Wing Team (DWT) of the Marine Corps Reserve provides one of four Marine ground divisions, one of four Marine air wings and one of four FSSGs. The structure of the Reserve DWT corresponds approximately to that of a Marine Amphibious Force (MAF), thus it contains approximately one-fourth of the Total Marine Corps.

The magnitude of the Reserve contribution in wartime is not obvious from the force structure; it varies with the contingency and Active personnel strengths. Units in the Active structure that are assigned wartime logistics support missions not needed in peacetime, tend to be staffed at reduced or zero levels. Consequently, several Reserve logistics units are programmed to fill Active unit vacancies.

In the last two years, the Marine Corps has begun to fill the understaffed Active FSSG units. By the late 1980's, the 4th FSSG will no longer augment Active capability but will support Reserve combat forces.

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[1]Strength data are from "Manpower Requirements Report for Fiscal Year 1983," Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), February 1982.

[2]This note addresses only Reserve personnel organized into drilling units. See Appendix A, Background Notes for Reserve categories.

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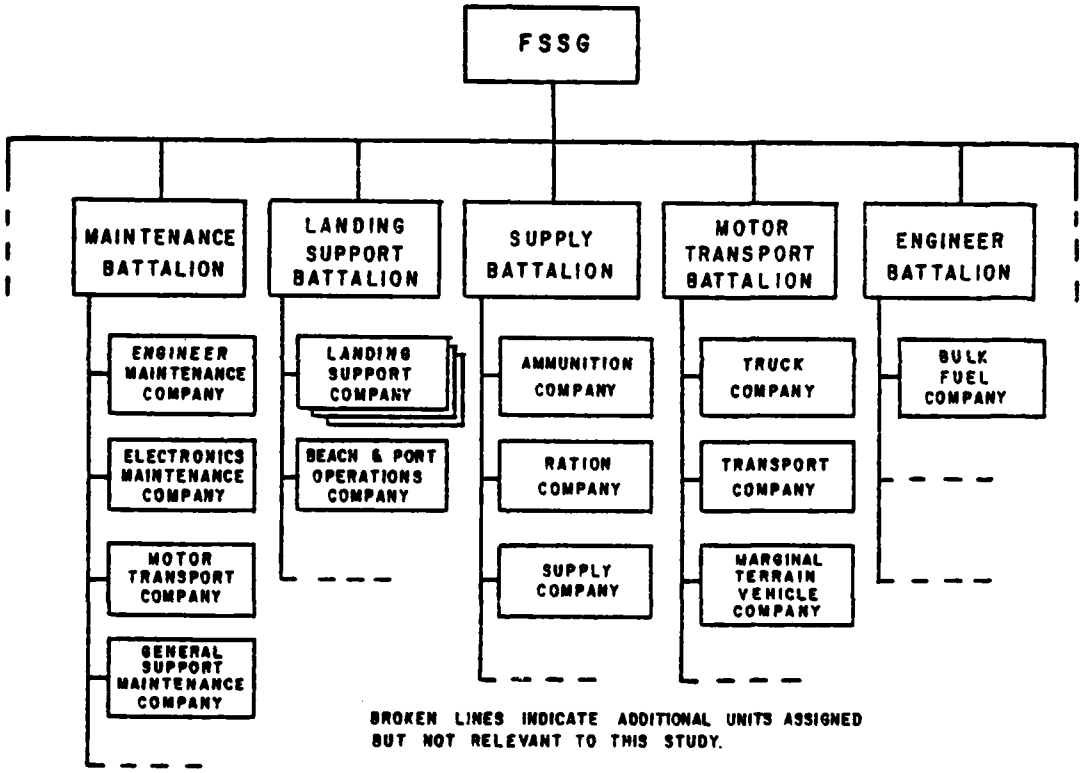
MARINE COMBAT SERVICE SUPPORT

Marine combat service support (CSS) units provide logistics support beyond the capability of the logistics sections of deployed ground and air elements.[3] In peacetime, these CSS units are organized into and administered by the FSSG. Figure D.2-1 presents the doctrinal FSSG structure; the Reserve FSSG corresponds closely to this structure, having a few additional units such as fuel supply and beach operations.

FIGURE D.2-1. DOCTRINAL FSSG STRUCTURE



In wartime, CSS units support Marine ground and air units in a task force tailored in size to a specific operation. Every Marine Air Ground Task Force (MAGTF), whether battalion (Marine Amphibious Unit), regiment (Marine Amphibious Brigade), or division (Marine Amphibious Force), has a CSS element composed of units from the FSSG.

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[3]Fleet Marine Force Manual (FMFM) 4-1, "Combat Service Support for Marine Air-Ground Task Forces," para. 1202.

MARINE LOGISTICS IN THEATER

The first phase of troop landings consists of the assault echelon, which secures the beach and establishes a tactical airfield inland. The assault echelon combines combat units with support detachments from FSSG, division and wing logistics units. Figure D.2-2 depicts the doctrinal support system of the initial beachhead.

A Landing Force Support Party, or team for smaller beach assaults, also is in the assault echelon. It consists of personnel from the FSSG Landing Support Company and other ground and air logistics units. The Landing Force Support Party coordinates the establishment and operation of a limited beach logistics system, using stocks brought ashore by helicopter or landing craft, stored temporarily in landing craft offshore, or held on amphibious ships.

After the beachhead is secured, the assault follow-on echelon is introduced. Logistics units are reconstituted to expand logistics operations. When the commander of the task force CSS element takes control ashore, the Landing Force Support Party is dissolved and the Beach and Port Operations Company assumes control of beach offloading and sorting operations. Other companies, including ammunition, supply, ration, truck and maintenance companies, further establish and enlarge beach operations.

If a port in the area is secured, over-the-beach operations are discontinued and supplies and reinforcements are directed through the port facilities. Figure D.2-3 depicts the established logistics system. Navy Cargo Handling Battalions (predominantly Naval Reservists) operate the heavy material handling equipment to unload ships in berth. Beach and Port Operations personnel sort, document and direct cargo to be transported by Truck and Transport companies directly to the combat units or to other logistics units for distribution. Bulk Fuel Companies operate the storage systems and

FIGURE D.2-2. INITIAL LOGISTICS SYSTEM IN A NOTIONAL THEATER

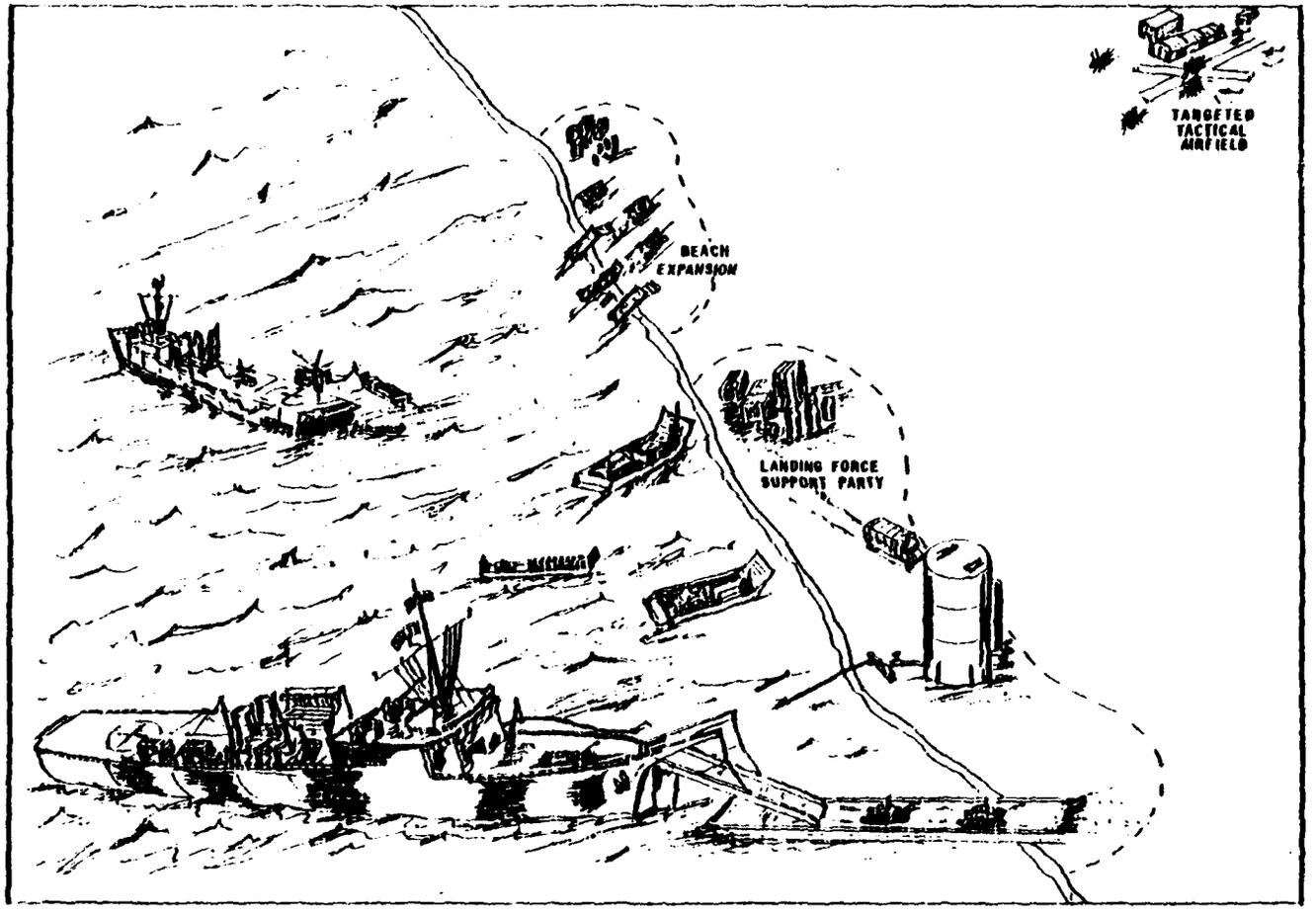
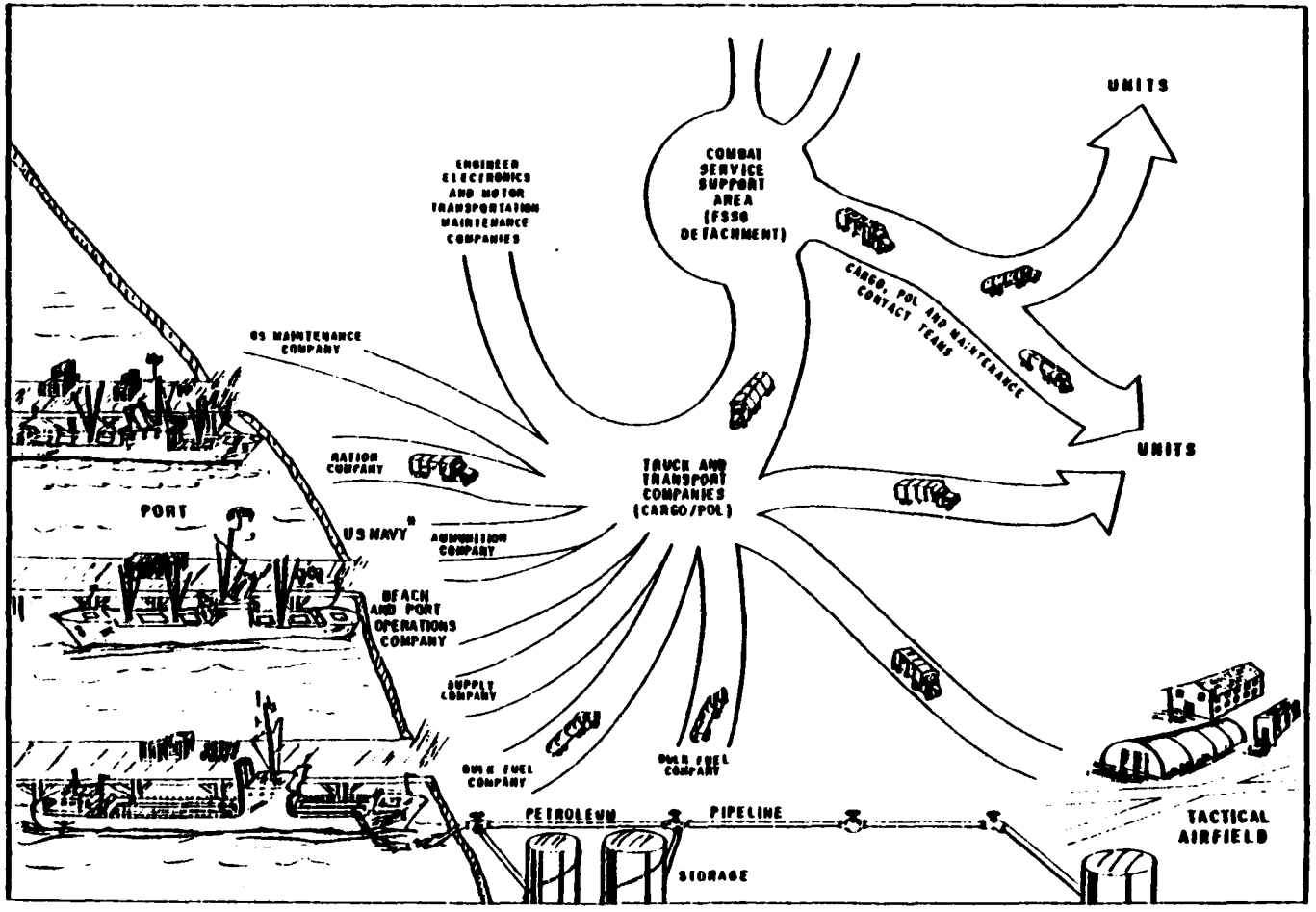


FIGURE D.2-3. DEVELOPED MARINE LOGISTICS SYSTEM IN A NOTIONAL THEATER



pipelines and disburse fuel to tanker trucks. Other Supply Battalion companies (i.e., supply, ammunition and ration), located in fixed facilities between the port and combat units, distribute materiel forward. Maintenance companies operate out of fixed facilities in the port area; they also send detachments and contact teams forward.

To minimize transport time as the combat area moves inland, a combat service support area (CSSA) may be established between the port and the forward combat units (See Figure D.2-3). Small sections of FSSG logistics units would then provide limited forward support out of the CSSA. Detachments of the maintenance companies would also operate out of this area, referring the more extensive repair work back to fixed facilities. Supply support, including POL, would be pushed forward to combat units through the CSSA or directly from the port, depending on the requirement.

D.3. LOGISTICS UNITS

As shown in Table D.3-1, 27 percent of the Marine Corps logistics companies not organic to ground and air combat elements are in the Reserve.[1]

TABLE D.3-1. FY82 TOTAL MARINE CORPS FSSG COMPANIES

	Total Units	Reserve Units	Reserve Percent
SUPPLY	17	5	29
Supply Company	4	1	
Ration Company	4	1	
Ammunition Company	4	1	
Bulk Fuel Company	5	2	
MAINTENANCE	16	4	25
Motor Transportation Maintenance Company	4	1	
Engineer Maintenance Company	4	1	
Electronics Maintenance Company	4	1	
General Support Maintenance Company	4	1	
TRANSPORTATION	23	6	26
Landing Support Company	11	3	
Beach and Port Operations Company	4	1	
Truck Company	4	1	
Transport Company	4	1	
Marginal Terrain Vehicle Company (cadre)	0	0	
Total	56	15	27

SUPPLY

Doctrine

Supply support requirements are stated in two categories: landing force (initial supply) and resupply. Some FSSG personnel are involved in

[1] In 1983-1984, four logistics companies will be added to the Reserve (two Bulk Fuel and two Beach Operations) increasing its share of the Marine Corps logistics structure to 30 percent.

initial beach logistics, but FSSG companies primarily provide the resupply or sustainment support which begins after the initial assault. The FSSG supply companies provide nine classes of supply.[2] The companies are located mainly in port areas or established beachheads, but they have the capability to establish supply activities in forward support areas and provide direct support to forward combat units.

The Supply Company stores and issues all bin and bulk supplies with the exception of ammunition, rations and bulk POL. It receives, stores and distributes packaged POL products to air wing and ground division elements.

The Ammunition Company stores, maintains and issues conventional ammunition. It also provides explosive ordnance disposal support and technical assistance for storage and handling of nuclear ordnance. Detachments have the capability to support combat units at one or more ammunition supply points.

The Ration Company establishes and operates ration supply points in support of landing forces and forward units.

The Bulk Fuel Company receives, stores and distributes bulk POL to all units in the task force. It can deliver fuel by hose up to 3½ miles or by tanker truck up to 20-25 miles, and it distributes POL to (but not inside) airbases. One company is normally situated in the port area; another operates between the port and the largest POL consumer, the airfield.

Force Structure

Of the 17 supply companies in the FY82 Marine Corps FSSG structure, 5 (29 percent of the total capability) are in the Reserve FSSG.

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[2]The classes are: I - subsistence items, II - clothing and individual equipment, III - POL items, IV - construction materiel, V - ammunition, VI - nonmilitary sales items, VII - major end items, VIII - medical materiel and IX - repair parts.

MAINTENANCE

Doctrine

FSSG maintenance units primarily perform intermediate maintenance.[3] With the exception of the General Support (GS) Maintenance Company, maintenance companies are primarily employed in two locations: one near the port using fixed facilities, the other in a forward area to provide contact teams. Maintenance units may also establish and operate mobile repair facilities in the CSSA for work that exceeds the capabilities of the contact teams.

The Motor Transport Maintenance Company provides intermediate maintenance support for motor transport equipment, including on-site repair by contact teams and end-item maintenance at the company's mobile repair facilities. The Engineer Maintenance Company provides intermediate repair for engineer equipments. It operates mobile repair facilities and provides contact teams and technical inspection services forward. It also assists supported units in organizational maintenance when necessary.

The Electronics Maintenance Company provides intermediate maintenance for all Marine Corps communication and electronics equipment. It also operates mobile repair facilities and supports forward units with maintenance contact teams.

In contrast to the other maintenance companies, the GS Maintenance Company does not send out contact teams. It operates out of fixed facilities near the port area and is responsible for the most comprehensive level of repair in-theater. This company provides general and back-up support to the commodity-specific maintenance companies as well as machine shop facilities

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[3]The Marine Corps has five levels or "echelons" of maintenance. The 1st and 2nd echelons correspond to organizational maintenance, the 3rd and 4th echelons correspond to intermediate maintenance, and the 5th is depot maintenance.

for all ground equipment. The mission of the GS Company includes both intermediate and organizational maintenance on major end items in the operational readiness float. It also repairs and maintains general supply items and provides calibration services to the Maintenance Battalion.

Force Structure

The FY82 Total Marine Force has 16 FSSG maintenance companies, of which 4 (25 percent of the Marine Corps' capability) are in the Reserve FSSG.

TRANSPORTATION

Doctrine

Transportation companies establish and operate the beach logistics system during the landing assault; they also manage the movement of cargo from the beach, airfield or port to forward units once the landing areas have been secured.

A nucleus unit, provided by the FSSG's Landing Support Company and augmented by advance sections of other FSSG units, is the initial logistics element ashore in an amphibious assault (i.e., the Landing Force Support Party). It operates up to two beaches or helicopter landing zones, establishes and operates interim supply points, and unloads and sorts supplies from landing craft, ships and helicopters. As logistic operations extend inland, personnel temporarily attached to the Landing Force Support Party are returned to their parent units for development of a full-scale logistics system.

Once command of the beach logistics system has been passed to the logistics commander who arrives with the remainder of the task force, the Beach and Port Operations Company manages cargo sorting, storage and routing operations at beaches, ports, railheads, and air and truck terminals. Its mission also includes container handling, air delivery support and air freight

operations. In an established port, it requires Navy Cargo Handling Battalions for material handling capability to offload ships in berth.

The Truck Company augments the organic transportation capability of all major elements. The Transport Company, using heavy transport vehicles, provides bulk dry cargo, fuel, refrigerated supplies, and heavy equipment lift capability to the combat units.

The Marginal Terrain Vehicle Company provides transportation support over adverse terrain or inland waters using specialized cargo carriers whenever normal motor transport equipment is inadequate.

Force Structure

By doctrine, each Active Marine MAF has seven FSSG transportation companies (one Truck Company, one Transport Company, one Marginal Terrain Vehicle Company, one Beach and Port Operations Company and three Landing Support Companies). At the present time, one Active Landing Support Company and all Marginal Terrain Vehicle Companies are at zero staffing. Of the 23 staffed FSSG transportation companies in the FY82 Total Marine Corps, 6 companies (26 percent) are in the Reserve.

D.4. READINESS REPORTING

UNITREP SYSTEM

The Unit Status and Identity Report (UNITREP) is the DoD single automated system which reports the current readiness status of selected Active and Reserve units. The reporting of unit (e.g., company, battalion, squadron, etc.) readiness indicates, at a given point in time, a unit's capability to perform its assigned missions. Marine Corps Reserve units report their readiness every six months or whenever changes in status occur.[1]

The readiness of each unit is based upon four resource readiness areas as well as several other factors. The resource readiness areas are: (1) personnel, (2) training, (3) equipment and supplies on hand and (4) equipment readiness. The other factors include morale, environment and day-to-day performance in primary mission areas.

The personnel rating compares the assigned strength of the unit with its authorized peacetime strength. This rating reflects the unit's total strength and mission-essential Military Occupational Specialties percentages. The training rating compares unit training with prescribed standards. The rating of equipment and supplies on hand compares available mission-essential equipment and supplies, regardless of condition, with the unit's allowance. The equipment readiness rating addresses the operating condition of mission-essential equipment. The lowest rating for any of the resource areas is the overall combat readiness rating for the rated unit, unless raised or lowered by the unit commander. Table D.4-1 provides the rating criteria for each resource readiness area.

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[1]See Appendix A, page A.5-1, for a discussion of the readiness level attached to C-1, C-2, C-3, C-4 and C-5.

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TABLE D.4-1. COMBAT READINESS RATING CRITERIA

(Percentage)

Resource Area	Rating			
	C-1 ≥	C-2 ≥	C-3 ≥	C-4 <
Personnel				
Total End Strength	90	80	70	70
Critical Skills	85	75	65	65
Training[1]				
Weeks of Training Required	≤2	>2≤4	>4≤6	>6
Combat Ready Aircrews	85	70	55	55
Equipment & Supplies On Hand[2]				
Combat-Essential Equipment				
Aircraft	90	80	60	60
Other Equipment	90	80	65	65
End Items, Support Equipment & Supplies	90	80	65	65
Equipment Readiness[3]				
Combat-Essential Equipment				
Aircraft	75	60	50	50
Other Equipment	90	70	60	60
End Items	90	70	60	60

[1]Based on the number of weeks required to attain fully trained status for ground units and nonflying squadrons. For Marine air squadrons, percentage of combat ready aircrews is the exclusive criterion.

[2]The lowest C-rating assigned for any type of combat-essential equipment, end item, support equipment or supplies, for which on-hand (plus equipment held in the stores system) percentages are separately computed, determines the C-rating. For Marine air squadrons, aircraft on hand are projected to mission/alert response time or 72 hours, whichever is shorter.

[3]Based on percentage of weapon systems and equipments that are on hand and fully capable to perform the unit's wartime mission. For Marine air squadrons, aircraft readiness is projected to mission/alert response time or 72 hours, whichever is shorter.

D.5. OBSERVATIONS

Marine Corps Reserve units do not provide substantial logistics support to Active combat units, although the dependence may be significant in a few functions for specific contingencies. The Reserve contribution to the Marine Corps logistics force structure is larger than the expected 25 percent only because Active companies have personnel shortfalls and contingency plans commit equivalent Active units elsewhere.

Over the next five years, the Marine Corps plans to make the Active FSSG units fully capable of supporting Active MAFs. By 1987, the wartime tasking of Reserve FSSG units will be logistics support of Reserve, not Active, combat units.

BACKGROUND NOTES: HISTORY, MISSION, DESCRIPTION AND ORGANIZATION OF THE MARINE CORPS RESERVE

HISTORY AND MISSION

Historical Background

By the early 1890's, seven states had established Marine detachments within their Naval Militia organizations. In 1916, the first Marine Corps Reserve units were established; the entire Reserve was called to active service in 1917. All Reserve battalions were called to service by late 1940, as were 13 Marine Reserve air squadrons. By the end of World War II, Marine Reservists were 70 percent of the total Marine Corps strength. The Korean War also involved massive call-ups of Marine Corps Reservists. During the period 1962-1966, the Reserve 4th Marine Division and 4th Marine Air Wing, plus support units, were organized into a division/wing team in a complete restructuring of the Marine Corps Reserve.

Mission

The mission of the Marine Corps Reserve is to bring the Marine Corps operating and support forces to full wartime capability upon mobilization. The major ground units in the Marine Corps Reserve are organized into a Marine division, consisting primarily of four regiments and a force service support group. The major air units are organized into a Marine air wing, consisting primarily of four air groups, an air control group and a wing support group. Several additional smaller units support a variety of Marine Corps programs.

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DESCRIPTION

Reserve Categories[1]

The Marine Corps Reserve is composed of the Retired Reserve, Standby Reserve and Ready Reserve. The Retired Reserve consists of individuals in a retired status. Under certain conditions in time of war or national emergency declared by Congress (or when otherwise authorized by law), members of the Retired Reserve may be called to active duty. The Retired Reserve of the Marine Corps has a force level of 8,561.

The Standby Reserve consists of individuals who are either (a) completing a small remaining period of military service, (b) former members of the Ready Reserve transferred to the Standby Reserve, (c) members of Congress and others holding key government positions, or (d) voluntarily retaining their Reserve affiliation in a nonparticipating status or holding a skill of potential military value.

The Standby Reserve may be called to active duty in the event of a war or national emergency declared by Congress (or when otherwise authorized by law), except that no unit or individual may be ordered to active duty unless the Secretary of Defense determines that there are not enough units or individuals with requisite capabilities available in the Ready Reserve. The Standby Reserve of the Marine Corps has a force level of 1,711.

The Ready Reserve is composed of the Selected Marine Corps Reserve (SMCR), the Individual Ready Reserve (IRR) and individuals in the training pipeline. The SMCR consists principally of individuals organized into units who are subject to minimum participation requirements at weekend drills and annual periods of active duty for training. The IRR consists of all members

[1]Strength levels are from "*Official Guard and Reserve Manpower:* Strengths and Statistics," Office of the Deputy Assistant Secretary of Defense (Reserve Affairs), April 1982.

of the Ready Reserve not belonging to the SMCR, including individuals who are (a) subject to maximum participation requirements at annual periods of active duty for training, (b) voluntarily performing active duty for training without pay or (c) involved in certain categories of specialized training.

Members of the Ready Reserve may be called to active duty involuntarily (for a maximum of 24 consecutive months) in time of national emergency declared by the President. Up to 100,000 members of the Selected Reserve may be ordered to active duty (other than training) for not more than 90 days by the President without a prior declaration of war or national emergency.[2] The Selected Marine Corps Reserve has a force level of 37,716, the IRR 57,093, and the training pipeline is at 6,490.

ORGANIZATION

Command of Marine Corps Reserve activities is exercised by the Commandant of the Marine Corps (CMC) through the Deputy Chief of Staff for Reserve Affairs. The CMC, in addition to command authority, determines Marine Corps Reserve requirements and provides policy direction for the organization, administration, training and support of the Marine Corps Reserve. The Deputy Chief of Staff for Reserve Affairs exercises policy direction, control, administration and management of the Marine Corps Reserve. Figure D.D-1 displays the peacetime organizaton of the Marine Corps Reserve.

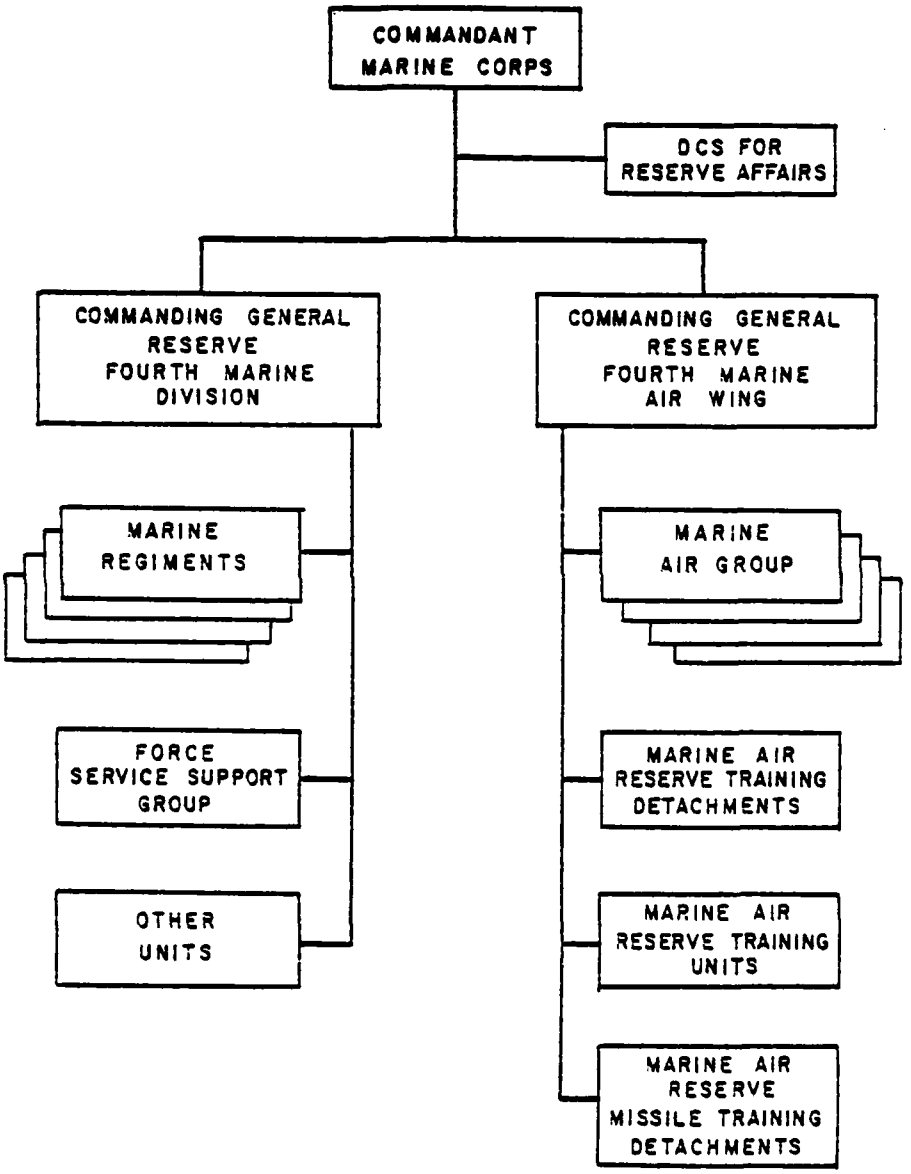
The Commanding General of the Reserve 4th Marine Division is responsible for the training and mobilization readiness of all Marine Corps ground units and the 4th FSSG. The Reserve 4th Marine Division has a command organization similar to that of the Active Marine divisions.

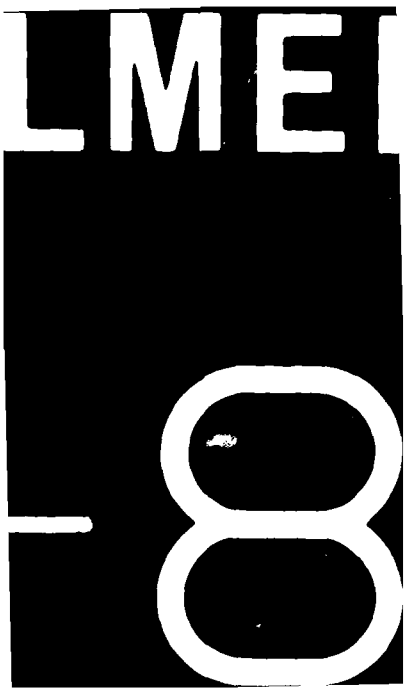
The Commanding General of the Reserve 4th Marine Air Wing exercises command and control over all Marine Corps Reserve air units through Marine Air

[2]This activation may be terminated by a concurrent resolution of both Houses of Congress.

Reserve Training Detachments, Marine Air Reserve Training Units and Marine Air Reserve Missile Training Detachments.

FIGURE D.D-1. PEACETIME ORGANIZATION OF THE MARINE CORPS RESERVE

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