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REPORT TO THE CONGRESS



Effective Central Control Could
Improve DOD's Ammunition
Logistics B-176139

*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

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DEC. 6, 1973



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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

This is our report on improving Department of Defense
ammunition logistics with effective central control.

Our review was made pursuant to the Budget and Account-
ing Act, 1921 (31 U.S.C. 53), and the Accounting and Audit-
ing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director,
Office of Management and Budget; the Secretary of Defense;
and the Secretaries of the Army, Navy, and Air Force.

James B. Stacks

Comptroller General
of the United States

C o n t e n t s

		<u>Page</u>
DIGEST		1
CHAPTER		
1	INTRODUCTION	5
	Ammunition management organizations	5
	Office of the Secretary of Defense	5
	Army	6
	Navy	6
	Air Force	6
	Marine Corps	7
	Magnitude of ammunition activities	7
2	IMPROVED CONTROLS OVER REQUIREMENTS NEEDED TO PARE FUNDING	8
	Need for improved interservice asset visibility	8
	Transfer of 2.75-inch rocket compo- nents from Navy to Air Force	8
	Transfer of excess Marine Corps ammunition to the Army	9
	Need for more accurate budget requests	9
	Conclusions	10
3	PROCUREMENT OPERATIONS NEED IMPROVEMENT	11
	Procurement organizations	11
	Separate procurement operations main- tained	12
	Conclusion	12
4	CENTRAL MANAGEMENT OF SCHEDULING FOR ARMY AND NAVY PRODUCTION PLANTS COULD IMPROVE EFFECTIVENESS	14
	Production organization	14
	Interservice competition for ammunition production workload	15
	General-purpose bombs	15
	2.75-inch rocket	16
	Cluster bombs	16
	Separate modernization programs	17
	General-purpose bombs	17
	Other ammunition items	18
	Conclusions	18

CHAPTER		<u>Page</u>
5	STORAGE AND DISTRIBUTION MANAGEMENT NEEDS IMPROVEMENT TO REDUCE COSTS	20
	Storage organizations	20
	Shipment of ammunition to storage sites	21
	Marine Corps shipments	21
	Air Force shipments	23
	Conclusions	23
6	AGENCY COMMENTS AND OUR EVALUATION AND RECOMMENDATION	25
	Recommendation	26
7	SCOPE OF REVIEW	28
APPENDIX		
I	Selected common use items	29
II	Letter dated June 5, 1973, from the Assist- ant Secretary of Defense (Installations and Logistics)	30
III	Principal officials of the Departments of Defense, Army, Navy, and Air Force responsible for matters discussed in this report	33

ABBREVIATIONS

DOD	Department of Defense
GAO	General Accounting Office
JCAP	Joint Conventional Ammunition Production

D I G E S T

WHY THE REVIEW WAS MADE

The logistics of the four military services for dealing with ammunition--ranging from rifle bullets to sophisticated bombs--is complex and unusual. Comparable products for the most part are not manufactured for civilian use; needs vary greatly in times of peace or war; and each service has its own system of procuring, maintaining, and distributing ammunition. Over \$21 billion was appropriated from 1968 to 1973 for ammunition.

These factors led GAO to study ammunition logistics in the Department of Defense (DOD).

FINDINGS AND CONCLUSIONS

In ammunition logistics the Army and Navy have the predominant DOD management roles. They control Government-owned ammunition production plants and storage facilities. GAO's review of key logistics functions of

--requirements determinations,

--procurement,

--production scheduling, and

--storage and distribution

showed that current management was

not satisfactory in terms of economy and efficiency.

GAO noted that:

--Improved exchange of information by the services on available ammunition could reduce funds appropriated for procuring ammunition.

--More accurate budget requests could reduce funds appropriated for procuring ammunition. (See pp. 9 and 10.)

--Improved procurement operations could avoid interservice competition for the limited private industrial capacities. (See p. 12.)

--Defense-wide perspective in scheduling production, modernization, and mobilization could eliminate competition for appropriated funds. (See p. 14.)

--Improved storage and distribution management could reduce transportation and handling costs. (See p. 20.)

Those objectives can be reached by Defense-wide planning that matches Defense-wide requirements with Defense-wide capabilities.

Stronger central management could help attain this Defense-wide perspective,

difficult as it is to bring about.

RECOMMENDATIONS

The Secretary of Defense should establish central management for all ammunition either by creating a new ammunition organization or by assigning this responsibility to one service. The central manager would be responsible for consolidating requirements for ammunition items determined by each service and for continuing through the inventory accounting, procurement, production, storage, and distribution functions. (See p. 26.)

The central manager should also work closely with the services' research and development organizations in planning future ammunition production.

AGENCY ACTIONS AND UNRESOLVED ISSUES

DOD agreed with GAO's conclusions that Defense-wide perspective in ammunition management needs improving.

DOD believes that this can be attained by establishing a Joint Conventional Ammunition Production organization consisting of a coordinating group and working committees operating under the Joint Logistics Commanders.

DOD recognizes the inherent disadvantages of such an organization, but it wants to give the organization an opportunity to demonstrate fully its management capability before considering alternatives.

GAO appreciates that several alternative organization concepts could be used to improve ammunition management. GAO feels that the Joint Conventional Ammunition Production

organization could work if it is given the responsibility and staffing needed to obtain effective central control of ammunition.

Such an organization should, at least, be

- staffed with officials who appreciate Defense-wide needs and who are not restricted to service desires;
- authorized to make decisions for all service components involved in ammunition requirements determinations, procurement, production, storage, distribution, and modernization; and
- responsive and responsible to the Secretary of Defense rather than to the military departments.

The Secretary should set a reasonable test period for improving ammunition management with the present organization.

If, at the end of that period, ammunition management has not improved substantially, he should consider assigning responsibility for managing ammunition to one service or to a new organization with the authority and manpower to do an effective job.

MATTERS FOR CONSIDERATION BY THE CONGRESS

In peacetime, manufacture, storage, and safekeeping of ammunition can be an expensive drain on the economy. Its efficient and economical management is obviously always important.

Certain congressional committees may want to be kept advised of:

- How the Secretary of Defense will determine if ammunition management

is being improved by the Joint
Conventional Ammunition Production
organization.

--What he is doing to insure that
service competition no longer

interferes with ammunition manage-
ment.

--How much the military budget is
being reduced by improved ammuni-
tion management.

CHAPTER 1

INTRODUCTION

The term "conventional ammunition" refers to nonnuclear explosives and includes a wide array of sizes and shapes ranging from 5.56-mm cartridges costing 6 cents each to 2,000-pound bombs costing about \$17,000 each. The explosive and limited shelf-life characteristics of ammunition place special requirements on production, distribution, and storage.

The majority of ammunition items used by the Army, Navy, Air Force, and Marine Corps have four major components--a metal body, an explosive fill, a propellant, and a fuze. Most of the metal parts and fuzes are procured from private industry, and most of the explosive fills and propellants are manufactured in Government-owned plants. The components are sent to other Government-owned facilities for loading, assembling, and packing. Completed ammunition items are then shipped to using units or to storage depots.

AMMUNITION MANAGEMENT ORGANIZATIONS

The services use similar management methods to supply ammunition to their forces. In general, each service determines the ammunition needed to carry out its mission and then procures, produces, stores, and distributes the ammunition, as needed. A number of organizations within the Office of the Secretary of Defense and the services manage ammunition logistics functions.

Office of the Secretary of Defense

The Assistant Secretary of Defense (Installations and Logistics), as the principal staff assistant to the Secretary of Defense, is the focal point for policy and review functions in ammunition management. Because several types of ammunition were in critical supply during the buildup of U.S. Forces in Southeast Asia, the Assistant Secretary's Office was expanded to intensify control over the requirements, production, and inventory of air ammunition and, to a lesser extent, of ground ammunition. The Office worked closely with the Army and the Commander in Chief, Pacific. As U.S. Forces withdrew from Southeast Asia, controls exercised by this Office were relaxed and, in turn, were assumed by the military departments.

Army

The Army determines the quantities and types of ammunition it needs. The Assistant Secretary of the Army (Installations and Logistics) and the Deputy Chief of Staff for Logistics have overall staff responsibility for Army logistics management of ammunition.

The Army Materiel Command, the primary wholesale supplier, operates Army storage depots. Its Armament Command (one of six commodity commands) manages Army ammunition plants and serves as the inventory control point for ammunition.

Navy

The Navy determines its own ammunition needs. It obtains explosive fills from the Army and metal parts from private industry. The loading, assembling, and packing of Navy ammunition is done at Government owned and operated plants. The Navy maintains its own storage depots in the United States.

The Assistant Secretary of the Navy (Installations and Logistics) has overall ammunition logistics management responsibility in the Navy. The Deputy Chief of Naval Operations (Logistics) has primary responsibility for the Navy's ammunition management. The Naval Material Command responsible to the Chief of Naval Operations for ammunition logistics support has three subordinate commands--the Naval Air Systems Command, the Naval Ordnance Systems Command, and the Naval Supply Systems Command. These subordinate commands determine requirements and procure, produce, and store Navy ammunition. The Naval Ships Parts Control Center, under the Naval Supply Systems Command, is the inventory control point for ammunition.

Air Force

The Air Force also determines its own ammunition requirements. It procures components from private industry for the ammunition end items not used by other services. All other components; explosive fills; and loading, assembling, and packing are obtained from the Army and Navy. The Air Force does not have ammunition storage depots; it generally uses the Army's.

The Assistant Secretary of the Air Force (Installations and Logistics) has overall logistics management responsibility for air ammunition. At the headquarters level, the Deputy Chief of Staff, Research and Development, is responsible for acquiring new ammunition items and the Deputy Chief of Staff, Systems and Logistics, is responsible for acquiring proven ammunition items.

The Air Force Systems Command has the major command responsibility for development and initial acquisition of ammunition, and the Air Force Logistics Command has follow-on acquisition responsibility. The Armament Development and Test Center, an Air Force Systems Command activity, initially develops and procures essentially all air ammunition. Follow-on procurement is the responsibility of the Ogden Air Materiel Area, an Air Force Logistics Command activity, which is the Air Force's inventory control point for ammunition.

Marine Corps

Because the Marine Corps is part of the Navy, the Commandant of the Marine Corps is directly responsible to the Secretary of the Navy for the corps' materiel support systems. The corps determines its ground ammunition requirements, and the Army procures this ammunition. The Navy determines and procures the corps' air ammunition needs. Generally the corps uses Navy storage depots and sometimes Army depots in the United States.

MAGNITUDE OF AMMUNITION ACTIVITIES

Over \$21 billion was appropriated for procuring ammunition from 1968 to 1973. This is about 20 percent of the total Department of Defense (DOD) procurement appropriations during the 6 years. At the end of the period, the services had ammunition inventories valued at about \$7.5 billion and had special storage facilities, such as igloos and magazines, with storage capacities totaling about 53 million square feet. The services--predominantly the Army and Navy--also had 46 Government-owned ammunition production facilities whose estimated replacement value exceeded \$14 billion. These facilities are being modernized; the Army estimated its modernization programs would cost \$3.9 billion from 1970 to 1981.

CHAPTER 2

IMPROVED CONTROLS OVER REQUIREMENTS

NEEDED TO PARE FUNDING

When determining ammunition requirements, each service usually first establishes its total needs. Available assets are deducted from the total requirements in determining the amount of procurement funds needed. All assets or components available in DOD should be considered, or unneeded funds may be requested and too many items procured. Also assets should be correctly priced out in budget requests, or the requests will be inaccurate.

Although each service has information on the status of its assets (asset visibility), it would not know if another service had available assets unless the owning service had reported them as excess. Having information on the availability of components and end items is important because many components and items are used by two or more services. (See app. I.)

NEED FOR IMPROVED INTERSERVICE ASSET VISIBILITY

Not all available stocks for ammunition commonly used by the services were considered when requirements were computed and budget requests prepared, because each service maintains its own accountability over stocks and normally reports only those which are excess. Although services have exchanged asset data, more often this was not the case. Thus sometimes one service requested and received funds for ammunition items while another had sufficient stocks to satisfy part or all of these needs. The following examples indicate the need for improved interservice asset visibility.

Transfer of 2.75-inch rocket components from Navy to Air Force

In 1971 the Air Force requested the DOD Project Manager for the 2.75-inch rocket system to procure 410,000 fuzes and warheads costing about \$6.6 million. In October 1971, while the Project Manager was buying these items, the Navy had 475,000 fuzes and warheads, valued at

\$7.6 million, for which it had no foreseeable need but which it was retaining for contingency purposes. Since the Project Manager was not responsible for managing fuze and warhead components in the services' inventories, he was unaware of the Navy's inventory. We brought this matter to his attention, and arrangements were made to transfer 410,000 of the Navy's stock to the Air Force.

Transfer of excess Marine Corps
ammunition to the Army

During the fiscal year 1972 budget review in December 1970, the Office of the Assistant Secretary of Defense (Comptroller) noted that the Army had requested funds to buy certain ammunition items and that the Marine Corps had substantial excess quantities of these items. The Office of the Assistant Secretary of Defense directed the corps to transfer these items, valued at \$59.1 million, to the Army and reduced the Army's budget request by the same amount. "It took the Army and the corps over 2 years to transfer the items because of red tape.

NEED FOR MORE ACCURATE BUDGET REQUESTS

The Army and Air Force require budget requests for ammunition end items to be reduced by the value of available components which can be used in assembling the end items. We found no examples of this not being done. But in certain cases, Navy budget requests did not consider available components.

The Navy's fiscal year 1972 budget request computations for a series of general-purpose bombs did not fully consider available components. Thus the Navy's request for ammunition funds was overstated by about \$8.6 million. A Navy official said component inventories of other major ammunition items were not considered in preparing the request. DOD acknowledged that this condition existed before fiscal year 1973 but stated that the Navy now considers components before submitting budget requests.

The services sometimes purchase ammunition end items and components from each other. For accurate budgets, accurate cost data is important because, after the quantity of items required is computed, unit prices become a major factor in determining the amount of funds to be requested.

The exchange of cost data to be used in preparing budget requests was not effectively coordinated. For example, in its fiscal year 1972 budget request, the Air Force included approximately \$80 million for MK-82 bomb bodies--both empty and loaded--at a unit price of \$92. The Navy purchases these bombs for the Air Force and furnishes it with unit price data. When the budget request was made, however, the most current Navy unit price was \$75. The \$17 variance resulted in an overstatement of approximately \$14.7 million in the Air Force's fiscal year 1972 budget request for MK-82 bombs. More effective interservice coordination would have noted the inaccuracy and prevented this overstatement.

DOD agreed that this situation existed and informed us that the Joint Inter-Service Logistics Support Agreement for Ammunition is being expanded to require greater coordination and interchange of procurement data. Also DOD is developing a Joint Conventional Ammunition Production (JCAP) Management Information System which will include a central data bank to provide current cost data to all users.

CONCLUSIONS

If the funds appropriated for purchase of ammunition are to be kept to only what is needed, requirements calculations must include all end items and components available in DOD and all budget requests should be based on current, accurate cost data.

DOD can avoid unneeded ammunition purchases if it insures that (1) interservice asset visibility is greater, (2) timely interservice transfer of ammunition is prompt, and (3) accurate data is used in budget requests.

CHAPTER 3

PROCUREMENT OPERATIONS NEED IMPROVEMENT

DOD Instruction 4115.1 gives the Army, Navy, and Air Force responsibility for procuring various classes of ammunition items and their components. Such procurement operations are not economical or efficient because each service maintains procurement organizations which buy similar material and components, in many cases from the same supply sources. In some instances, the sources have limited capacity to produce critical components and the competition between services does not insure that priorities for essential components are met.

PROCUREMENT ORGANIZATIONS

The procurement organizations have developed essentially as the services have. The Army and Navy have always provided their own forces with ammunition. The Air Force, established as a separate service after World War II, has its own procurement organization.

The organizations responsible for buying ammunition components and for planning with industry for mobilization follow.

Army:

Armament Command, Rock Island, Illinois
Picatinny Arsenal, Dover, New Jersey
Frankford Arsenal, Philadelphia, Pennsylvania

Navy:

Naval Ordnance Systems Command, Washington, D.C.
Naval Air Systems Command, Washington, D.C.
Ships Parts Control Center, Mechanicsburg, Pennsylvania

Air Force:

Armament Development and Test Center, Eglin Air Force Base, Florida
Ogden Air Materiel Area, Ogden, Utah

SEPARATE PROCUREMENT OPERATIONS MAINTAINED

Personnel at each procurement organization are required to know the procurement statutes, regulations, policies, and contracting methods. They must maintain information on such things as producers' capabilities, prices, and product quality.

Because ammunition components procured by the organizations are similar, they generally deal with the same companies making fuzes, bomb bodies, and projectiles. In some instances the sources have limited production capacity for critical items. The services compete for this production capacity, and, although one service would not ignore the needs of others, it can tie up a production source so that the needs of another service cannot be met.

Each service must also plan with private industry to insure that sufficient ammunition components can be produced if a national emergency should occur. In mobilization planning the services provide commercial producers with lists of items and quantities needed. The producers, in turn, tell the services how much they can produce.

Companies generally schedule their workloads for the items on a first-come, first-served basis, because the procuring activities submit lists of mobilization items needed at different times of the year. Therefore the danger exists that priority needs of the services will not be met. For example, one sole-source contractor for a component decided not to enter into a mobilization production arrangement because it already was heavily committed to produce similar items for other Army and Navy activities. Fortunately, in this instance, the contractor reconsidered and agreed to plan to produce one-third of the required quantity.

CONCLUSION

In a letter dated June 5, 1973, DOD agreed that inefficiencies can occur but that JCAP is taking action which should alleviate, if not eliminate, such situations. DOD stated:

"* * * the JCAP has developed for subsequent approval the concept of one coordinated purchase assignment based on a common production characteristic concept (e.g., projectiles, cartridge cases,

bombs). Utilization of this concept should rectify the problem of different procuring agencies buying similar materials or components."

We believe that such objectives, if pursued vigorously to a logical, realistic conclusion, should insure improvement in DOD ammunition procurement.

CHAPTER 4

CENTRAL MANAGEMENT OF SCHEDULING FOR ARMY AND NAVY

PRODUCTION PLANTS COULD IMPROVE EFFECTIVENESS

The Army and Navy have extensive production plants where they produce ammunition for themselves and for the Air Force and Marine Corps. This dual production does not provide the overall perspective needed to maximize use of the plants. Instead, it fosters interservice competition for workload and funds to modernize plants.

The Logistics Management Institute, a management consulting organization, made similar observations in a recent report to DOD on the condition and operation of ammunition production plants.

PRODUCTION ORGANIZATION

The Army has 26 plants managed by the Army Armament Command and operated by private contractors. The Navy has eight major plants managed by the Naval Ordnance System Command and operated with military and civil service personnel. The Army and Navy plants, most of which were constructed during World War II, have a replacement value of \$10.8 billion and \$2.5 billion, respectively. The plants include over 250 production lines classified according to use.

Propellant and explosive lines--These are chemical process lines; most of them are at Army plants.

Metal parts lines--These lines use various types of equipment to fabricate ammunition components, such as cartridge cases and fuze parts. Most of these lines are also at Army plants.

Small arms lines--These lines produce small caliber ammunition; most of them are at Army plants.

Load, assemble, and pack lines--These lines (1) prepare components for loading, (2) load components with explosives, (3) assemble components, and (4) prepare completed items for shipment. Ten of the 25 Army plants and the 8 major Navy plants have loading, assembling, and packing operations.

Centralizing production scheduling for the plants would significantly improve management of the loading, assembling, and packing facilities.

INTERSERVICE COMPETITION FOR
AMMUNITION PRODUCTION WORKLOAD

The Army and the Navy have loading lines for essentially the same types of ammunition. When scheduling production each service considers only its own production plants for loading, assembling, and packing ammunition, which precludes the possibilities of reducing costs by using more cost-effective plants managed by the other.

General-purpose bombs

Both the Army and the Navy have facilities for loading, assembling, and packing general-purpose bombs, and a question arises as to which Army and Navy plants should perform these functions. In October 1970 the Naval Ordnance Systems Command compared the cost of bomb loading, assembling, and packing at five Army and Navy plants. The study concluded that loading costs at the Hawthorne Naval Ammunition Depot and the Yorktown Naval Weapons Station were so far out of line compared with loading costs at Cornhusker Army Ammunition Plant and the Crane and McAlester Naval Ammunition Depots that they were not even included as candidates for a detailed study which included transportation costs to come up with the most cost-effective plants.

However, the Navy continued to load Air Force bombs at Hawthorne and Yorktown. In fact, the Navy loaded over 700,000 MK-82 bombs at these plants during 1971 and 1972. It seems that, once a service establishes a capability to load, assemble, and pack ammunition items at certain plants, it is reluctant to shift production to other plants.

DOD stated that a plan to consolidate general-purpose bomb production under the Navy, originally scheduled for June 1972, had been rescheduled for June 30, 1973, and that the plan was being implemented.

2.75-inch rocket

Another illustration of workload competition involves the 2.75-inch rocket, an ammunition item used by all four services. In general, the loading, assembling, and packing functions involve the warhead and motor for this rocket.

Before 1965 the Army and Navy had plants for loading the warhead--the Army used its Louisiana plant and the Navy used its McAlester plant. The Navy assembled all motors at McAlester.

In 1965 DOD designated an Army Project Manager for the rocket. He transferred all warhead loading to the Army's Louisiana plant and most motor assembly to the private firm--Baldwin Electronics.

The Navy tried to shift the workload from the Army plant and private firm to its McAlester plant. The Navy conducted a study in 1971 showing that it would be more cost effective to load, assemble, and pack the warhead and motor at McAlester. After the Project Manager reviewed the Navy study, he made another study which showed that the alternative with the least cost was the present Louisiana plant-Baldwin combination. A deputy to the Assistant Secretary of Defense (Installations and Logistics) reviewed this matter and concluded that the Louisiana plant-Baldwin combination was the more economical source.

Although this problem was resolved, it is an example of each service's desire to retain production at its loading, assembling, and packing plants.

Cluster bombs

Cluster bombs are a recent addition to the ammunition inventory. Before 1969 the Air Force was the primary user of cluster bombs, which the Army loaded, assembled, and packed. In 1969 the Navy established a production line at the Crane Naval Ammunition Depot for the Navy-designed Rock-eye cluster bomb. More recently, the Navy established additional lines at its Hawthorne and McAlester plants. Army officials informed us that the Navy had not contacted them to determine whether the Army could load, assemble, and pack the Navy bombs.

In general, Navy cluster bombs are functionally similar to several Air Force bombs. We did not evaluate the need for the various types of cluster bombs. In any event DOD should consider producing in existing production plants before investing in additional facilities.

SEPARATE MODERNIZATION PROGRAMS

Both the Army and the Navy have developed plans to modernize their portions of the DOD production base without adequately considering each other's plans. This results in competition for funds and in possible unnecessary modernization and expansion.

The current Army modernization plan will cost about \$3.9 billion from 1970 through 1981; over \$1.2 billion of this is for loading, assembling, and packing plants. The Navy also plans to modernize its loading, assembling, and packing facilities.

The following examples demonstrate the need for central control of modernization planning and decisionmaking.

General-purpose bombs

Both the Army and the Navy in 1969 planned to modernize general-purpose bomb-loading lines. The Navy planned to modernize its McAlester plant, and the Army planned to modernize its Cornhusker plant.

In 1969 Army, Navy, and Air Force representatives made a study at the request of the Joint Logistics Commanders¹ to determine the most effective production processes for loading bombs. This study compared the Army and Navy plans for modernizing bomb-loading lines at the Army's Cornhusker plant and the Navy's McAlester plant and recommended modernizing both plants.

In December 1970 these commanders revised the recommendation to exclude the Cornhusker plant. In January 1971 the

¹Commanders of Army Materiel Command, Air Force Logistics Command, Air Force Systems Command, and Naval Material Command.

Assistant Secretary of the Navy (Installations and Logistics) recommended to the Assistant Secretary of Defense that the McAlester modernization be approved.

In April 1971 the Principal Deputy Assistant Secretary of the Army (Installations and Logistics) informed the Assistant Secretary of Defense (Installations and Logistics) that the Navy's modernization plan was based on current technology while the Army's plan was an entirely new concept. He pointed out that the Army had expertise in bomb loading as well as projectile loading and recommended approval of the Army's proposed multipurpose lines.

In June 1971 the Assistant Secretary of Defense authorized only the Navy to proceed with plans to modernize the McAlester plant for bomb loading. If the Office of the Secretary of Defense had not been involved in the decisionmaking, the Army and the Navy might have modernized both plants for bomb loading.

Other ammunition items

The Army plans to produce about 165 ammunition end items in the event of mobilization. The Army said that additional production plants, costing about \$300 million, would be needed to meet mobilization requirements. These projections were based solely on production at Army plants; they did not include the possibility of loading Army ammunition at Navy production plants.

We selected 6 of the 165 items and asked the Navy whether it could produce them, in addition to its own items, in the event of mobilization. According to the Navy, it could produce the Army's items and modernization at McAlester would make additional loading facilities available for other commodities. If the Army were to consider available Navy capacity, it could save substantially.

CONCLUSIONS

To get quality ammunition at the best price when needed, it is imperative that production be scheduled effectively so that the plant having adequate capacity and doing the best job at the lowest cost gets the work regardless of its service affiliation. If service competition prevents optimum

production scheduling, centralized scheduling should be adopted to insure that Defense-wide planning will match Defense-wide requirements with Defense-wide production capabilities.

In its letter dated June 5, 1973, DOD agreed with our conclusions and informed us that JCAP is addressing an overall DOD perspective in matching requirements and production capabilities.

If pursued effectively and continually, rather than as a one-time exercise, such a program should help overcome the deficiencies noted in this report.

CHAPTER 5

STORAGE AND DISTRIBUTION MANAGEMENT NEEDS

IMPROVEMENT TO REDUCE COST

Both the Army and Navy store ammunition at their own depots. The Air Force has always stored its ammunition at Army depots. Likewise, the Marine Corps has stored its ammunition at Navy depots. The Air Force and the Marine Corps instruct the producing service to ship production to designated depots. These arrangements have resulted in substantial shipments from production facilities to storage locations which could have been avoided or deferred.

STORAGE ORGANIZATIONS

The Army Materiel Command is responsible for the overall management of Army storage depots, and the Army Armament Command is responsible for storage operations at Army production plants. About one-third of all Army ammunition storage space is at production plants. The Ogden Air Materiel Area manages the storage of Air Force ammunition, and the Quartermaster General manages the storage of Marine Corps ammunition.

The Army maintains about 33 million square feet of storage space for ammunition--about 22 million square feet at 12 ammunition depots and about 11 million square feet at 24 production plants and arsenals. The Navy storage complex includes about 20 million square feet at 13 major depots and other facilities. The bulk of Navy ammunition storage space is at production plants.

Both the Army and Navy store ammunition at their own depots. The Air Force and the Marine Corps instruct the producing service to ship production to designated depots.

In February 1969 the Joint Logistics Commanders entered into the Joint Interservice Logistics Support Agreement for Ammunition. The agreement, updated in July 1971, established procedures for interservice logistical support, including interservice use of storage facilities, to enable each service to minimize transportation and handling costs.

However, substantial transportation and handling costs could have been avoided or delayed had the military services used available storage facilities at the plants where the ammunition was produced or at nearby depots.

SHIPMENT OF AMMUNITION TO STORAGE SITES

We reviewed selected Marine Corps and Air Force fiscal year 1971 ammunition shipments that involved transportation and handling costs of \$3.9 million. The first-destination transportation and handling costs could have been reduced by as much as \$3.6 million if the corps and Air Force had used the nearest available storage facilities. We recognize that subsequent shipments of the ammunition might require some or all of these costs, depending on where the ammunition is ultimately needed and how it is shipped there.

Marine Corps shipments

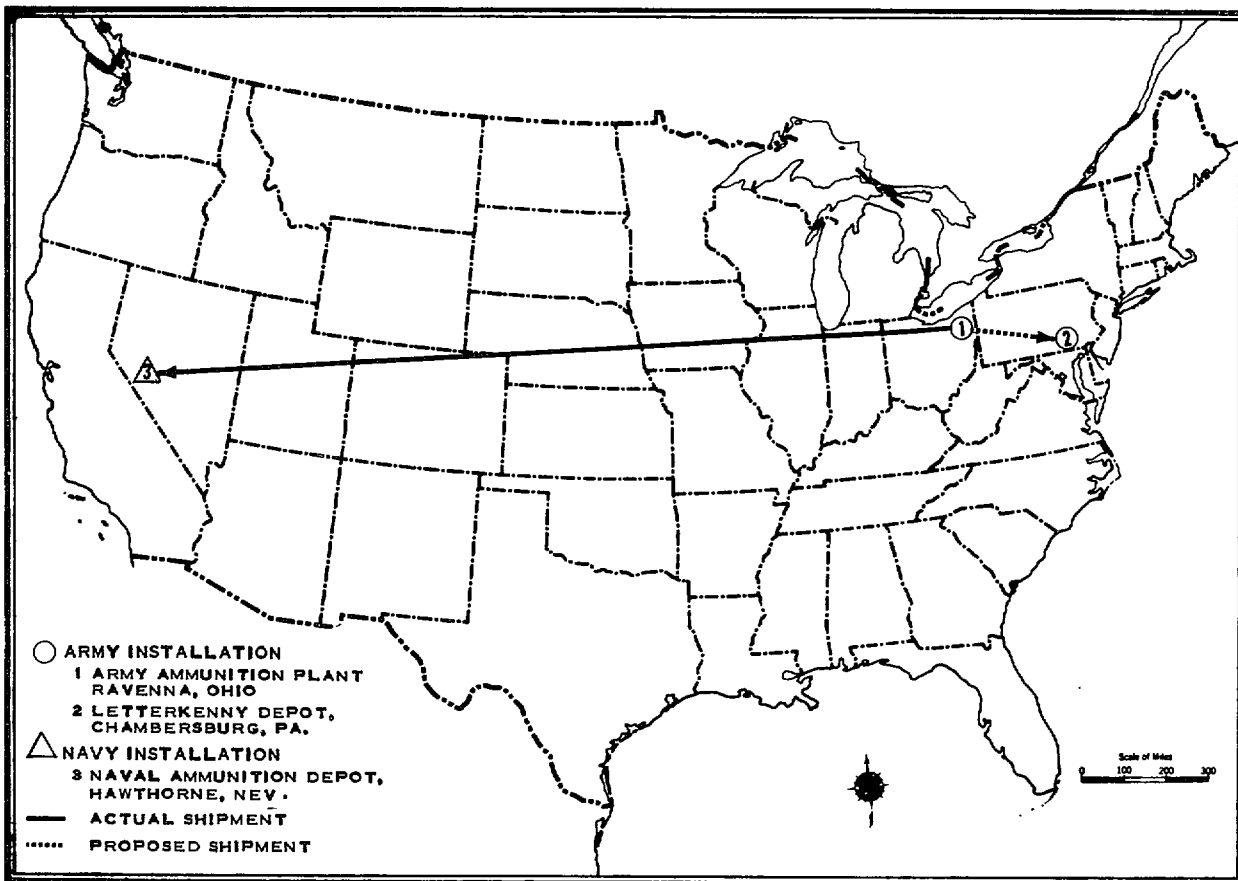
We reviewed shipments of four ammunition items (105-mm, 175-mm, and 8-inch projectiles and 3.5-inch practice rockets) produced at Army plants for the Marine Corps and shipped to Navy storage depots. Transportation and handling costs totaled \$1.6 million, of which as much as \$1.5 million could have been saved or payment delayed had the corps selected the nearest available storage facilities.

During fiscal year 1971, 175-mm projectiles were produced at the Army ammunition plants at Ravenna, Ohio, and Burlington, Iowa. According to Marine Corps instructions directing shipments of 175-mm projectiles from these plants, of 147,700 rounds produced, 105,100 were sent to Navy inland storage depots. The corps had not determined if the Army had available storage space at, or nearer to, the production facilities. Following are transportation costs incurred on these shipments.

<u>From Army production facility</u>	<u>To Navy storage depot</u>	<u>Transportation costs incurred</u>	<u>Transportation to most favorable storage location (note a)</u>	<u>Potential reductions in costs</u>
Burlington, Iowa	Crane, Indiana	\$ 43,600	\$31,000	\$ 12,600
Burlington, Iowa	Hawthorne, Nevada	130,800	31,400	99,400
Ravenna, Ohio	Crane, Indiana	54,500	-	54,500
Ravenna, Ohio	Hawthorne, Nevada	<u>364,000</u>	<u>-</u>	<u>364,000</u>
Total		<u>\$592,900</u>	<u>\$62,400</u>	<u>\$530,500</u>

^aCost to transport ammunition to nearest location having available space.

The transportation cost of \$364,000 from Ravenna to Hawthorne shown above involved the shipment of 34,382 rounds of 175-mm ammunition. At the time of these shipments, the Ravenna plant had storage space available for this ammunition. Had that plant been selected, the entire transportation cost could have been saved or at least payment could have been delayed until shipment to the user was made. As an alternative the ammunition could have been stored at the Letterkenny Army Depot in Chambersburg, Pennsylvania. This would have reduced the transportation cost by about \$290,000. The following map compares the actual shipment and the alternatives discussed above.



NOTE: If the ammunition is ultimately needed in Europe, it would be advantageous to keep it in the East. Even if the ammunition is required in the Pacific, transportation by sea from an east coast may be more economical than hauling it across country and then shipping it by sea.

Air Force shipments

We reviewed shipments of five items (MK-81, MK-82, MK-84, and M117 general-purpose bombs and CBU-24 cluster bombs) produced at Army and Navy plants for the Air Force. The first-destination transportation and handling costs for these shipments, which totaled \$2.3 million, could have been reduced by as much as \$2.1 million had the Air Force selected the nearest available storage plants. About \$1.1 million of the \$2.1 million involved transportation of MK-82 bombs.

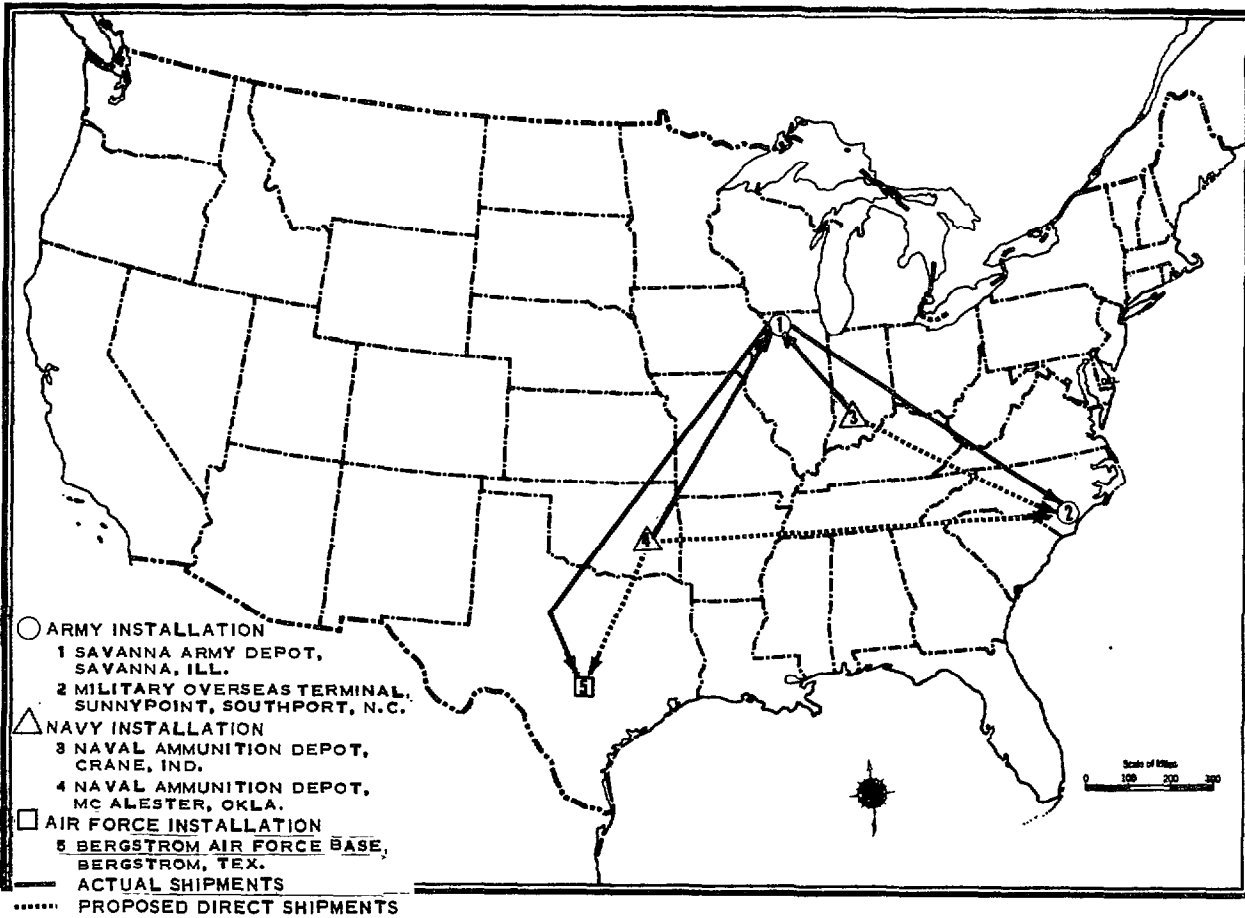
The naval ammunition depots at Crane and McAlester loaded, assembled, and packed MK-82 bombs for the Air Force. The Air Force directed shipments of these bombs to the Army's storage depot at Savanna, Illinois. In March 1971 the Air Force requested the Savanna depot to ship 521 bombs to Bergstrom, Texas, and 15,932 bombs to Sunnypoint, North Carolina. Had the Air Force stored the bombs at the Navy's production plants, which had storage space available, transportation and handling costs could have been reduced by as much as \$227,900. The following map illustrates the route of the actual shipments and the route which would have been used if the bombs had been stored at the Navy production plants.

CONCLUSIONS

The storage management systems of the services have led to transportation and storage decisions based on individual service preferences without regard to the total cost to the Government. Transportation and handling costs could be minimized by more judicious selection of ammunition storage sites for Marine Corps and Air Force ammunition produced at Army and Navy plants.

A centralized plan is needed to insure the most economical and responsive placement and transportation pattern for ammunition shipments.

By letter dated June 5, 1973, DOD advised us that the Air Force is developing a Transportation Management Information System to achieve those objectives. In our opinion, a similar system is needed which will consider all ammunition shipments from a DOD-wide perspective regardless of the producer or using service.



CHAPTER 6

AGENCY COMMENTS AND OUR EVALUATION AND RECOMMENDATION

We suggested that the Secretary of Defense establish central management for all ammunition by either creating a new ammunition organization or assigning this responsibility to one service.

In a letter dated June 5, 1973 (see app. II), DOD said it recognized the need for improved Defense-wide perspective in ammunition management some time ago. As a result of a study begun in March 1971, DOD has recently approved the concept of JCAP, consisting of a coordinating group and working committees operating under the Joint Logistics Commanders. JCAP would address daily management problems and develop necessary procedures and systems which would provide such information as item production costs, inventory data, requirements data, and facilities capabilities and capacities for the DOD ammunition production base.

DOD is aware of the inherent disadvantages of an organization such as JCAP but considers that it has overriding advantages. The DOD letter continued:

"* * * Should the JCAP prove deficient in the future, it does retain flexibility for further modification if required.

"The Office of the Secretary of Defense will continue to take the necessary action to ensure that ammunition logistics management is accomplished in a manner which is as efficient as possible and provides essential responsiveness to the requirements of national defense. We believe that the JCAP organization should be given an opportunity to fully implement and demonstrate its management capability before other alternatives are considered for implementation."

We appreciate that several alternative organization concepts could be used to improve ammunition management. JCAP could work if it is given the responsibility and staffing needed for effective central control of ammunition. Such an organization should, at least, be

- staffed with officials who appreciate Defense-wide needs and who are not restricted to service desires;
- authorized to make decisions for all service components involved in ammunition requirements determination, procurement, production, storage, distribution, and modernization; and
- responsive and responsible to the Secretary of Defense rather than to the military departments.

RECOMMENDATION

We recommend that the Secretary of Defense set a reasonable test period for controlling ammunition with JCAP. If, at the end of that period, ammunition management, including requirements consolidation, inventory accounting, procurement, production, storage, and distribution has not improved substantially, he should consider assigning responsibility for managing ammunition to one service or to a new organization with requisite authority and manpower.

CHAPTER 7

SCOPE OF REVIEW

We examined the policies, procedures, and practices related to the logistics management of conventional ammunition. We considered ground ammunition (small arms, mortar, and artillery), Naval ship gun ammunition, and air ammunition (bombs, rockets, and flares). In addition, we examined records and interviewed officials and operating personnel directly involved in logistics functions.

Our review was made at the Office of the Secretary of Defense and headquarters of the services in Washington, D.C., and at the following locations.

Army:

Materiel Command, Washington, D.C.
Munitions Command, Dover, New Jersey, and Joliet, Illinois
Ammunition Procurement and Supply Agency, Joliet, Illinois

Navy:

Air Systems Command, Washington, D.C.
Ordnance Systems Command, Washington, D.C.
Ships Parts Control Center, Mechanicsburg, Pennsylvania

Air Force:

Logistics Command, Dayton, Ohio
Ogden Air Materiel Area, Ogden, Utah

SELECTED COMMON USE ITEMS

<u>Item</u>	<u>Using services</u>			
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Marine Corps</u>
5.56-mm cartridge	X	X		X
20-mm cartridge	X	X	X	X
40-mm cartridge	X	X	X	X
81-mm cartridge	X			X
105-mm cartridge	X			X
155-mm projectile	X			X
155-mm propelling charge	X			X
MK-82, 500-lb. general- purpose bomb		X	X	X
MK-84, 2,000-lb. general- purpose bomb		X	X	X
2.75-inch rocket	X	X	X	X
Rockeye cluster bomb		X	X	X
MK-45 aircraft flare	X	X		X

APPENDIX II



ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

5 JUN 1973

INSTALLATIONS AND LOGISTICS

Mr. Werner Grosshaus
Assistant Director-in-Charge
of Materiel Management
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Grosshaus:

This letter is to provide Department of Defense comments to the GAO draft report, "Proposal to Centralize Ammunition Logistics Management," OSD Case #3588, forwarded by your letter of March 14, 1973.

As stated in that report, the Office of the Assistant Secretary of Defense (Installations and Logistics) is the focal point for ammunition management in the Department of Defense. The need for improved Department of Defense-wide perspective in ammunition management was recognized some time ago and in March 1971, the Assistant Secretary of Defense (Installations and Logistics) directed a joint Army, Navy and Air Force high-level study of the problem. The study objectives were to develop recommendations for a Conventional Ammunition Production Base Management System to include recommendations for a supporting Management Information System including economic models. The study submitted through the Service (Installations and Logistics) Secretaries was completed and received by the Assistant Secretary of Defense in September 1972. The study recommended the establishment of a Joint Conventional Ammunition Production (JCAP) organization operating under the aegis of the Joint Logistics Commanders (JLC). The organization consists of a Coordinating Group of Flag/General Officers (JCAP/CG) from the Services and includes a full-time civilian executive director. The JCAP/CG meets at least quarterly. Directly responsible to the JCAP/CG is an Operating Group (JCAP/OG) consisting of Captain/Colonel-level officers from the Service Munitions Commands. The JCAP/OG meets at least monthly. The JCAP/OG assigns tasks and receives progress and problem reports from standing adhoc task groups designated for such areas as requirements, procurement, production, modernization, handling, transportation, etc.

After reviewing the joint study, the Assistant Secretary of Defense (Installations and Logistics) approved the concept of JCAP in March 1973. Formal organization is still in the formative stage, but JCAP is becoming effective as it formalizes procedures and methods of operation.

In addition to addressing daily management problems, JCAP is engaged in such activities as development of uniform cost accounting procedures and a Coordinated Management Information System to provide such information as item production costs, inventory data, requirements data and facilities capabilities and capacities for the Department of Defense ammunition production base.

At the direction of the Assistant Secretary of Defense (Installations and Logistics), JCAP is presently completing a review and rework of procurement responsibility in the DoD Instruction 4115.1 referred to in the GAO study. JCAP has recently been assigned the specific task of coordinating the procurement of fuzes by the Services. In this instance, the problem is excess production capacity brought about by reduced requirements. Ensuring retention of an adequate and responsive mobilization production base in an environment of both limited and excess production capacity requires a DoD-wide procurement perspective.

The performance of the JCAP organization is being followed closely. We recognize the inherent disadvantages of an organization such as JCAP. There are, however, over-riding advantages. The JCAP organization is based on an extensive study conducted jointly by the Services. It was strongly recommended by the Services, has their full support and makes maximum use of procedures already employed by the Services. JCAP provides a cohesive management organization. JCAP's responsiveness to the Assistant Secretary of Defense (Installations and Logistics) is being assessed through formal and informal tasking with close observation of the responsiveness and results achieved. Should the JCAP prove deficient in the future, it does retain flexibility for further modification if required.

The Office of the Secretary of Defense will continue to take the necessary action to ensure that ammunition logistics management is accomplished in a manner which is as efficient as possible and provides essential responsiveness to the requirements of national defense. We believe that the JCAP organization should be given an opportunity to fully implement and demonstrate its management capability before other alternatives are considered for implementation.

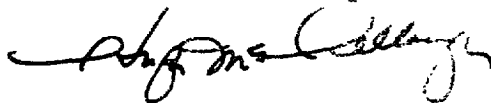
We have found some differences in regard to illustrations used in the GAO report. Attached (Enclosure #1) is a discussion of the differences. These differences should be resolved before the GAO report is released.

We appreciate your recognition of the complex nature of ammunition logistics management and our continuing efforts toward improvement. We certainly agree that ammunition is one of the most important commodities used by the Department of Defense.

APPENDIX II

Thank you for forwarding the draft report for our review. We hope our comments will be helpful in your further action to finalize the report.

Sincerely,



Act.

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Attachment

GAO note: We are not including the attachment due to its length.

PRINCIPAL OFFICIALS OF THE DEPARTMENTS
OF DEFENSE, ARMY, NAVY, AND AIR FORCE
RESPONSIBLE FOR MATTERS DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF DEFENSE</u>		
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James R. Schlesinger	June 1973	Present
William P. Clements, Jr. (acting)	Apr. 1973	June 1973
Elliot L. Richardson	Jan. 1973	Apr. 1973
Melvin R. Laird	Jan. 1969	Jan. 1973
DEPUTY SECRETARY OF DEFENSE:		
William P. Clements, Jr.	Feb. 1973	Present
Kenneth Rush	Feb. 1972	Jan. 1973
David Packard	Jan. 1969	Jan. 1972
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Arthur T. Mendolia	Apr. 1973	Present
Hugh McCullough (acting)	Jan. 1973	Apr. 1973
Barry J. Shillito	Feb. 1969	Jan. 1973
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SECRETARY OF THE ARMY:		
Howard H. Calloway	May 1973	Present
Robert F. Froehke	July 1971	May 1973
Stanley R. Resor	July 1965	June 1971
ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS AND LOGISTICS):		
Vincent P. Huggard (acting)	Apr. 1973	Present
Dudley C. Mecum	Oct. 1971	Apr. 1973
J. Ronald Fox	June 1969	Sept. 1971

APPENDIX III

		<u>Tenure of office</u>	
		<u>From</u>	<u>To</u>

DEPARTMENT OF THE ARMY (continued)

COMMANDING GENERAL, ARMY MATERIEL

COMMAND:

Gen. H. A. Miley, Jr.	Nov. 1970	Present
Gen. F. J. Chesarek	Mar. 1969	Oct. 1970

DEPARTMENT OF THE NAVY

SECRETARY OF THE NAVY:

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John H. Chafee	Jan. 1969	Apr. 1972

ASSISTANT SECRETARY OF THE NAVY
(INSTALLATIONS AND LOGISTICS):

Jack L. Bowers	June 1973	Present
Charles L. Ill	July 1971	May 1973
Frank Sanders	Feb. 1969	July 1971

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Adm. J. D. Arnold	June 1970	Nov. 1971
Adm. I. J. Galantin	Mar. 1965	June 1970

DEPARTMENT OF THE AIR FORCE

SECRETARY OF THE AIR FORCE:

John L. McLucas	July 1973	Present
Dr. Robert C. Seamans, Jr.	Feb. 1969	May 1973

ASSISTANT SECRETARY OF THE AIR
FORCE (INSTALLATIONS AND
LOGISTICS):

Richard J. Keegan (acting)	Aug. 1973	Present
Lewis E. Turner (acting)	Oct. 1972	Aug. 1973
Philip N. Whittaker	May 1969	Sept. 1972

COMMANDER, AIR FORCE LOGISTICS

COMMAND:

Gen. Jack J. Catton	Sept. 1972	Present
Gen. Jack G. Merrell	Mar. 1968	Sept. 1972

Tenure of officeFrom ToDEPARTMENT OF THE AIR FORCE (continued)

COMMANDER, AIR FORCE SYSTEM

COMMAND:

Gen. Samuel C. Phillips	July 1973	Present
Gen. George S. Brown	Sept. 1970	July 1973
Gen. James Ferguson	Sept. 1966	Aug. 1970

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