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Report to Congressional Requesters

August 1992

1993 DEFENSE
BUDGET

Potential Reductions to
Ammunition Programs



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**United States
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Washington, D.C. 20548**

**National Security and
International Affairs Division**

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August 25, 1992

The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

As you requested, we reviewed the military services' justifications for their amended fiscal year 1993 budget requests for ammunition items and the Army's request for ammunition production base support. In addition, we examined selected segments of prior-year ammunition programs. In May and June 1992, we briefed your staffs on the results of our review. This report includes the information provided at those briefings and the final results of our review.

We are sending copies of the report to the Chairmen of the Senate and House Committees on Armed Services; the Secretaries of Defense, the Army, the Navy, and the Air Force; the Commandant of the Marine Corps; and other interested parties. We will also make copies available to others upon request.

This report was prepared under the direction of Richard Davis, Director, Army Issues, who may be reached on (202) 275-4141 if you or your staff have any questions. Other major contributors are listed in appendix I.

Frank C. Conahan
Assistant Comptroller General

Executive Summary

Purpose

The Chairmen of the Subcommittees on Defense, Senate and House Committees on Appropriations, asked GAO to review the military services' justifications for their amended fiscal year 1993 budget requests for ammunition and the Army's request for ammunition production base support to determine whether the programs should be funded in the amounts requested. GAO also reviewed selected segments of appropriations for prior years for some items to determine whether unused funds could be rescinded.

Background

As shown in table 1, the military services requested about \$1.5 billion for ammunition and ammunition production base support in fiscal year 1993.

Table 1: Military Services' Fiscal Year 1993 Budget Requests for Ammunition and for Ammunition Production Base Support

Dollars in millions	
Service	Amount
Army	
Ammunition	\$629.8
Production base support	193.8
Navy	278.8
Air Force	220.0
Marine Corps	133.9
Total	\$1,456.3

The services justified their ammunition requests by stating the ammunition was needed for training and a war reserve stockpile. The Army justified its request for production base support by stating the funds were needed to modernize and expand the ammunition production base, to lay away production facilities and maintain inactive facilities, to provide components for use in demonstrating production capacities, and to destroy conventional ammunition.

Results in Brief

GAO concluded that most items in the services' \$1.263 billion fiscal year 1993 request for ammunition and the Army's \$193.8 million request for production base support are justified. However, as shown in table 2, GAO believes \$255.2 million, or 17.5 percent, of the fiscal year 1993 request is not justified and should not be funded. Further, \$9.6 million could be rescinded from the fiscal year 1992 appropriation, and \$10.6 million could be rescinded from the fiscal year 1991 appropriation.

Table 2: Potential Reductions and Rescissions to the Services' Ammunition Programs

Dollars in millions

Service	Fiscal year 1993	Fiscal year 1992	Fiscal year 1991	Total
Army				
Ammunition	\$179.6	\$4.1	0	\$183.7
Production base support	11.7	0	0	11.7
Navy	15.7	0	\$10.6	26.3
Air Force	26.5	5.5	0	32.0
Marine Corps	21.7	0	0	21.7
Total	\$255.2	\$9.6	\$10.6	\$275.4

Principal Findings

Army Ammunition and Ammunition Production Base Support Programs

The Army's \$629.8 million fiscal year 1993 request for ammunition and \$193.8 million fiscal year 1993 request for production base support could be reduced by \$191.3 million for the following reasons:

- \$179.6 million is for seven ammunition items for which program quantities are greater than needed in fiscal year 1993 (\$172.1 million is for one item);
- \$6.9 million is for ammunition production base support maintenance projects for which estimated costs are overstated; and
- \$4.8 million is for four production base support layaway projects for which funding is premature.

In addition, \$4.1 million that was included in the Army's fiscal year 1992 appropriation for ammunition could be rescinded because the Army no longer plans to procure the items.

Navy Ammunition Program

The Navy's \$278.8 million fiscal year 1993 request for ammunition could be reduced by \$15.7 million for nine items for the following reasons:

- \$12 million is for eight items for which program quantities are greater than needed and
- \$3.7 million is for an ammunition item the Navy no longer plans to procure in fiscal year 1993 because it has unresolved technical problems and is scheduled to be replaced by another item.

In addition, \$10.6 million that was included in the Navy's fiscal year 1991 appropriation for ammunition could be rescinded because the Navy no longer plans to procure the items.

Air Force Ammunition Program

The Air Force's \$220 million fiscal year 1993 request for ammunition could be reduced by \$26.5 million for seven items for the following reasons:

- \$9.6 million is for an ammunition item for which the budgeted unit cost was overstated;
- \$10.9 million is for an ammunition item for which Air Force requirements have decreased;
- \$5.2 million is for three ammunition items for which program quantities are greater than needed; and
- \$0.8 million is for two items that have not yet been approved for Air Force use.

In addition, \$5.5 million that was included in the Air Force's fiscal year 1992 appropriation for ammunition could be rescinded because Air Force requirements for the item have decreased.

Marine Corps Ammunition Program

The Marine Corps' \$133.9 million fiscal year 1993 request for ammunition could be reduced by \$21.7 million for eight items for the following reasons:

- \$9.3 million is for four ammunition items for which program quantities are greater than needed;
- \$10.8 million is for three ammunition items for which procurement is premature; and
- \$1.6 million is for one item that is not being procured in an economical quantity.

Recommendations

GAO recommends that the Senate and House Committees on Appropriations reduce the Department of Defense's fiscal year 1993 ammunition budget by the following amounts:

- \$179.6 million for seven items in the Army's ammunition request;
- \$11.7 million in the Army's production base support request;
- \$15.7 million for nine items in the Navy's request;
- \$26.5 million for seven items in the Air Force's request; and

- \$21.7 million for eight items in the Marine Corps' request.

In addition, GAO recommends that the Committees rescind \$4.1 million from the Army's fiscal year 1992 appropriation for one item, \$5.5 million from the Air Force's fiscal year 1992 appropriation for one item, and \$10.6 million from the Navy's fiscal year 1991 appropriation for another item.

Agency Comments

As requested, GAO did not obtain fully coordinated Department of Defense comments on this report. However, GAO discussed the results of its work with officials from the Office of the Secretary of Defense, the Army Materiel Command's Office of the Deputy Chief of Staff for Ammunition, the Office of the Deputy Chief of Naval Operations for Logistics, the Air Force's Office of the Deputy Chief of Staff for Logistics, and the Marine Corps' Office of Program Manager for Ammunition. They agreed with some of GAO's recommended reductions, and GAO has included their views in the report where appropriate. In addition, Army and Navy officials identified items for which they believed additional funding was needed in fiscal year 1993 but for which funds had not been requested. GAO included in its report, but did not evaluate, the potential funding increases identified by these officials.

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Abbreviations

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Introduction

As shown in table 1.1, the military services requested about \$1.5 billion for ammunition and ammunition production base support in fiscal year 1993.

Table 1.1: Military Services' Fiscal Year 1993 Budget Requests for Ammunition and for Ammunition Production Base Support

Dollars in millions	
Military service	Amount
Army	\$823.6
Navy	278.8
Air Force	220.0
Marine Corps	133.9
Total	\$1,456.3

The services indicated that the requested funds for ammunition would be used to meet training needs and build a war reserve stockpile. The Army stated that the requested funds for ammunition production base support would be used to modernize and expand the ammunition production base, to lay away production facilities and maintain inactive facilities, to provide components for use in demonstrating production capacities, and to destroy conventional ammunition.

Objectives, Scope, and Methodology

The Chairmen of the Subcommittees on Defense, Senate and House Committees on Appropriations, asked us to review the military services' justifications for their amended fiscal year 1993 budget requests for ammunition and the Army's request for ammunition production base support to determine whether the programs should be funded in the amounts requested. We also reviewed selected segments of appropriations for prior years for some items to determine whether unused funds could be rescinded.

In conducting our review, we evaluated the ammunition and production base support requests involving large dollar amounts, ammunition items being bought for the first time, and ammunition items that were having production and/or performance problems. We also examined selected segments of prior-year ammunition budgets. We reviewed justifications for \$1.358 billion, or 93.3 percent, of the services' amended fiscal year 1993 budget request for ammunition and ammunition production base support (see table 1.2).

Table 1.2: Military Services' Fiscal Year 1993 Budget Requests and Amounts Reviewed

Dollars in millions			
Military service	Amount requested	Amount reviewed	Percent reviewed
Army	\$823.6	\$811.4	98.5
Navy	278.8	225.6	80.9
Air Force	220.0	190.6	86.6
Marine Corps	133.9	130.4	97.4
Total	\$1,456.3	\$1,358.0	93.3

In reviewing the budget requests, we considered such factors as ammunition requirements, inventory levels, production problems, item quality, testing and development, funded program status, unit costs, and field malfunctions to identify items with potential problems. We also analyzed production schedules, production capacities, past production, procurement lead times, and component deliveries to determine whether the services can execute the ammunition programs efficiently and economically. We compared projected inventory levels to training usage to ensure that inventories would not greatly exceed objectives. We also determined whether there will be sufficient quantities of components to produce end items. We did not verify the accuracy of data the services provided, such as inventory levels and training usage, but compared such information with data provided in prior years to evaluate its reasonableness.

To evaluate projects for production base support, we determined whether their designs had been completed prior to budget submission and whether the projects were still needed.

In conducting our evaluation, we interviewed ammunition production managers, procurement officials, and quality assurance and engineering staff. We also reviewed various documents, such as information papers, test data analyses, training consumption reports, and budget support data, which we obtained at the following locations:

- Army, Navy, Air Force, and Marine Corps headquarters, Washington, D.C.;
- U.S. Army Materiel Command, Alexandria, Virginia;
- U.S. Army Armament, Munitions and Chemical Command, Rock Island, Illinois;
- U.S. Army Armament Research, Development and Engineering Center, Dover, New Jersey;

- U.S. Army Chemical Research, Development and Engineering Center, Aberdeen, Maryland;
- U.S. Army Production Base Modernization Activity, Dover, New Jersey;
- Project Manager, Sense and Destroy Armor, Dover, New Jersey;
- Project Manager, Tank Main Armament Systems, Dover, New Jersey;
- Project Manager, Mortar Systems, Dover, New Jersey;
- Project Manager, Mines, Dover, New Jersey;
- Marine Corps Systems Command, Washington, D.C.;
- Naval Air Systems Command, Arlington, Virginia;
- Naval Sea Systems Command, Crane, Indiana;
- Naval Surface Warfare Center, Crane, Indiana;
- Naval Surface Warfare Center, Dahlgren, Virginia; and
- Ogden Air Logistics Center, Ogden, Utah.

We conducted our review from November 1991 to June 1992 in accordance with generally accepted government auditing standards. We discussed a draft of this report with officials from the Office of the Secretary of Defense, the Army Materiel Command's Office of the Deputy Chief of Staff for Ammunition, the Navy's Office of the Deputy Chief of Naval Operations for Logistics, the Air Force's Office of the Deputy Chief of Staff for Logistics, and the Marine Corps' Office of Program Manager for Ammunition. We have incorporated their comments and suggestions in the report, where appropriate. As requested, we did not obtain fully coordinated Department of Defense comments on this report.

Army Ammunition Program

The Army requested about \$629.8 million for ammunition and \$193.8 million for ammunition production base support in its fiscal year 1993 ammunition budget request.

Our review indicates that the Army does not need \$191.3 million in its fiscal year 1993 ammunition and ammunition production base support requests—\$179.6 million for seven ammunition items and \$11.7 million for ammunition production base support. The items for which we identified potential reductions and a summary of our basis for the reductions are identified in table 2.1.

Table 2.1: Potential Reductions to the Army's Fiscal Year 1993 Ammunition Budget Request

Dollars in millions			
Description of item	Amount requested	Potential reduction	Basis for reduction
Projectile, 155-mm, artillery, baseburner, M864	\$172.117	\$172.117	Inventory will exceed needs.
AT-4 multipurpose trainer	0.213	0.213	Inventory will exceed needs.
Cartridge, .50 caliber, test	2.422	1.930	Inventory will exceed needs.
Cartridge, .50 caliber, M33	5.078	0.697	Inventory will exceed needs.
Cartridge, 120-mm, mortar, XM933	3.020	3.020	Inventory will exceed needs.
Fuze, hand grenade, M228	3.346	1.379	Inventory will exceed needs.
Simulator, hand grenade, M116	1.783	0.256	Inventory will exceed needs.
Maintenance of inactive facilities	75.177	6.898	Cost estimates decreased.
Layaway of industrial facilities	31.690	4.814	Production lines will operate through fiscal year 1993.
Total	\$294.846	\$191.324	

Inventory Will Exceed Needs

Ammunition program quantities for which funds are being requested should be needed and delivered within the fiscal year's funded delivery period. The funded delivery period for an ammunition item begins the first

day of the last month of the procurement lead time and ends 12 months later.¹ For example, if the procurement lead time for an ammunition item in the fiscal year 1993 budget is 15 months, the funded delivery period would start on December 1, 1993, and end on November 30, 1994. Since ammunition programs are funded each year, funding should not be provided for ammunition items that are not needed or will be delivered after the fiscal year 1993 funded delivery period.

The Army's fiscal year 1993 request could be reduced by \$179.6 million because projected inventories will exceed the Army's inventory objectives (see table 2.2).

Table 2.2: Amount of Inventory Exceeding Needs for Seven Items in the Army's Fiscal Year 1993 Ammunition Budget

Quantity in millions

Description of Item	Beginning Inventory ^a	Quantity requested	Inventory estimated usage ^b	Inventory objective	Quantity exceeding needs
155-mm M864 baseburner projectile	0.819	0.225	0.006	0.484	0.554
AT-4 multipurpose trainer	10.065	0.443	6.867	1.100	2.541
.50 caliber test cartridge	0.110	0.986	0.094	0	1.002
.50 caliber M33 cartridge	9.145	3.214	10.543	1.375	0.441
120-mm XM933 mortar cartridge	0.218	0.010	0.073	0.079	0.076
M228 hand grenade fuze	7.692	1.966	7.626	1.222	0.810
M116 hand grenade simulator	0.920	0.223	0.944	0.167	0.032

^aFigures include items due in from prior-year programs.

^bFigures include estimated usage through the end of the fiscal year 1993 program period.

¹Procurement lead time is the sum of administrative and production lead times. Administrative lead time begins at the start of the fiscal year and represents the time needed to award contracts for components. Production lead time begins when the component contracts have been awarded and ends when initial delivery is made for the assembled ammunition item.

155-mm M864 Baseburner Projectile

The Army's \$172.117 million request for 225,000 155-mm M864 baseburner projectiles could be denied because the Army's requirement for this item has decreased and inventories already on-hand and on-order exceed requirements without the fiscal year 1993 program.

As of April 1992, the Army had received funds totaling \$685.9 million for 820,000 155-mm baseburner projectiles, of which 768,300 were undelivered (see table 2.3). There was a production backlog of 514,000 projectiles principally because of previous technical problems associated with blown ogives (nose cones) and separation of the baseburner assembly from the projectile body.

Table 2.3: Funded Programs, Actual Production, and Undelivered Quantities for the 155-mm M864 Projectile

Dollars in millions

Program year	Funded amount	Procurement quantity	Actual production	Quantity accepted	Undelivered quantities
1988 and prior	\$109.0	125,000	120,000	51,100	73,300
1989	118.9	149,000	0	0	149,000
1990	188.6	240,000	0	0	240,000
1991	118.5	138,000	0	0	138,000
1992	150.9	168,000	0	0	168,000
Total	\$685.9	820,000	120,000	51,100	768,300

The Army stopped producing M864 projectiles in August 1991 because of technical problems with certain metal parts. The Army redesigned the metal parts and the modified metal parts are currently being produced. However, there will be only enough new metal parts to support projectile production through December 1992. Unavailability of the modified metal parts will cause production delays or cancellations.

Our review also disclosed that the Army will not have enough M203 propelling charges and mechanical time/electronic time fuzes at the end of the fiscal year 1993 funded delivery period to satisfy the Army's goal of balancing its propelling charge and fuze inventories with the projected inventory for M864 projectiles.

Army officials acknowledged that projected inventories at the end of the fiscal year 1993 program period will exceed requirements without a fiscal year 1993 program. However, they believe that the requested fiscal year 1993 program can be executed as planned. Army officials also said that

they believe the technical problems affecting the availability of the metal parts would be resolved by strengthening the rubber pusher plate seal. Army officials also stated that an increase in production shifts could eliminate production backlogs. They stated that although the Army will be short of preferred propelling charges for the projectile, the Army could divert propelling charges and fuzes from other projectiles to balance with the baseburner projectile. Nevertheless, the Army has already ordered enough M864 projectiles to satisfy its requirements without a fiscal year 1993 program.

At-4 Multipurpose Trainers

The Army's \$0.213 million request for 443,000 AT-4 multipurpose weapon trainers could be denied because projected inventories will exceed requirements without the fiscal year 1993 program. Army officials agreed.

.50 Caliber Test Cartridges

The Army's \$2.422 million request for 986,000 .50 caliber high-pressure test cartridges could be denied because projected inventories will exceed requirements without the fiscal year 1993 program. Army officials acknowledged that the requested quantity would result in inventory exceeding needs at the end of the fiscal year 1993 program period. However, they told us that because the cartridge is purchased on a cyclical basis, the fiscal year 1993 budget request should not be reduced below \$0.492 million for procurement of 200,000 cartridges to support estimated consumption for 5 years. This request appears reasonable.

.50 Caliber M33 Cartridges

The Army's \$5.078 million request for 3,214,000 .50 caliber M33 cartridges could be reduced by \$0.697 million because projected inventories will exceed requirements by 441,000 cartridges. Army officials agreed.

120-mm XM933 Mortar Cartridges

The Army's \$3.02 million request for 10,000 120-mm XM933 mortar cartridges could be denied because inventories already on-hand and on-order exceed requirements without the fiscal year 1993 program. Army officials agreed.

M228 Hand Grenade Fuzes

The Army's \$3.346 million request for 1,966,000 hand grenade M228 fuzes could be reduced by \$1.379 million because projected inventories will exceed requirements by 810,000 fuzes. Army officials agreed.

M116 Hand Grenade Simulators

The Army's \$1.783 million request for 223,000 hand grenade M116 simulators could be reduced by \$0.256 million because projected inventories will exceed requirements by 32,000 simulators. Army officials agreed.

Ammunition Production Base Support

The Army requested \$193.8 million for ammunition production base support in fiscal year 1993. We believe that the Army's ammunition production base support request is overstated by \$11.7 million for the following reasons:

- The Army's \$16.124 million request for maintenance of inactive industrial facilities at contractors' plants could be reduced by \$6.898 million because the Army estimated in February 1992 that only \$9.226 million would be needed to maintain these facilities.
- The Army's \$31.7 million request to lay away industrial facilities could be reduced by \$4.8 million because six production facilities at four Army ammunition plants for which layaway funds were requested are scheduled to operate through the fiscal year 1993 program period (see table 2.4).

**Chapter 3
Army Ammunition Program**

Table 2.4: Potential Reductions to the Army's Fiscal Year 1993 Ammunition Budget Request for Layaway Projects

Dollars in millions

Ammunition plant	Amount requested	Potential reduction	Item produced	Production line	Program year	Production schedule (start-stop)
Kansas	\$2.050	\$0.500	155-mm M864 baseburner projectile	300	1990	7/92-8/93
					1991	8/93-10/93
Louisiana	1.425	0.625	155-mm M107 projectile	S-line	1990	3/93-7/93
					1991	3/92-3/93
					1992	7/93-2/94
					1992	4/93-2/94
					1993	10/93-2/94
		0.500	M58A4 linear charge	H-line	1993	1/94-2/94
					1993	4/94-6/94
					1993	4/94-6/94
Scranton	0.900	0.900	155-mm M107 projectile metal parts	M107	1991	10/92-2/93
					1992	2/93-10/93
Longhorn	4.100	0.584	60-mm M721 illuminating cartridge	814	1990	1/93-2/93
					1991	3/93-7/93
					1992	6/93-11/93
					1993	1/94-1/94
		1.705	155-mm M864 projectile baseburner assembly	26E		1/93-9/93
Total	\$8.475	\$4.814				

Army officials agreed that the maintenance and layaway funds we are questioning would not be needed for the specific purpose cited in the budget request. However, they said that to complete layaway of the Sunflower Army Ammunition Plant they will have to defer other fiscal year 1992 layaway projects and that they would like to use the unneeded fiscal year 1993 funds for the fiscal year 1992 layaway projects that they plan to defer and for continued layaway of the Sunflower plant. But, that is not the purpose for which the Army is requesting fiscal year 1993 funding. In addition, last year the Army estimated that it would need \$10 million in fiscal year 1992 funding to lay away the Sunflower plant, the \$10 million was provided, and the Army did not request or justify the need for additional funding.

Unneeded Prior Year Funds

The Army received \$14.7 million to procure components in fiscal year 1992 for the renovation of ammunition items in the Army's inventory that have not been used because, according to Army representatives, the Army gave priority to renovation of Operation Desert Storm ammunition, which was funded by supplemental appropriations. The Army will only need \$10.6 million of the fiscal year 1992 funds. The balance of \$4.1 million could, therefore, be rescinded.

Army officials told us that they would like to use the unneeded fiscal year 1992 funds to renovate ammunition stock returning from Europe. However, they also stated that although there is a substantial volume of ammunition returning from Europe, they do not as yet know how much of the ammunition will require renovation and, therefore, what components would be needed to renovate the items. In addition, they have not established a schedule for accomplishing the renovation work. Therefore, we believe it is highly unlikely that the Army can establish and execute the renovation program in fiscal year 1992.

Army's Proposed Budget Increases

At the end of our review, Army officials provided us a list of eight items for which they believed additional funding was needed in fiscal year 1993 but for which funds had not been requested (see table 2.5). We did not review the appropriateness of funding these items because the Army provided the list after we had completed our fieldwork and because the Army did not provide data to support or justify the need for more funding.

Table 2.5: Army's Proposed Budget Increases

Dollars in millions	
Item	Army's proposed funding increase
5.56-mm cartridges, all types	\$8.6
7.62-mm cartridges, all types	4.8
120-mm mortar, XM934	3.0
Classified program	27.0
Hydra 70 MPSM practice	20.0
Conventional ammunition demilitarization	16.4
Maintenance of inactive facilities	7.0
Layaway of industrial facilities	13.0
Total	\$99.8

Conclusions

We believe that \$179.6 million of the Army's fiscal year 1993 request for seven ammunition items is not needed because requested program quantities are greater than needed. We also believe that \$11.7 million of the Army's fiscal year 1993 request for production base support is not needed because (1) current cost estimates to maintain inactive industrial facilities at contractor-owned, contractor-operated plants are lower than the amount requested, and (2) funds for four layaway projects are premature. In addition, \$4.1 million of the Army's fiscal year 1992 appropriation is no longer needed and can be rescinded.

Recommendations

We recommend that the Senate and House Committees on Appropriations reduce the Army's fiscal year 1993 budget request by \$179.6 million for seven ammunition items and by \$11.7 million for production base support. We also recommend that the Committees rescind \$4.1 million from the Army's fiscal year 1992 appropriation.

Navy Ammunition Program

The Navy requested \$278.8 million for ammunition items in its fiscal year 1993 budget. Our review indicates that the Navy does not need \$15.7 million in fiscal year 1993 for nine ammunition items. Table 3.1 identifies the items for which we identified potential reductions and a summary of our basis for the reductions.

Table 3.1: Potential Reductions to the Navy's Fiscal Year 1993 Ammunition Budget Request

Dollars in millions			
Description of Item	Amount requested	Potential reduction	Basis for reduction
76-mm gun ammunition			
76-mm blind, load, and plug cartridge	\$1.972	\$1.972	Overstated training consumption.
Other ship gun ammunition			
40-mm saluting cartridge	1.050	0.625	Overstated training consumption.
40-mm practice cartridge	0.053	0.053	Overstated training consumption.
81-mm illuminating cartridge	3.693	3.693	Uneconomical buy, producibility concerns, and technical and safety problems with fuze.
Cartridges and cartridge actuated devices			
CCU-44/B cartridge	1.996	0.813	Overstated training consumption.
Air expendable countermeasures			
RR-129 chaff	0.818	0.818	Overstated training consumption.
RR-144 chaff	0.688	0.688	Overstated training consumption.
CCU-41/B cartridge	1.127	1.127	Overstated training consumption.
Jet-assisted takeoff training (MK 128)	8.971	5.942	Overstated consumption.
Total	\$20.368	\$15.731	

In addition, we have identified \$10.6 million for one ammunition item in the Navy's fiscal year 1991 appropriation that can be rescinded.

Overstated Training Consumptions

The Navy's \$16.7 million request for eight items could be reduced by \$12 million because our analysis of data supporting the Navy's prior budget requests disclosed that the Navy overestimated its training needs for these items during fiscal years 1987 through 1991. Table 3.1 shows the actual training consumptions as a percent of the Navy's projections for fiscal years 1987 through 1991. (We are presenting the data as percentages because quantities are classified.)

Table 3.2: Actual Training Consumptions as a Percent of Projections for Fiscal Years 1987 Through 1991

Item	Actual usage as a percent of projected usage
76-mm blind, load, and plug cartridge	56
40-mm saluting cartridge	64
40-mm practice cartridge	20
CCU-44/B cartridge	64
RR-129 chaff	39
RR-144 chaff	21
CCU-41/B cartridge	38
MK 128 Jet-assisted takeoff	32

Source: GAO analysis of Navy data

Given the Navy's past consumption patterns, we believe that the Navy's fiscal year 1993 projected usage for the eight items is overstated. On the basis of the highest annual usage during fiscal years 1987 through 1991, we believe that the Navy's \$16.7 million request for the eight items could be reduced by \$12 million.

Navy officials told us that:

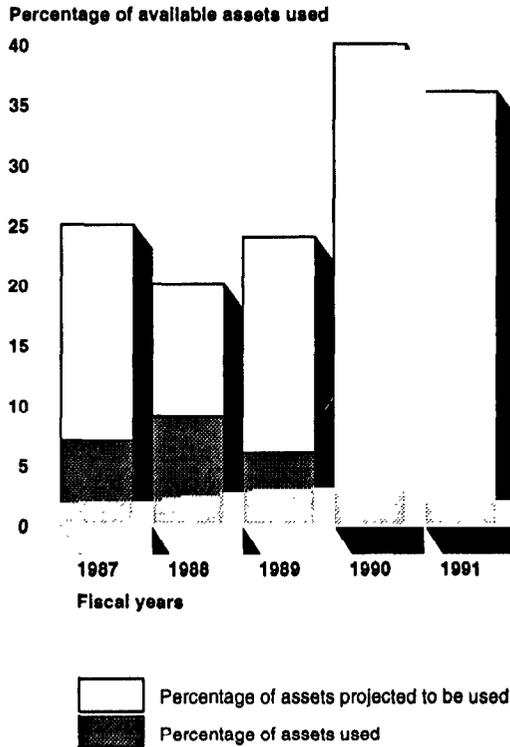
- Training expenditures in prior years were constrained by the unavailability of assets or a moratorium on training.
- Training requirements for some items are increasing because the related combat rounds were used for training in prior years and expenditures of service rounds are expected to decrease.
- Some items may have experienced production problems and were therefore not available for training.
- Training requirements are determined by the users, and the higher command has no basis for questioning their requirements.

Such statements, however, are not supported by the data the Navy provided to us. Our analysis of assets and expenditures for fiscal years 1987 through 1991 revealed that actual expenditures for most of the eight

items noted above were less than 15 percent of available assets. The Navy's projected and actual usage of 40-mm practice cartridges during fiscal years 1987 through 1991 illustrates the point.

As shown in figure 3.1, the Navy projected that it would use substantially more of its inventory of 40-mm practice rounds than it actually used. For example, it projected that it would use 36 percent of its available assets of 40-mm practice cartridges in fiscal year 1991, whereas the Navy actually used only 2 percent that year.

Figure 3.1: Navy's Projected and Actual Usage of 40-mm Practice Rounds for Fiscal Years 1987 Through 1991



In addition, we did not observe any projected decreases in the use of combat rounds or increases in practice rounds for the eight items through the fiscal year 1993 funded delivery period. We also did not observe any production problems that would have affected training.

Unresolved Technical Problems

The Navy's \$3.7 million request for 20,250 M301 81-mm illuminating cartridges could be denied because (1) the quantity is uneconomical to produce; (2) there are unresolved functioning and safety problems with its fuze; (3) a newer, better, replacement cartridge is available; and (4) the Army, which procures the item for the Navy, may be unwilling to produce the M301.

The Navy is not planning to procure enough cartridges to provide for an economical production quantity. According to Army officials, the minimum economical procurement quantity is 68,000 cartridges. Army officials said that a quantity of 20,250 cartridges would be difficult to produce because part suppliers would be reluctant to make parts for such a small production run.

In addition, according to Army officials, the M301 cartridge has functioning problems with one of its components, the M84 fuze. According to Army officials, the M301 cartridge was last produced in 1986. At that time, the M84 fuze was found to have functioning problems because it was too sensitive to moisture. Over 90 engineering change proposals were developed to remedy this problem; however, the Army decided not to implement the proposed changes, because the cartridge was going to be replaced by the M853, a newer illuminating cartridge. Army officials said that since the problems with the M301 had not been resolved, the M301 should not be produced.

According to Army officials, the M84 fuze does not meet the requirements of the Fuze Safety Review Board. The Army requires fuzes to be "dual-safe;" that is, a fuze should need two changes in its environment, such as spin and setback, to arm it. The M84 fuze is armed by only one change in its environment.

According to Army officials, the M853 cartridge has a longer range and greater reliability and is a better cartridge overall. In addition, Army officials told us that the Army may be unwilling to accept orders for the M301 for the reasons stated above.

Navy officials agreed that the M301 cartridge has functioning problems and said that they no longer plan to buy additional 81-mm cartridges. They also said that they can still use the cartridges for training and that they plan to use them for training until their assets are exhausted and then switch to using 60-mm cartridges. Therefore, they would like to use the \$3.7 million requested for 81-mm illuminating cartridges instead to buy 60-mm

cartridges for training. However, our review indicates that the Navy's current inventory of 81-mm cartridges is sufficient to meet the Navy's training requirements beyond the fiscal year 1993 program period.

**Unneeded Prior Year
Funds**

The Navy was appropriated \$402.3 million for general purpose bombs in fiscal year 1991. We identified and Navy officials acknowledged that \$10.6 million of these funds was unnecessary and could be rescinded.

**Navy's Proposed
Budget Increases**

A Navy official provided us a list of items for which they believed additional funding was needed in fiscal year 1993 but for which funds had not been requested (see table 3.3). We did not review the appropriateness of funding these items because the Navy did not provide data to support or justify the need for more funding. However, the list includes two items (76-mm blind, load, and plug cartridge and CCU-41/B flare) for which we have recommended reductions in the fiscal year 1993 program.

Table 3.3: Navy's Proposed Budget Increases

Quantities in thousands and dollars in millions		
Item	Proposed quantity	Increase amount
20-mm PGU 28/B cartridge	1,500.0	\$14.4
20-mm PGU 27/B target practice cartridge	650.0	2.5
20-mm PGU 22/25/32 cartridges	95.0	2.6
MK83 BLU 110/B bomb	10.0	38.5
MK82 BLU 111/B bomb	12.5	21.6
MK76 practice bomb	78.0	1.6
2.75-inch MK66 rocket motor	70.0	20.4
2.75-inch M257 illuminating warhead	10.0	5.3
Self-adjusting, fin-arming, adapter	30.0	1.0
Ring/swivel assembly	340.0	0.3
76-mm blind, load, and plug cartridge	5.3	1.9
76-mm high explosive-point detonating cartridge	18.9	6.1
76-mm VTNF cartridge	6.7	4.8
5-inch/54 gun propelling charge	22.7	7.8
GEN-X decoy	5.0	35.2
ALE-50 (AAE TOWED)	2.0	34.0
MJU-8A/B flare	65.0	4.1
MK46 decoy flare	48.0	1.0
MJU 22/B decoy flare	60.0	8.1
CCU-63/B flare	400.0	0.7
CCU-41/B flare	109.5	0.2
SM875 ALE training flare	72.0	0.7
BBU-35 cartridge	636.8	0.5
Total		\$213.3

Conclusions

We believe that \$15.7 million of the Navy's fiscal year 1993 request is not needed because (1) requested program quantities for eight ammunition items are greater than needed and (2) the Navy does not plan to buy one ammunition item because it has unresolved technical problems. In addition, \$10.6 million of the Navy's fiscal year 1991 appropriation is no longer needed and can be rescinded.

Recommendations

We recommend that the Senate and House Committees on Appropriations reduce the Navy's fiscal year 1993 ammunition budget request by \$15.7 million. We also recommend that the Committees rescind \$10.6 million from the Navy's fiscal year 1991 appropriation.

Air Force Ammunition Program

The Air Force requested \$220 million for ammunition items in its fiscal year 1993 budget. Our review indicates that the Air Force does not need \$26.5 million in fiscal year 1993 for seven items. Table 4.1 identifies the items for which we have identified potential reductions and a summary of our basis for the reductions.

Table 4.1: Potential Reductions to the Air Force's Fiscal Year 1993 Ammunition Budget Request

Dollars in millions

Description of item	Amount requested	Potential reduction	Basis for reduction
BSU-85/93 inflatable retarder	\$10.858	\$10.858	Requirements have decreased.
30-mm training cartridge	66.241	9.629	Unit cost is overstated.
3,000 foot-pounds impulse cartridge (ARD 863-1)	8.823	3.239	Inventory will exceed needs.
Bombs less than \$2 million each			
GBU-15 trainer unit	1.985	0.866	Inventory will exceed needs.
Cartridges less than \$2 million each			
CXU-3 A/B signal cartridge	1.272	1.085	Inventory will exceed needs.
5.56-mm sabot light armor-piercing cartridge	0.400	0.400	Delay in certification for use.
7.62-mm sabot light armor-piercing cartridge	0.400	0.400	Delay in certification for use.
Total	\$89.979	\$26.477	

In addition, the Air Force does not need \$5.5 million appropriated in fiscal year 1992 because requirements for one ammunition item have decreased.

Reduced Requirements

The Air Force's \$10.9 million fiscal year 1993 request for 10,000 BSU-85/93 inflatable retarders could be denied because the Air Force's requirements decreased after submission of the budget due to mission changes, and the Air Force no longer plans to procure the retarders in fiscal year 1993. Air Force officials agreed.

Overstated Unit Cost

The Air Force's \$66.2 million fiscal year 1993 request for 6,056,000 30-mm training cartridges could be reduced by \$9.6 million because the budgeted unit cost was overstated.

The Army, which procures the cartridge for the Air Force, overestimated the cost of the cartridge for fiscal year 1993. According to an Army production official, the budgeted fiscal year 1993 unit cost of \$10.94 per cartridge was based on the assumption that future procurements of this cartridge would be from one supplier because procurement quantities would be decreasing. However, according to an Army procurement official, the Army recently decided on a different procurement strategy for the Air Force's fiscal years 1992 and 1993 programs and now plans to split the quantity between two producers. By splitting the procurement, the Army estimates that the unit cost will decrease by \$1.59 per cartridge.

Air Force officials acknowledged that they used the Army's estimated cost of \$10.94 when preparing their budget request and that the unit cost would decrease. However, they believe that they will not benefit from any cost reductions because the Army uses a standard price in pricing the services' ammunition items. We believe, however, that the Air Force's fiscal year 1993 budget request for 30-mm cartridges could be reduced by \$9.6 million because the projected cost for the requested 6,056,000 cartridges for fiscal year 1993 is \$9.6 million less than the budgeted amount.

Inventory Will Exceed Needs

The Air Force's \$12.1 million fiscal year 1993 request for three items could be reduced by \$5.2 million because projected inventories will exceed the Air Force's inventory objectives (see table 4.2).

Table 4.2: Amount of Inventory Exceeding Needs for Three Items in the Air Force's Fiscal Year 1993 Ammunition Budget

Description of Item	Beginning Inventory ^a	Quantity requested	Inventory estimated usage ^b	Inventory objective	Amount exceeding needs
CXU-3A/B signal	1,210,140	379,900	1,156,939	109,260	323,841
GBU-15 trainer unit	43	55	1	73	24
3,000-foot pounds impulse cartridge	4,864,423	3,803,000	6,190,000	1,081,103	1,396,320

^aFigures include items due in from prior-year programs.

^bFigures include estimated usage through the end of the fiscal year 1993 program period.

CXU-3 A/B Signal

The Air Force's \$1.3 million request for 379,900 CXU-3 A/B signals could be reduced by \$1.1 million because projected inventories will exceed objectives by 323,841 cartridges. Air Force officials agreed.

GBU-15 Trainer Control Unit

The Air Force's \$2 million request for 55 GBU-15 trainer control units could be reduced by \$0.866 million because projected inventories will exceed objectives by 24 units. Air Force officials agreed.

3,000-Foot Pounds Impulse Cartridge

The Air Force's \$8.8 million request for 3.803 million 3,000-foot pounds impulse cartridges could be reduced by \$3.2 million because projected inventories will exceed objectives by 1,396,320 cartridges. Air Force officials agreed that projected inventories would exceed objectives but only by \$1.5 million for 633,137 cartridges. Our projection of the amount of inventory exceeding needs, however, is based on more current data than the Air Force officials used. We used September 30, 1991, data in projecting consumption and inventories through the end of the fiscal year 1993 funded delivery period and the Air Force officials used March 31, 1991, data.

Approval for Use Delayed

The Air Force's requests of \$0.4 million for 7.62-mm sabot light armor-piercing rounds and \$0.4 million for 5.56-mm sabot light armor-piercing rounds could be denied because the Air Force's Nonnuclear Munitions Safety Board has not approved them for use. Approval by the Nonnuclear Munitions Safety Board is required before an ammunition item can be tested, contracted for, produced, or entered into the Air Force's inventory. Air Force officials said that they were having testing problems with these rounds and agreed that the request should not be funded.

Unneeded Prior Year Funds

The Air Force received \$5.45 million for 15,039 BSU-49 inflatable retarders in fiscal year 1992. These funds can be rescinded because the quantity is no longer needed to meet the Air Force's inventory objective. The Air Force's requirement for this item has decreased and available assets exceed the Air Force's inventory objective by more than 33 percent. Air Force officials agreed that inventories exceed objectives but pointed out that their requirements for this item decreased after their fiscal year 1992 budget submission.

Conclusions

We believe that \$26.5 million of the Air Force's fiscal year 1993 request for seven ammunition items is not needed because (1) requirements decreased for one item, (2) the budgeted unit cost of one item was overstated, (3) requested program quantities for three items are greater than needed, and (4) two items have not yet been certified for Air Force use. In addition, \$5.5 million of the Air Force's fiscal year 1992 appropriation is not needed because requirements for one item have decreased.

Recommendations

We recommend that the Senate and House Committees on Appropriations reduce the Air Force's fiscal year 1993 ammunition budget request by \$26.5 million. We also recommend that the Committees rescind \$5.5 million from the Air Force's fiscal year 1992 appropriation.

Marine Corps Ammunition Program

The Marine Corps requested \$133.9 million for ammunition items in its fiscal year 1993 budget. Our review indicates that the Marine Corps does not need \$21.7 million for eight items. Table 5.1 shows the items for which we identified potential reductions and a summary of our basis for the reductions.

Table 5.1: Potential Reductions to the Marine Corps' Fiscal Year 1993 Ammunition Budget Request

Dollars in millions

Description of Item	Amount requested	Potential reduction	Basis for reduction
Cartridge, 5.56-mm, M200	\$2.695	\$1.600	Inventory will exceed needs.
Line charge, M69	1.895	0.664	Inventory will exceed needs.
Cartridge, 40-mm, M918	6.990	6.990	Inventory will exceed needs.
Cartridge, 40-mm, M922	1.033	0.071	Inventory will exceed needs.
Cartridge, 60-mm, M721	1.617	1.617	Procurement is uneconomical.
Line charge, trailer mounted, practice, M68A2	1.522	1.522	Request is premature.
Line charge, M58A4	3.268	3.268	Request is premature.
5-inch rocket motor	6.018	6.018	Request is premature.
Total	\$25.038	\$21.750	

Inventory Will Exceed Needs

The Marine Corps' \$12.6 million fiscal year 1993 request for four items could be reduced by \$9.3 million because projected inventories will exceed the Marine Corps' inventory objectives (see table 5.2).

Table 5.2: Amount of Inventory Exceeding Needs for Four Items in the Marine Corps' Fiscal Year 1993 Ammunition Budget

Description of Item	Beginning inventory	Quantity requested	Inventory estimated usage ^a	Inventory objective	Quantity exceeding needs
Cartridge, 5.56-mm, M200	45,492,863	9,208,558	29,408,284	19,860,046	5,433,091
Line charge, practice, M69	1,260	154	829	531	54
Cartridge, 40-mm, M918	3,338,878	447,120	1,870,960	1,263,499	651,539
Cartridge, 40-mm, M922	87,685	88,596	62,277	108,017	5,987

^aFigures include items due in from prior-year programs.

^bFigures include estimated usage through the end of the fiscal year 1993 program period.

5.56-mm M200 Cartridge

The Marine Corps' \$2.7 million request for 9,208,558 5.56-mm M200 blank cartridges could be reduced by \$1.6 million because projected inventories will exceed requirements by 5,433,091 cartridges. Marine Corps officials agreed.

M69 Practice Line Charges

The Marine Corps' \$1.9 million request for 154 M69 practice line charges could be reduced by \$0.664 million because projected inventories will exceed requirements by 54 line charges. Marine Corps officials agreed.

40-mm M918 Cartridge

The Marine Corps' \$7 million request for 447,120 40-mm M918 practice cartridges could be denied because projected inventories will exceed requirements without the fiscal year 1993 program. Marine Corps officials agreed.

40-mm M922 Cartridge

The Marine Corps' \$1.03 million request for 88,596 40-mm M922 cartridges could be reduced by \$0.071 million because projected inventories will exceed requirements by 5,987 cartridges. Marine Corps officials agreed.

**Uneconomical
Procurement**

The Marine Corps' fiscal year 1993 request for \$1.6 million to procure 6,600 60-mm M721 illuminating cartridges could be denied because it is an uneconomical procurement. Moreover, there is no opportunity for adding the program quantity to the existing operating contract with the producer, deferral of the procurement until future years would offer the opportunity for lower costs through higher quantity purchases, and the Marine Corps will have enough assets on hand for training through the fiscal year 1993 funded delivery period.

The fiscal year 1993 program quantity represents the total planned production of the cartridge during the fiscal year 1993 funded delivery period and represents less than 1 month's production. The estimated unit cost of the cartridge in fiscal year 1993 is \$22, or 10 percent higher than in fiscal year 1992.

Marine Corps officials said that the fiscal year 1993 program will be the last procurement of the cartridge, and the requested fiscal year 1993 quantity could be added to the fiscal year 1992 contract at the Longhorn Army Ammunition Plant. However, an Army procurement representative

told us there will be no opportunity to incorporate the Marine Corps fiscal year 1993 program quantity into the operating contract at Longhorn. He said that the Army does not provide for options on operating contracts and the fiscal year 1992 program will be the last one under the operating contract at Longhorn.

The Marine Corps will have 348,430 M721 cartridges in its inventory without a fiscal year 1993 program, which is more than enough to satisfy projected training needs of 82,100 cartridges through the end of the fiscal year 1993 funded delivery period.

Premature Request

The Marine Corps' fiscal year 1993 budget request includes \$10.8 million for three components of the MK2 mine clearing system (see table 5.3) that could be denied because the Navy is conducting a study to determine the reliability of the mine clearing system and the study is not scheduled to be completed until October 1993. If the Marine Corps purchased these components prior to the completion of the reliability study, it would not have reasonable assurances that the funds were being used appropriately.

Table 5.3: Marine Corps' Fiscal Year 1993 Budget Request for Components of the MK2 Mine Clearing System

Dollars in millions		
Component	Quantity	Amount
M58A4 line charge	247	\$3.268
M68A2 inert line charge	129	1.522
MK22 Mod4 5-inch rocket motor	1,006	6.018
Total		\$10.808

The MK2 is a trailer mounted system and is a spin-off of the Army's ground mounted launcher. The system consists of a MK155 launcher in addition to the three components noted above. The MK1 is mounted aboard the amphibious assault vehicle and includes the MK154 launcher, M59 and M69 linear demolition charges, and the MK22 rocket. According to Navy documents, the mine clearing system's reliability is not completely known but, based on experience in Operation Desert Storm, is no better than 60 percent when it is not deployed by highly trained personnel.

The Marine Corps has funded, and the Navy is participating in, a \$1.2 million MK1 and MK2 mine clearing system reliability improvement program because the system's reliability is less than acceptable and must be improved to preclude failure of mission and loss of operator confidence.

According to a Navy document, the unacceptable performance of the mine clearing system is attributed, in part, to

- lack of historical baseline system performance data because past testing has been confined to components rather than complete rounds;
- proliferation of line charge configurations because of prior year modifications; and
- unclear responsibility for training and lack of accurate technical information, which have resulted in a confused community of users.

The Navy's goals of the reliability improvement program are to

- increase overall system reliability to a figure of 80 to 85 percent with the necessary improvement in the reliability of the component,
- alter launcher and ammunition inventories in consonance with mission readiness requirements,
- improve training procedures and processes in consonance with component alterations to achieve target reliability, and
- establish a program to ensure sustained reliability and continued improvement.

Study teams are to investigate, recommend, and implement specific changes to the line charges and launcher configurations, training doctrine and information, training equipment, and lot acceptance and surveillance testing. In addition, impacts of proposed changes to all other areas are to be assessed. The final report is scheduled for release in October 1993.

According to Navy representatives, the mine clearing system components included in the Marine Corps' fiscal year 1993 request have demonstrated performance reliability, and Army representatives told us that the components are producible within the fiscal year 1993 program period. According to a Navy representative, the principal causes of the performance problems with the mine clearing system are the lack of uniform line charges and properly trained operators. Marine Corps officials said that the mine clearing system is the only one available for use, and the principal cause affecting the system's performance reliability is lack of adequate training. They said that they have taken steps to improve training, and the components planned for procurement in fiscal year 1993 are newer and more reliable.

Nevertheless, given the demonstrated unacceptable performance reliability of the mine clearing system caused, in part, by proliferation of component

configurations and the broad scope of the Navy's reliability improvement program, it would seem prudent to defer funding for system components pending the results of the Navy study. This would provide an opportunity to incorporate any necessary configuration changes before additional procurements are made and avoid the risk of further proliferation of component configurations, which has been a factor contributing to system performance.

Conclusions

We believe that \$21.7 million of the Marine Corps' fiscal year 1993 request is not needed because (1) requested program quantities for four items are greater than needed, (2) the requested procurement quantity for one item is uneconomical, and (3) procurement of three items is premature.

Recommendation

We recommend that the Senate and House Committees on Appropriations reduce the Marine Corps' ammunition budget request by \$21.7 million.

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