

GAO

Briefing Report to the Chairman,  
Committee on Armed Services,  
House of Representatives

May 1987

# AMMUNITION

## Acquisition of Penetrators for 30 Millimeter Ammunition



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United States  
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National Security and  
International Affairs Division

B-226445

May 7, 1987

The Honorable Les Aspin  
Chairman, Committee on Armed Services  
House of Representatives

Dear Mr. Chairman:

This report is in response to your request that we evaluate the acquisition of munitions which require depleted uranium penetrators.

The Conference Report making continuing appropriations for fiscal year 1987 (House Report No. 99-1005) directed the Army and the Air Force to procure depleted uranium penetrators for munitions, competitively, from at least two sources in the existing production base for such penetrators. Your committee report on the Defense Authorization Act for fiscal year 1987 (House Report No. 99-718) directed us to evaluate the cost/benefit tradeoffs to the government of separately providing the penetrators rather than acquiring a complete munition item from the contractor.

During subsequent discussions, we were asked to focus our review on the acquisition of the Air Force's 30 millimeter, armor-piercing incendiary (API) cartridge--an ammunition item which requires the penetrator.

According to the Air Force's most recent budget submission, its fiscal year 1986 budget for the 30 millimeter API ammunition is \$29.1 million for 2,165,000 cartridges and its fiscal year 1987 budget is \$30.8 million for 1,822,000 cartridges. The Air Force has not programmed procurement beyond fiscal year 1987.

As the Department of Defense's designated single manager for conventional ammunition, the Army procures ammunition for the military services. The U.S. Army Armament, Munitions and Chemical Command (AMCCOM), Rock Island, Illinois, performs the procurement functions and has purchased 30 millimeter API cartridges from two contractors for the Air Force since fiscal year 1983. The ammunition has been procured as an assembled

cartridge rather than as individual components. The Army plans to combine the 1986 and 1987 programs and to separately procure, on a competitive basis, both the penetrators and the assembled cartridges.

In February 1987 AMCCOM issued solicitations for bids for the assembled cartridges specifying that the penetrators would be provided as government-furnished material. Once the contract is awarded, AMCCOM will contract for the required penetrators.

We found that in 1985 AMCCOM officials analyzed a contractor proposal to separately procure the 30 millimeter API penetrator and decided against it because of their concerns about risks and liability to the government. The 1985 AMCCOM decision paper said the government could face significant risk if the penetrators caused the 30 millimeter cartridges to not meet specifications. Currently, the contractor has total responsibility for the performance and quality of the penetrator since it is part of the assembled cartridge. AMCCOM did not have sufficient data to estimate the total costs associated with separately procuring the penetrator and to compute any potential cost savings. However, AMCCOM officials believed the total costs would increase because of the need to (1) test the penetrators before providing them to the cartridge producers and (2) administer more contracts.

A potential benefit of separately procuring the penetrator for the 30 millimeter API cartridge is that additional contractors may decide to produce the penetrator. This could result in these contractors being designated as mobilization base producers, thus increasing the available sources for the penetrators in case of mobilization.

On March 20, 1987, we briefed your representative on the results of our review. Details of our work and our objectives, scope, and methodology are included in appendixes I and II. We will continue monitoring the Army's acquisition of 30 millimeter API cartridges and will evaluate cost information when it becomes available.


At the conclusion of our review we discussed our findings with agency officials and considered their views in preparing this report. As requested, we did not obtain official agency comments.

Unless you publicly announce its contents earlier, we plan no further distribution until 30 days from the date of this report. At that time, we will send copies to interested parties and make copies available to others on request.

B-226445

Should you need additional information or have questions,  
please contact me or Mr. Raymond Dunham, Group Director, on  
(202) 275-4133.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Thomas J. Brew".

Thomas J. Brew  
Associate Director

## ACQUISITION OF 30 MILLIMETER CARTRIDGES

Currently, two prime contractors produce the 30 millimeter, armor-piercing incendiary (API) ammunition: Honeywell Inc., Minnetonka, Minnesota, and Aerojet Ordnance Company, Downey, California. Their cartridges use different penetrators that are not interchangeable because the penetrators differ in weight and dimensions. A third contractor, Nuclear Metals, Inc., Concord, Massachusetts, has produced penetrators for Aerojet and Honeywell, but not since fiscal year 1983.

The U.S. Army Armament, Munitions and Chemical Command (AMCCOM), Rock Island, Illinois, has procured the 30 millimeter API cartridge from these two contractors for the Air Force as an assembled item since fiscal year 1983. Therefore, the contractors have had total responsibility for obtaining the penetrators and for the performance and quality of the ammunition.

The conference report making continuing appropriations for fiscal year 1987 requires that, starting with the combined 1986 and 1987 programs, the penetrators be purchased competitively, from at least two sources in the existing production base. AMCCOM plans to follow this guideline and to provide the penetrators to the ammunition producers as government-furnished material. In February 1987 AMCCOM issued solicitations for bids for the fiscal years 1986 and 1987 procurement programs for the 30 millimeter API cartridges. It expects to award the contract for these cartridges in May 1987.

The Army plans to contract for the 30 millimeter ammunition cartridges first since the cartridge configurations differ. Once it has decided how many penetrators it needs, the Army will competitively procure them. According to AMCCOM, cartridges may be purchased from Aerojet and Honeywell or from only one of them. However, penetrators will be procured from two producers.

Both Aerojet and Honeywell are designated as mobilization base producers for the 30 millimeter API cartridge and according to the Chief of AMCCOM's Artillery, Mortar, and Gun Systems Branch, this will not change with separate procurement. As mobilization base producers, the contractors are scheduled to produce a specified quantity of 30 millimeter API cartridges during mobilization, within a specified time.

### The Army's Analysis of Potential Effects Were Limited

Before its decision to combine the fiscal years 1986 and 1987 programs for the 30 millimeter API cartridges, AMCCOM had analyzed

a 1985 contractor proposal to separately procure the penetrator component. The analysis addressed risks, liability, and costs, although AMCCOM had only limited data to estimate the total costs of separately procuring the penetrator. AMCCOM officials concluded that the penetrator should not be separately procured because of the following general concerns:

- The government would assume significant risk if defective penetrators result in the failure of the cartridges to achieve specified performance criteria and subsequent production lot rejection. (The contractors currently have total responsibility for the performance and quality of their penetrators since they are part of the assembled cartridges.)
- The government may be held responsible for damages if the penetrators to be furnished to the cartridge contractor as government-furnished material were delivered late. Delays in delivering penetrators could result in a break in production. (According to AMCCOM, both contractors are currently delivering a quality product ahead of schedule.)

The Army procures many ammunition items by individual components, but AMCCOM officials did not review the extent of past risk and liability experiences associated with separately procuring components for them, especially those that contain a depleted uranium penetrator, such as the Army's 105 millimeter M833 tank cartridge. The M833 tank cartridge is procured on a component breakout basis. The Chief of AMCCOM's Artillery, Mortar, and Gun Systems Branch told us that no cartridge failures have occurred because of penetrator problems. The Chief also said that some penetrators have been delivered late, but that this did not affect the timely production of the assembled cartridges.

#### Concerns about costs

The Army procured the assembled 30 millimeter API cartridge for the Air Force in fiscal years 1983, 1984, and 1985 from Honeywell at an average unit cost of \$17.72, and from Aerojet at an average unit cost of \$17.28.

At the time of their 1985 analysis, AMCCOM officials did not have estimates of all costs associated with procuring the penetrator separately. AMCCOM concluded it needed to collect additional cost data to prepare a thorough cost analysis for future acquisitions. However, the Chief of AMCCOM's Artillery, Mortar, and Gun Systems Branch told us that AMCCOM no longer plans to calculate costs or savings of separate procurement because the Congress has directed it to procure penetrators separately. AMCCOM

officials plan to follow the congressional guidance, however, they expressed the following concerns:

- The government may incur additional costs for first article and ballistic testing.
- The government may incur additional contract administrative costs since there will be more contracts to administer.
- The government may incur additional costs for the 30 millimeter API depleted uranium penetrator because of the requirement to support two producers.

These concerns seem valid, however, we were unable to evaluate them because the data will not be available until the Army has procured the penetrators separately.



OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to evaluate the cost/benefit tradeoffs to the government of separately providing depleted uranium penetrators to the 30 millimeter API cartridge producers as government-furnished material.

We performed our audit work at Army Headquarters, Washington, D.C.; the Army Armament, Munitions and Chemical Command (AMCCOM), Rock Island, Illinois; the Army Research, Development, and Test Agency, Orlando, Florida; the Army Research and Development Command, Fort Belvoir, Illinois; the Project Manager, Tank Main Armament Systems, Dover, New Jersey; and the Project Manager, Tank Main Armament Systems, Dover, New Jersey.

We interviewed officials at these locations to determine the status of the combined fiscal years 1986 and 1987 procurement programs for the 30 millimeter API cartridge and the potential costs and benefits of separately procuring the penetrator, including its effect on the government's liability and cost for the assembled cartridge and the mobilization production base.

We also analyzed briefing documents, acquisition plans, and other Army documents at AMCCOM to determine (1) what liability and cost impacts the Army had identified in its studies of separately procuring the penetrator for the 30 millimeter API cartridge and (2) to what extent the Army had considered in its studies prior experience with other ammunition items procured as individual components.

We conducted our review from September 1986 to February 1987 in accordance with generally accepted government auditing standards.

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