



UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

MARCH 28, 1984

NATIONAL SECURITY AND  
INTERNATIONAL AFFAIRS DIVISION

B-214678

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The Honorable Mack Mattingly  
United States Senate

Dear Senator Mattingly:

Subject: Role of the C-5 Aircraft During  
U.S. Operations in Lebanon and  
Grenada (GAO/NSIAD-84-87)

On November 1, 1983, you asked us to look into how the C-5 aircraft were used during recent U.S. operations in Lebanon and Grenada. Based on later discussions with your office, we also agreed to include information on the following questions.

- What were the onload and offload points for the Lebanon ammunition resupply mission?
- What was the source(s) of the ammunition airlifted in support of the Lebanon operation?
- How many helicopters, by type, were airlifted to Barbados in C-5 aircraft and used during the initial invasion of Grenada?
- Which helicopters, if any, had to be disassembled before being loaded into the C-5 aircraft and to what extent?
- How were the oversized pieces of equipment used during the operations?
- What alternatives would have existed without the C-5?
- What impact on the operations would the alternatives have produced?

During our review, we interviewed officials and/or examined documents at the Military Airlift Command (MAC) Headquarters, Scott Air Force Base, Illinois, and the Joint Chiefs of Staff and Army Headquarters, Pentagon. We reviewed documents pertaining to the movement of equipment and supplies from September 1982 through September 1983 in support of the Lebanon operation.

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Our fieldwork was performed primarily between December 1983 and February 1984. In certain instances, we relied on Air Force statements and documentation without our normal verification. As agreed with your office, we did not obtain formal agency comments. Otherwise, our review was conducted in accordance with generally accepted government auditing standards.

#### BACKGROUND

MAC, a major command of the U.S. Air Force, is the single Department of Defense operating agency for airlift services. Its primary mission is to provide the airlift necessary for wartime deployment of U.S. forces and their equipment. To carry out its primary mission, MAC had in its inventory 77 C-5 aircraft, 268 C-141 aircraft, and 257 C-130 aircraft as of May 31, 1983.

The C-5 is an air-refuelable, four-engine, long-range jet transport that carries 340 troops or 36 cargo pallets. One unique design feature of the C-5 aircraft is its capability to airlift outsized cargo (e.g., fighting vehicles, self-propelled artillery, air defense systems, helicopters, and communication vans). The C-141 is an air-refuelable, four-engine, long-range jet transport that carries 200 troops or 13 cargo pallets. The C-130 is a four-engine, assault transport that carries 91 troops or 6 cargo pallets.

According to an Air Force official, MAC provided airlift services in support of the Lebanon and Grenada operations in addition to meeting its normal DOD requirements.

#### ROLE OF THE C-5 AND OTHER CARGO AIRCRAFT USED DURING THE LEBANON OPERATION

On September 19, 1982, the United States sent U.S. Marines into Beirut, Lebanon, as part of a multinational peacekeeping force. From September 1982 through September 1983, Air Force cargo aircraft were used to move equipment and supplies in support of the Lebanese and multinational peacekeeping forces. During this period, 165 flights airlifted 4,830 tons of cargo, as shown below.

<u>Aircraft type</u>	<u>Missions flown</u>		<u>Tons of cargo moved</u>	
	<u>Number</u>	<u>Percentage</u>	<u>Number</u>	<u>Percentage</u>
C-5	25	15	1,632	34
C-141/C-130	<u>140</u>	<u>85</u>	<u>3,198</u>	<u>66</u>
Total	<u>165</u>	<u>100</u>	<u>4,830</u>	<u>100</u>

Of the 25 C-5 flights, 1 carried outsized cargo. That flight carried two 2-1/2 ton trucks which were onloaded at Dover AFB, Delaware, and offloaded at the Beirut International Airport, Lebanon. These trucks provided the Marines with specialized communications support. The other 24 C-5 flights moved mostly

ammunition to resupply the Lebanese and multinational peacekeeping forces. Of the 24 flights, 2 were delayed a total of about 13 hours due to maintenance problems. The flights offloaded at various points throughout Europe and the Middle East (see enc. I.) because the Beirut International Airport was closed. From these locations, the cargo was sealifted to Beirut, Lebanon.

The ammunition used to resupply the forces was part of the U.S. European stockpiles. According to an Air Force official, the stockpiles could be replenished by sealifting ammunition into the area.

ROLE OF THE C-5 AND OTHER  
CARGO AIRCRAFT USED DURING  
THE GRENADA OPERATION

On October 25, 1983, U.S. forces landed on the island of Grenada to rescue U.S. citizens and restore a democratic government. Barbados, an island about 150 miles northeast of Grenada (see enc. II), was the staging area for the operation. All of the services participated in this operation. The largest number of U.S. forces present on Grenada at any one time during the operation was approximately 6,500. Hostilities ended on November 2, 1983, 8 days after the operation began. In mid-December 1983, the last U.S. combat units departed Grenada.

As of December 13, 1983, C-5s flew 38 missions and moved 1,385 tons of cargo and 1,203 passengers, as shown below.

	<u>Number of missions</u>	<u>Tons of cargo moved</u>	<u>Number of passengers carried</u>
From U.S. to Barbados	23	857	835
From Barbados to U.S.	12	429	246
Within the U.S.	<u>3</u>	<u>99</u>	<u>122</u>
Total	<u>38</u>	<u>1,385</u>	<u>1,203</u>

Eleven flights from Barbados did not carry cargo, and therefore, were not counted as missions.

According to an Air Force official, all of the C-5 missions were completed without experiencing any delays due to maintenance problems. C-141s and C-130s were also used to airlift combat troops, equipment, and supplies into the area of operation. They made 684 flights and moved 22,144 passengers and 10,381 tons of cargo.

The C-5s operated in and out of Grantley Adams International Airport, Bridgetown, Barbados; there were no C-5 flights into the Point Salines or Pearls airports in Grenada. According to the Air Force, the use of the C-5 into Grenada's airports would have pre-empted the use of the airfields by C-141 and C-130 aircraft because of their limited available ramp space and supporting taxiways. In addition, Point Salines Airport was initially covered with debris and heavy equipment that would have prevented its use by C-5s.

The principal cargo airlifted by the C-5s were Army helicopters. Seventy-eight helicopters (see enc. III) and their crews were airlifted to Barbados. From Barbados, the helicopters were flown by their crews to Grenada. The OH-58 helicopters were airlifted in an operational configuration. This means that the helicopters are assembled, fueled, and ready for takeoff immediately after being offloaded. All that is required is preflight testing. The remainder of the helicopters airlifted to Barbados had to be partially disassembled before being loaded on C-5s. For example, the rotor blades, rotor heads, and transmissions which engage the blades are removed from the CH-46 helicopter before it can be onloaded. The AH-1, EH-1H, and UH-60 helicopters required approximately 2 percent, 5 percent, and 5 percent disassembly, respectively, when airlifted on C-5 aircraft.

Use of the C-5 shortened the reassembly time that would have been required had the helicopters been airlifted on a C-141. For example, reassembly of each UH-60 helicopter, airlifted on a C-5, would take about 1 to 3 hours. In contrast, if the UH-60 helicopters had been airlifted on a C-141 aircraft, it would have taken from 12 to 17 hours to reassemble each helicopter.

According to an official from the Joint Chiefs of Staff, none of the helicopters airlifted to Barbados were used during the initial invasion of Grenada. However, all of the helicopters participated in the operation by providing support which included transporting troops, hauling fuel and supplies, providing air evacuation, and conducting reconnaissance operations.

#### ALTERNATIVES TO USING C-5s AND THE IMPACT ON OPERATIONS

According to Air Force officials, with two exceptions, all of the cargo airlifted by C-5s during both the Lebanon and Grenada operations could have been airlifted by C-141s. The CH-46 helicopter airlifted to Barbados and the 2-1/2 ton trucks moved to Lebanon are not normally airlifted in a C-141.

According to Air Force and Army officials, use of the C-141 aircraft instead of the C-5s during the Lebanon and Grenada operations would have required more advanced planning to ensure achievement of operational objectives. Plans would have been needed for (1) matching the additional airlift requirements with C-141 resources and (2) providing the logistical support for additional aircraft at the area of operation. Use of C-141s during the Grenada operation would have also required more lead time to reassemble the helicopters offloaded at Barbados. Reassembly would have taken from 2 to 14 hours more per helicopter, depending on the type of helicopter.

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Air Force and Army officials said that sealifting the resources airlifted by the C-5s during the Lebanon and Grenada operations would have impeded the timeliness of delivering needed combat troops, equipment, and supplies to the area of operation. Also, it could have disclosed the intent of the Grenada operation and provided more time for the opposition to take actions that could have prolonged the operation. According to an Army official, the intent may have been disclosed because sealifting U.S. Army resources is not a normal practice as is the case with U.S. Marines.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this letter until 5 days from its date. At that time we will send copies to the Secretaries of Defense and the Air Force and other interested parties.

Sincerely yours,



Frank C. Conahan  
Director

Enclosures - 3

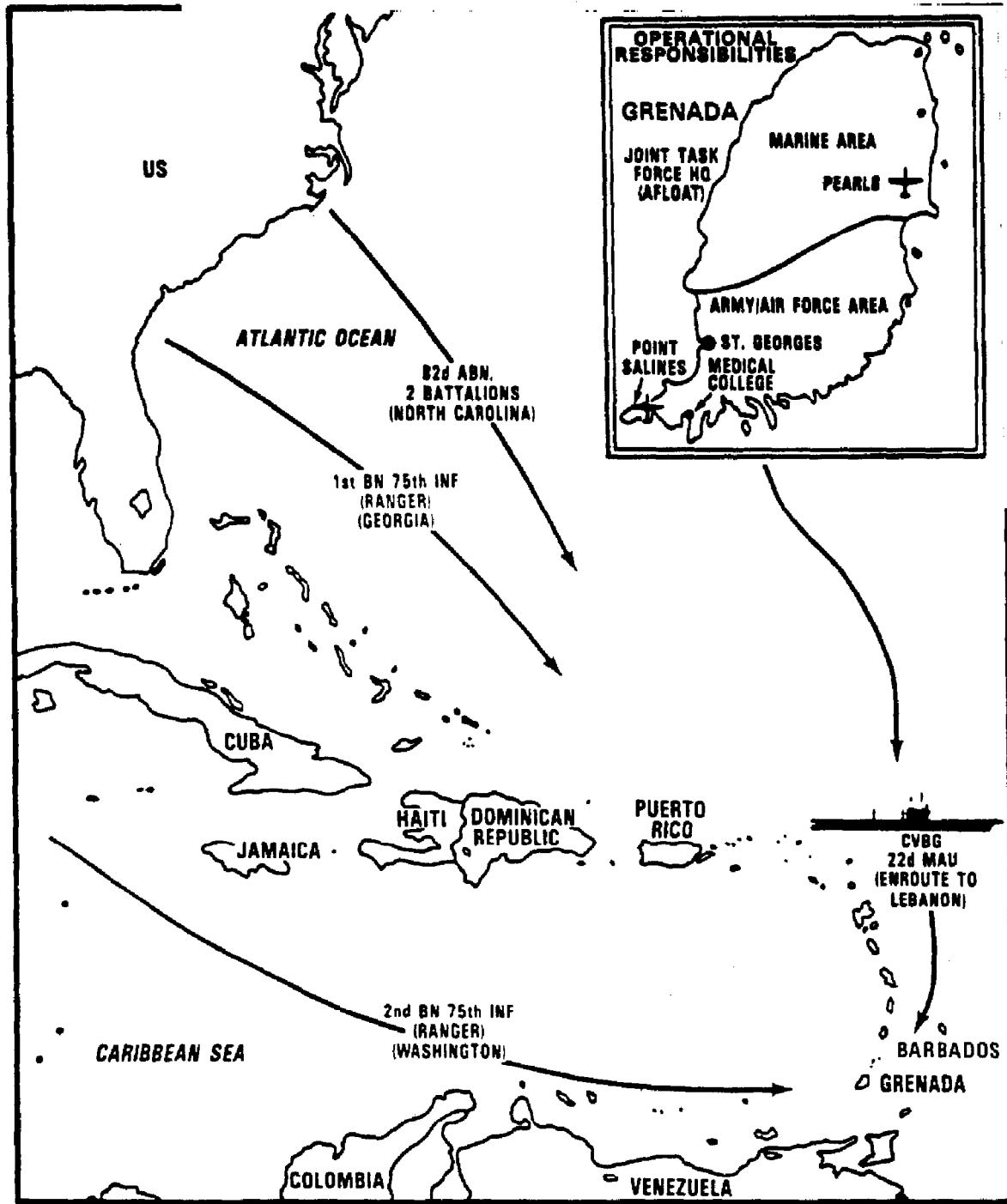
LEBANON OPERATION  
ON-LOAD AND OFF-LOAD POINTS  
August 1983 - September 1983

<u>Number of missions flown by<sup>a</sup></u>			
<u>C-5s</u>	<u>C-141s/ C-130s</u>	<u>On-load points</u>	<u>Off-load points</u>
2	0	Rhein Main, W. Germany	Cairo West, Egypt
1	13	Ramstein, W. Germany	Larnaca, Cyprus
8	38	Ramstein, W. Germany	Cairo West, Egypt
0	2	Pisa, Italy	Cairo West, Egypt
0	8	Upper Heyford, England	Cairo West, Egypt
1	0	Ramstein, W. Germany	Pisa, Italy
9	14	Ramstein, W. Germany	Sigonella, Sicily
0	1	Mildenhall, England	Sigonella, Sicily
0	5	Sigonella, Sicily	Larnaca, Cyprus
0	2	Rhein Main, W. Germany	Sigonella, Sicily
0	1 <sup>b</sup>	Sigonella, Sicily	Mildenhall, England
<u>3</u>	<u>3</u>	Upper Heyford, England	Sigonella, Sicily
<u>24</u>	<u>87</u>		

<sup>a</sup>Excludes one C-5 flight and 53 C-141/C-130 flights which supported other aspects of the Lebanon operation, rather than the ammunition resupply mission.

<sup>b</sup>A self support mission which carried MAC personnel and equipment.

### US OPERATION IN GRENADA



COURTESY OF THE JOINT CHIEFS OF STAFF

GRENADA OPERATIONHelicopters Airlifted By C-5sTo Barbados

<u>Type</u>	<u>Mission</u>	<u>Number airlifted</u>
AH-1 Cobra	Armed escort, close air support, ground attack, antitank.	25
OH-58 Scout	Reconnaissance, surveillance, target acquisition/designation, antitank.	17
EH-1H	Electronic countermeasures.	2
UH-60 Black Hawk	Infantry squad carrier, combat support, medevac, stand-off target acquisition.	33
CH-46 Sea Knight <sup>a</sup>	Assault, support, and cargo operations.	<u>1</u>
		<u>78</u>

<sup>a</sup>U.S. Marine Corps helicopter.