

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION C-17A, T/N 07-7189 FOB SHANK, AFGHANISTAN 23 JANUARY 2012

On 23 January 2012, at approximately 0749 Zulu (1219 Local), a C-17A Globemaster III aircraft, tail number 07-7189, assigned to the 437th Airlift Wing, Joint Base Charleston, South Carolina, landed on runway 34R at Forward Operating Base (FOB) Shank, Afghanistan. The mishap aircraft (MA) was unable to stop, departed the prepared runway surface, struck an embankment, and came to rest approximately 700 feet from the end of the runway. The MA sustained damage to the landing gear, cargo floor, undercarriage, antennas, and main structural components. There were no passengers, fatalities, significant injuries, or damage to civilian or other military property. The estimated cost to repair the MA is \$69.4 million.

The 816th Expeditionary Airlift Squadron, in support of Operation ENDURING FREEDOM, operated the MA from Al Udeid Air Base, Qatar. The mishap crew consisted of the Mishap Pilot (MP), Mishap Copilot (MCP), Mishap First Pilot, Mishap Loadmaster 1, and Mishap Loadmaster 2. Additionally, a Mishap Flying Crew Chief was assigned as mission essential personnel.

The accident investigation board (AIB) president found, by clear and convincing evidence, that the cause of the mishap was the MP and MCP failed to identify that the landing distance required to safely stop the aircraft exceeded the runway length. Additionally, the AIB president found by the preponderance of evidence, that failure to assess runway conditions for fixed wing operations at FOB Shank substantially contributed to the mishap.

Under 10 U.S.C. § 2254(d) the opinion of the accident investigator as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report, if any, may not be considered as evidence in any civil or criminal proceeding arising from the accident, nor may such information be considered an admission of liability of the United States or by any person referred to in those conclusions or statements.

SUMMARY OF FACTS

1. AUTHORITY AND PURPOSE

a. Authority

On 1 February 2012, Lieutenant General Robert R. Allardice, Vice Commander, Air Mobility Command (AMC) appointed Colonel Kevin A. Oliver to conduct an aircraft accident investigation of a mishap that occurred on 23 January 2012, involving a C-17A Globemaster III aircraft, tail number (T/N) 07-7189, at Forward Operating Base (FOB) Shank, Afghanistan. The investigation was conducted at Joint Base Charleston, South Carolina (SC), from 4 April 2012 through 2 May 2012 pursuant to Air Force Instruction (AFI) 51-503, *Aerospace Accident Investigations*, 26 May 2010. The following United States Air Force (USAF) personnel served as Accident Investigation Board (AIB) members (Tabs Y-3, Y-5, Y-6):

Colonel Kevin A. Oliver	Board President
Lieutenant Colonel (Redacted)	Airfield Management Member
Lieutenant Colonel (Redacted)	Medical Member
Major (Redacted)	Pilot Member
Major (Redacted)	Maintenance Member
Captain (Redacted)	Legal Advisor
Technical Sergeant (Redacted)	Recorder

b. Purpose

This is a legal investigation convened to inquire into the facts surrounding the aircraft or aerospace accident, to prepare a publicly-releasable report, and to gather and preserve all available evidence for use in litigation, claims, disciplinary actions, administrative proceedings, and for other purposes.

2. ACCIDENT SUMMARY

On 23 January 2012 at approximately 0749 Zulu (Z), a C-17A Globemaster III, T/N 07-7189, call sign Moose 89, landed on runway 34R at FOB Shank, Afghanistan (Tab EE-10). The Mishap Aircraft (MA) was unable to stop and departed the prepared runway surface (Tab EE-3). The mishap crew (MC) consisted of the Mishap Pilot/Aircraft Commander (MP), Mishap Copilot (MCP), Mishap First Pilot (MFP), Mishap Loadmaster 1 (ML1), and Mishap Loadmaster 2 (ML2). Additionally, a Mishap Flying Crew Chief (MFCC) was assigned as mission essential personnel (Tab K-2). After the mishap, the MC and MFCC exited the aircraft safely (Tabs V-20.14, V-24.9). There were no passengers, fatalities, significant injuries, or damage to civilian or other military property (Tab V-15.3). The MA sustained damage to the landing gear, cargo floor, undercarriage, antennas, and main structural components (Tabs S-12 to 14, S-17 to 19). The estimated cost to repair the MA is \$69.4 million (Tab P-3).

3. BACKGROUND

The MA was assigned to the 437th Airlift Wing (AW), Joint Base Charleston, South Carolina. At the time of the mishap, the 816th Expeditionary Airlift Squadron (EAS), Al Udeid Air Base (AB), Qatar, operated the MA in support of Operation ENDURING FREEDOM (OEF) (Tabs K-2, K-3, EE-6). The 816 EAS reports to the 385th Air Expeditionary Group (AEG) and operates under the direction of the 618th Air and Space Operations Center (AOC)/Tanker Airlift Control Center (TACC). The MC was assigned to the 816 EAS, Al Udeid AB, Qatar (Tab K-3). FOB Shank airfield operations were controlled by Task Force (TF) Corsair, 3rd Battalion, 82d Aviation Regiment, 82d Combat Aviation Brigade, 82d Airborne Division, United States (U.S.) Army (Tab V-21.10).

a. Air Mobility Command

AMC, activated on 1 June 1992, is a major command (MAJCOM) headquartered at Scott Air Force Base (AFB), Illinois. AMC provides worldwide cargo and passenger delivery, air refueling and aeromedical evacuation. The command also transports humanitarian supplies to hurricane, flood and earthquake victims both at home and around the world. AMC's mission is to provide global air mobility – right effects, right place, right time. More than 134,000 active-duty, Air National Guard, Air Force Reserve and Department of Defense (DoD) civilians make the command's rapid global mobility operations possible (Tab CC-3).



b. 18th Air Force

18 AF, headquartered at Scott AFB, Illinois, was reactivated 1 October 2003 as the operational component of AMC. It is AMC's only numbered air force (NAF) and the Air Force's largest NAF. 18 AF's mission is to present air mobility forces to combatant commanders. It is charged with carrying out AMC's operational role as Air Forces Transportation, the air component of U.S. Transportation Command (Tab CC-5).



c. 618th Air and Space Operations Center/Tanker Airlift Control Center

618 AOC/TACC is 18 AF's global AOC responsible for centralized command and control of Air Force and commercial contract air mobility assets 24-hours-a-day. It plans, schedules and tracks tanker, airlift and aeromedical evacuation aircraft worldwide to accomplish AMC's Global Reach mission (Tab CC-24).



d. 385th Air Expeditionary Group

The 385 AEG, based at Incirlik AB, Turkey, is comprised of deployed active duty, guard, and reserve Airmen. Comprised of three squadrons, its primary mission is to support the C-17 and KC-135 airlift and refueling mission in the wartime area of responsibility (AOR). The 385 AEG also provides humanitarian relief in the form of cargo, food, and critical air medical evacuation (Tab CC-22).



e. 816th Expeditionary Airlift Squadron

The 816 EAS executes missions as directed by 18 AF in support of U.S. Central Command. 816 EAS is assigned to the 385 AEG as a forward-deployed organization, a segment of the larger AMC effort originating out of U.S. based cargo hubs like Joint Base Charleston (Tabs CC-11, CC-12).



f. 437th Airlift Wing

With more than 50 assigned C-17A Globemaster III aircraft, the 437 AW provides a significant portion of AMC's Global Reach airlift capability. The precise, flexible and responsive air mobility capability provided by the wing backs U.S. resolve and promotes worldwide stability. The 437th Airlift Wing's mission is to safely provide precise, reliable airlift – worldwide, and its vision is to continue as the Nation's Airlift Wing of choice – proven excellence, leading through innovation. The wing commands assigned airlift and supporting units to maintain assigned C-17A aircraft, load and unload passengers, out-sized equipment, bulk cargo and aeromedical evacuation. The Wing delivers passengers, equipment and supplies whenever and wherever required via airland or airdrop missions. The 437 AW trains and executes the only C-17A special operations capability in the Air Force (Tab CC-7).



g. Task Force Corsair

Embedded under TF Pegasus, TF Corsair's mission is International Security Assistance Force, Regional Command - South, and Operation Enduring Freedom forces to enable freedom of movement and sustain combat operations and thereby contribute to the legitimacy of the government of the Islamic Republic of Afghanistan (Tab CC-17).



h. Aircraft

The C-17A is capable of rapid strategic delivery of troops and all types of cargo to main operating bases or directly to forward bases in the deployment area. The aircraft can perform tactical airlift and airdrop missions and can transport litters and ambulatory patients during aeromedical evacuations when required. The inherent flexibility and performance of the C-17A force improve the ability of the total airlift system to fulfill the worldwide air mobility requirements of the U.S. (Tab CC-13).

STATEMENT OF OPINION

C-17A, T/N 07-7189 FOB SHANK, AFGHANISTAN 23 JANUARY 2012

Under 10 U.S.C. § 2254(d), the opinion of the accident investigator as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report, if any, may not be considered as evidence in any civil or criminal proceeding arising from the accident, nor may such information be considered an admission of liability of the United States or by any person referred to in those conclusions or statements.

1. OPINION SUMMARY

I find by clear and convincing evidence that the cause of the mishap was the mishap pilot (MP) and mishap copilot (MCP) failed to identify that the landing distance required to safely stop the aircraft exceeded the runway length. Additionally, I find by the preponderance of evidence, that failure to conduct airfield inspections, and miscommunication between FOB Shank snow removal and Air Traffic Control tower personnel, substantially contributed to the mishap.

2. DISCUSSION OF OPINION

a. Cause: the MP and MCP failed to identify that the landing distance required to safely stop the aircraft exceeded the runway length

The mishap crew (MC) completed mission planning and preflight duties at Al Udeid Air Base (AB), Qatar, and flew a sortie to Kuwait City International Airport, Kuwait, without incident. At Kuwait City International, the MC received the mission data for the mishap sortie, and uploaded 43,219 pounds (lbs) of fuel and 111,498 lbs of cargo. After loading and refueling, the MA was close to maximum allowable gross weight. Enroute to FOB Shank, the MC discussed the MA takeoff and landing data (TOLD) and calculated a landing distance, based on maximum brakes-on speed (Vbo) of approximately 6,000 feet (ft) for FOB Shank.

When the MC made initial radio contact with the FOB Shank ATC tower, tower personnel relayed a reported braking action of “fair” to the MC, and the MP and MCP correctly correlated this reported braking action to a Runway Condition Reading (RCR) value of 12. A reported braking action of fair indicates a reduced braking level on the runway, with a corresponding increase in landing distance. RCR is the value used in TOLD calculations to represent a reported braking action of fair.

The MCP attempted to enter the RCR value of 12 into the mission computer, but was unsuccessful. The MCP did not verify the updated RCR and therefore did not identify an increase in the MA Vbo landing distance. In addition, the MP failed to verify the change to RCR in the mission computer, did not verbalize the MA Vbo landing distance, and did not equate a decrease in RCR with an increase in Vbo landing distance. Data retrieved from the MA revealed the following values for TOLD were in the mission computer at the time of the accident: Vbo landing distance of 6,047 ft, RCR of 23. The RCR value of 23 correlates to a dry runway.

The AIB reconstructed the MA TOLD with a mission computer in the C-17A simulator. Using variables identical to those in the MA mission computer at the time of the mishap, including aircraft gross weight, temperature, winds, pressure altitude, runway available, and RCR, the AIB confirmed the Vbo landing distance of 6,047 ft. Leaving all other variables unchanged, the AIB changed the RCR to 12. The mission computer then no longer displayed a value for landing distance, an indication that the landing distance exceeded the available runway. Instead, the mission computer displayed a cautionary message to check landing weight and displayed the value for Vbo ground roll of 7,288 ft. The runway length for 34R at FOB Shank is 7,425 ft. Had the MC identified that the landing distance required to safely stop the aircraft exceeded the runway length, the mishap would not have occurred.

b. Substantially Contributing Factor: failure to assess runway conditions for fixed wing operations at FOB Shank

Task Force (TF) Corsair airfield management personnel did not conduct daily inspections of runway 34R, and did not inspect runway 34R on 23 January 2012 prior to the mishap. In addition, TF Corsair did not possess equipment capable of determining the runway surface condition at the time of the mishap. Further, tower personnel relied upon FOB Shank sweeper personnel to communicate the status of the runway conditions. Immediately prior to the mishap, miscommunication between sweeper personnel and FOB Shank tower resulted in tower personnel concluding the runway was clear of snow and ice. The tower personnel therefore did not communicate the actual runway conditions to the MC. An inspection conducted immediately following the accident revealed a combination of water, slush, ice and snow covered runway 34R. Failure to assess runway conditions for fixed wing operations at FOB Shank substantially contributed to the mishap.

3. CONCLUSION

I developed my opinion by inspecting the mishap site and the mishap aircraft, examining witness testimony, factual data from historical records, reviewing applicable directives and guidance, engineering analysis, data from on-board recorders, reconstruction of the mishap sortie in a C-17A simulator, computer animated reconstruction, and consulting with subject matter experts.

I find by clear and convincing evidence that the cause of the mishap was the MP and MCP failed to identify that the landing distance required to safely stop the aircraft exceeded the runway length. Additionally, I find by the preponderance of evidence, that failure to assess runway conditions for fixed wing operations at FOB Shank, substantially contributed to the mishap.

2 May 2012


KEVIN A. OLIVER, Colonel, USAF
President, Accident Investigation Board