

## **C-5 Galaxy Crash Ramstein AB Germany**



**C-5M Super Galaxy from the 60th Airlift Wing Travis AFB, photo taken from the fence at Ramstein Air Base, Germany. Photo courtesy of Reinier Bergsma**

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The C-5 Galaxy aircraft is a flying representation of American military capability and power, but it has had some accidents. The C-5 Galaxy is now more than 50 years old and its history dates back to March 2, 1968, when President Lyndon B. Johnson attended the rollout and christening ceremony. Although the C-5 Galaxy is getting old, it can still carry 85 tons of cargo, twice the amount of its newest cargo carrier sibling, the C-17. Since its inception, the C-5 has helped during times of war -- Vietnam, Desert Shield/Storm, Operation Enduring Freedom and Operation Iraqi Freedom. In 2001, the C-5 furnished about 50 percent of Air Mobility Command's organic strategic airlift capability. During Operation Enduring Freedom, the C-5 flew 33 percent of the cargo missions, hauled 46 percent of the total cargo and carried 40 percent of all passengers airlifted by AMC. In Operation Iraqi Freedom, it flew about 23 percent of the missions and delivered about 48 percent of the cargo. The C-5 has had a good, solid record of performance over the years and there have been just six major crashes in the long history of the C-5. This story is an investigation of the August 29, 1990 C-5 Galaxy crash at Ramstein Air Base, Germany.

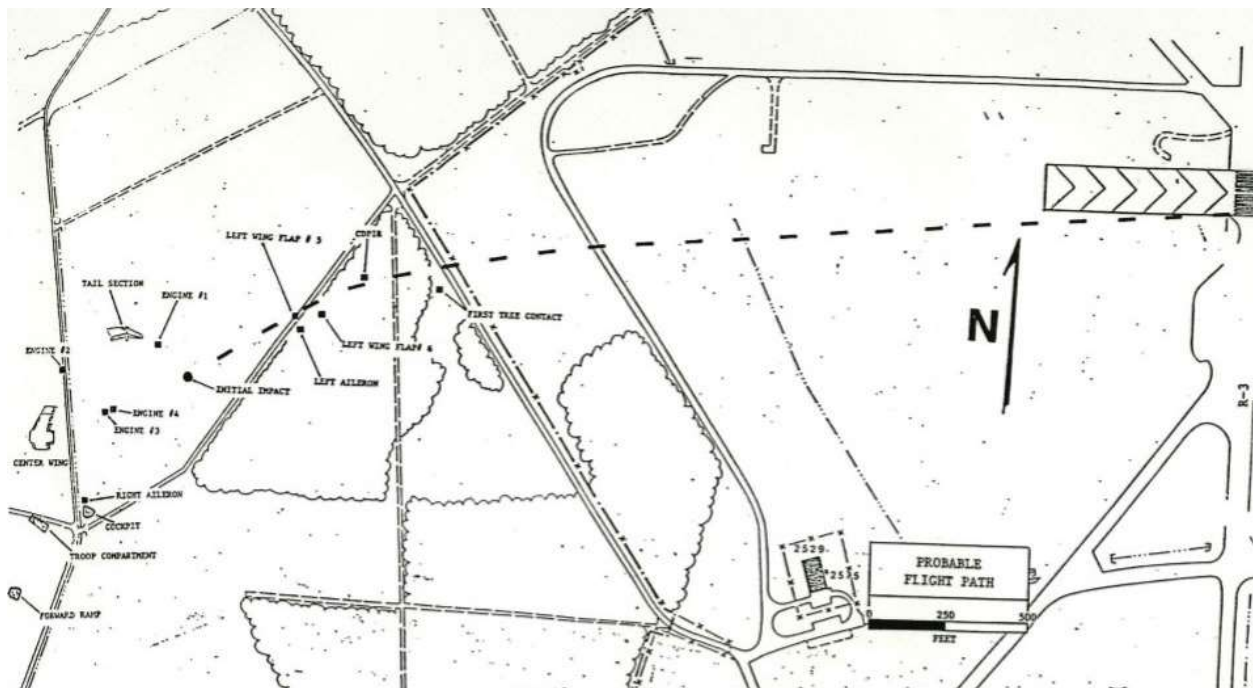
### **C-5 Galaxy accident August 29th, 1990**

In the early morning hours of August 29th, 1990, a C-5 Galaxy transport, serial number 68-0228, took off at 12:30 a.m. local time from Ramstein Air Base Germany, the largest military air base in Western Europe, in support of Desert Shield. The aircraft was attached to the 60th Military Airlift Wing, Travis Air Force Base, California, but it was flown by a volunteer Reserve crew from the 433rd Airlift Wing in Texas. The nine person crew from Texas had volunteered their services in support of Operation Desert Shield

rather than wait for a call-up. The 433rd was not among the reserve units called up by the Pentagon, but more than 200 of its members had been working on a voluntary basis in support of Operation Desert Shield since August 8<sup>th</sup> 1990.

The plane was headed for Frankfurt's Rhein-Main Air Base, 80 miles to the northwest. The C-5 was going to have a fuel leak repaired before flying to Dhahran, Saudi Arabia to deliver food, medical supplies and maintenance equipment to U.S. troops leading the multinational force deployed after Iraq's August 2nd invasion of Kuwait.

Immediately after the C-5 Galaxy aircraft lifted off from the west end of runway 27, an un-commanded and undetected deployment of the number one engine thrust reverser on the left side of the aircraft suddenly engaged. The C-5 aircraft stopped accelerating at a speed of 161 knots and stopped climbing at 50-100 feet. The crew members experienced severe buffeting during the lift off and the sudden loss of lift caused the aircrew to lose control of the aircraft as it drifted left of the runway centerline. The left wing dropped and impacted a large stand of trees just beyond the base perimeter ripping off the number one engine as the C-5 rolled to the left. The aircraft continued plowing through the trees and ended up in a field 3300 feet from the end of the runway and 560 feet south of the extended runway centerline.



**Probable flight path map from the official accident report**

There was a large post-crash fire that spread throughout the crash site. The fuselage forward of the center wing separated and was destroyed by the impact and fire. The forward part of the troop compartment remained with the center wing and was

destroyed by fire. The aft part of the troop compartment also separated from the aircraft. It rolled upside down, broke apart, and came to rest away from the fire.



**Aerial photo of the crash site from the official accident report**



**Aerial photos of the crash site taken shortly after the crash**

Fire and crash rescue equipment responded immediately and reported that the major fire was under control at 0104 CEDT, however spot fires continued to flare up for several hours. Rescuers said darkness and dense fog hampered efforts to find victims and it took almost 12 hours to find the body of the 13th victim in the wreckage.

Of the 17 people onboard, only 4 survived the crash. All four were in the rear troop compartment. The sole surviving aircrewman, Staff Sgt. Lorenzo Galvan Jr., and Lt Col Frederick K. Arzt, a passenger on board, were awarded the Airman's Medal for their actions in evacuating the survivors from the wreckage.

Killed were Maj. John M. Gordon, Maj. Richard W. Chase, Maj. Richard M. Price, Senior Master Sgt. Carpio Villarreal Jr., Master Sgt. Rosendo Herrera, Tech. Sgt. Daniel G. Perez, Tech. Sgt. Lonty A. Knutson, Staff Sgt. Daniel Garza, Staff Sgt. Edward E. Sheffield, all from the 433rd Military Airlift Wing at Kelly Air Force Base, Texas. Also killed were Capt. Bradley R. Schuldt of the 7th Air Division at Ramstein; Master Sgt. Samuel M. Gardner Jr. of the 31st Weather Squadron at Hahn Air Base, West Germany; Staff Sgt. Rande J. Hulec of the 31st Weather Squadron at Ramstein; and Staff Sgt. Marc H. Cleyman of the 31st Weather Squadron at Hahn. Survivors hospitalized in West Germany, besides Galvan, were identified as Lt. Col. Frederick K. Arzt Jr. of the 62nd Military Airlift Wing at McChord Air Force Base, Wash.; Lt. Cynthia A. Borecky of the 3rd Weather Squadron at England Air Force Base, La., and Master Sgt. Dwight A. Pettit Jr. of the 62nd Military Airlift Wing.

### **Photos of the crash site**

Just hours after the C-5 crashed, an Air Force service member was asked to go out to the crash site to check on some equipment that his unit had loaded aboard the previous day. Even though the fire had been extinguished earlier, he said that it was still very eerie walking through the wreckage while some of it still smoldered. Some pictures were taken at that time and others a day or so later from the perimeter. Photos courtesy of <https://rustyknight98.com/C5/C5.htm> **Photo below-crash path through the trees**





**The largest piece of wreckage was the wing root**



**Back/top of the troop compartment where the survivors were sitting**



**Another view of the troop compartment with part of a landing gear**



**Debris Field**

## **Ramstein Firefighter, A1C Douglas Bowling, recalled a night he will never forget**

*"My name is Douglas Bowling, but I used to be A1C Douglas W. Bowling. I was stationed at Fire Station # 3 that night. I remember how loud the engines were on takeoff. You see, the runway at Ramstein is short for a loaded C-5, so they lock the brakes and run the aircraft at full throttle to create a burst of speed (or as close to a burst as a C-5 can muster). I was still awake when he was sitting about 100 yards away from the Fire Station preparing to take off. I never heard the plane crash.*

*I remember the fire phone ringing, so I picked up the line in the day room . One phone was located in the Station Captain's bunk room and one was in the day room so that we wouldn't miss the call in case of a crash or ground emergency. I picked it up in time to hear, "The C-5 is down at the departure end of the runway and is on fire."*

*I was a driver on a P-19 (Call sign, Crash 5) with a crew chief named SRA Chuck Kesterson. I already had the engine running and the door up when he jumped into the cab. As we rounded the end of the runway by way of the access road, I looked down the runway to see what the best approach was going to be. That's when I saw flames everywhere. It was about 1/4 mile away, but it was bright. Brighter than anything I had ever seen outside of the sun itself. I looked at Chuck and said, "It's burning, Chuck." He didn't say anything. "Chuck, it's on fire, the plane is on fire." This time he simply told me, "Just get us on scene, Doug." I had never seen a real fire. I had only been a firefighter for about a year and the only fire I had seen was training pit fires and BBQ's. We had to exit the base through the main gate and by the time we got to the gate and the small, one lane access road to the field where the plane was located, all the trucks from Fire Station # 1 had arrived. Trees were down and the trucks had trouble getting through, so Chuck told me to continue to the other end of the field for a different approach.*

*When we pulled up, it was magnificent. I don't mean to be disrespectful of the tragedy, but the fire was beautiful. I had never seen so much fire in one place. It looked as though a wheat field had been crop dusted with gasoline. By the time we reached the fire, the rescue crew were helping to free the passengers who were still strapped in their seats which were now upside down. I remember that we used 2 tanks (2,000 gallons of water) before we even got out and pulled a hand line. As the driver, it was my responsibility to stay in the truck and operate the pump and turrets if need be.*

*There were 3 fire fighters next to the largest section of the plane's wing and they were discharging halon and dry chem extinguishers from a pickup truck. It was a flowing fuel fire on the wing section and it would not go out. My Assistant Fire Chief told me to use the bumper turret and try and knock the fire down to protect the 3 fire fighters. With the last bit of water in the tank, I discharged the bumper turret and extinguished the fire. Later I learned that the wing most likely would have exploded like a giant grenade had*

*the fire continued as a flowing fuel fire. I was given the Air Force Achievement Medal for my actions that night, although I've never really felt that I did anything to deserve a medal. It was my job to protect lives and property, so that's what I did. The people who deserved the medal were the instructors and mentors who made it 2nd nature for us to do what we did.*

*We were there throughout the night putting out small spot fires. Brakes, cargo, wheel assemblies. I remember that they had lots of Spam on board and the fire caused them to explode throughout the night. Each time we would hear the Spam popping, we would hit the deck for fear that the missing firearms were discharging rounds.*

*The thing that caused the most nightmares in the months to come was the cockpit area. There was a man lying there on his side, still strapped into his seat. I knelt next to him and cried. He looked as though he was sleeping. I remember that his Mickey Mouse watch was still ticking. I don't remember his name I remember his face. The crash doesn't really bother me anymore, although I decided not to become a career fire fighter once I separated from the Air Force.*

*I spent a lot of time in Fred's Lounge after that night. I would spend a lot of time pretending that it didn't bother me. I lived with other guys in the Fire Station for a year after that night and they went through everything that I went through, but people just don't talk about it. Seeing your pictures helped me remember that it will be a part of me for the rest of my life. I remember the way my friends sobbed at the memorial service when they played taps. We didn't know any of the people on board. We did know that 5 people lived through the crash but then one died in the hospital a day or 2 after the crash. I'm thankful to God that there weren't any more than 17 on board that night, it could have been over 100. I wish that I could tell the family members how much their loss affected my life and my friends lives."*

### **Local reaction to the accident**

The C-5 Galaxy had crashed about 5 miles short of the largest U.S chemical weapons depot in West Germany. During that time period, about 400 tons of chemical weapons were being removed from the depot to be destroyed in the Pacific. A parliamentarian from the opposition West German Social Democratic Party called on the government in Bonn to ban all flights from Ramstein while chemical weapons were being transported in the vicinity. He said 'one dare not think what would have happened' if the plane had crashed a few seconds later, said Rose Goette.



### **After the accident, court case No.95-50091 was filed**

Representatives of eleven of the decedents and one of the survivors filed product liability lawsuits asserting claims based on strict liability, negligence, negligent failure to warn, breach of warranty, and gross negligence in the design, manufacture and marketing of the C-5A aircraft. Case titled: Plaintiff. Olga PEREZ, etc., et al., Plaintiffs-Appellants, v. LOCKHEED CORP. and General Electric Company, Defendants-Appellees

Web reference: <https://caselaw.findlaw.com/us-5th-circuit/1266010.html>

The plaintiffs theorized that the aircraft crashed because of an un-commanded and undetected deployment of the thrust reverser on one of the two engines on the left side of the aircraft. The plaintiffs alleged that this deployment was caused by the defective design and manufacture, or modification, of the electrical system contained in the pylon. Although the plaintiffs' brief characterizes this as "one of the theories of liability" it is the only one mentioned in the record. The electrical system was configured so that the circuit that sends the signals to deploy or retract the thrust reverser, the "enunciator", and the circuit that sends signals back to the cockpit control panel, the "indicator" were grounded by physical attachment to the same ground stud. The plaintiffs believe, but offered no proof that this ground stud failed, causing a single point electrical failure, and simultaneously disabled both the enunciator and indicator circuits, making it impossible for the crew to know that the thrust reverser was deployed. The defendants, on the other hand, contended that the accident was caused by crew inattention. The court case was decided on April 29, 1996 and in summary judgment in favor of defendants, Lockheed and General Electric.

### **Other accidents that destroyed C-5 Galaxy Aircraft**

May 25, 1970 – Aircraft burned at Palmdale, Calif., during a flight test.

Oct. 17, 1970 -- Also burned during a flight test, this time at Marietta, Ga.

Sept. 27, 1974 -- Crashed at Clinton Municipal Airport, Okla.

April 5, 1975 -- Crashed in Saigon, Vietnam, during Operation Babylift.

Aug. 29, 1990 -- Crashed at Ramstein Air Base, during Operation Desert Storm.

April 3, 2006 -- C-5 Galaxy crash at Dover Air Force Base, Del.

## Expedition to the crash site



**Google Earth derived flight path and crash location**

My investigation of this accident began in December 2019. I was newly arrived at Ramstein AB and I had a partial copy of the official accident report along with about a hundred other accident reports that needed to be investigated in Europe. I decided to investigate the C-5 accident because the site was easily accessible. The C-5 official accident report contained a map and other vital information which I compared to Google Earth to determine the precise crash location. The terrain has changed considerably since the accident and all the trees have been cut down and the runway has been lengthened since the 1990s. **Photos of the crash site, then & now compared below.**



On a sunny day in January 2020 I headed out to the location. It was an unusual dry and warm day for the area which is mostly cloudy and raining this time of year. After a short hike to the location, I came upon a small memorial where the official report showed the cockpit section came to rest. The memorial must be for Staff Sgt. Edward E. Sheffield, who was killed in the accident.



**At the site there is a small memorial with a plaque that reads, “IN MEMORY OF OUR BELOVED SON EDDIE JAN 1962 AUG 1990 BRAVO 12.”**

A couple of local German boys about 20 years old were standing near the site. I approached them and luckily one of them spoke good English. They had no knowledge of what the memorial was for and they did not know a plane crashed near the location. I told him that I was there to confirm the location of the C-5 Galaxy that had crashed there almost 30 years ago. I think they must have thought I was crazy or something. I showed them my accident report maps and then walked a few steps into the open field across the pathway from the memorial. No evidence could be seen on the surface of the grass covered ground of anything ever happening in the area. No sooner than I had

placed my metal detector down on the ground, when suddenly I got an immediate “hit”. I recalibrated the detector and tried again and got another “hit” in the same spot. I started digging and within a few minutes, I had dug up a piece of the C-5 Galaxy aircraft.



**Digging in the field where the first artifact was discovered**

The two boys had watched me from the sidelines and they were just dumbfounded when I discovered a piece of the plane and showed it to them. They had never seen a metal detector before and they did not know how it worked. One of them asked if it could also find gold? I explained to them the basics of how it worked and then proceeded to look for more artifacts. I dug up a couple more parts while the boys watched with renewed interest until they then joined me in my quest. One of them helped to dig while the other collected the parts. I believe the ground in the area is still full of various aircraft parts from the accident, because I got hits on my metal detector all over the area. Within 30 minutes we had a small collection of parts and I had confirmed the location of the crash site. I had also discovered my first crash site in Europe and my first crash site in Germany. It was also a bonus to get a couple of local boys involved and interested in the history of the area.



**Artifacts discovered at the crash site**

### **The future of the C-5 Galaxy**

The C-5 Galaxy has recently been re-engineered and modernized to increase efficiency and reliability to the C-5M standard. These improvements include upgrading avionics with an all-glass LCD-equipped cockpit, new F138 commercial engines with increased power, GPS navigation and a ring laser inertial navigation system, an all-weather flight control system, and other improvements. The C-5M “Super Galaxy” is projected to remain in service until at least 2040.