

Voices from an Old Warrior

Why KC-135 Safety Matters



CHRISTOPHER J. B. HOCTOR

Foreword by General Paul Selva

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O'Fallon, IL

highspeedboom@hotmail.com

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Author's disclaimers

Sources can be conflicting, especially initial newspaper reports compared to official information released to the public later. Some names may have a spelling error and I apologize for that. I changed many of the name spellings because I occasionally found more definitive sources written by family members. Still, if you knew the person and provide me any corrections I will make sure they are included in any subsequent publishing. I have found more than one name carved into different monuments spelled differently. But then, that's what this book is all about... we all make mistakes!

The same goes for causes and contributing factors, my experience is taken into account but like any accident investigation, there is and always will be some guess-work. Again, my apologies if it's not exactly right.

The AF accident investigation system, by design, is to protect the personal dignity, feelings, and rights of all involved. To preserve that system and to keep my focus away from technical findings, I did not see or pursue a single official accident report, I did not use any official documents protected by security classification or privileged information. Such knowledge captured herein does not include any information acquired based on access to information through employment with the U.S. government. The research for this book was done through public sources using my personal time and resources.

Having said all that, there may be a significant difference between these findings and official reports, but the purpose here is to show the human element, not technical accuracy. Never-the-less I welcome corrections.

Cover: Air Force photo

Dedicated to Fred Lewis (1958-2013)

*You made your home in the sky,
You made your home... our home!*



Fred was the consummate aviator. He lived and breathed flying, but more importantly he believed the sky belonged to everyone, not an elite few. He devoted most of his life to preserving military aviation heritage so generations could see those historic machines, even fly in them, and to keep the memory of their brave crews alive.

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Every day the call comes in, and every day the men and women of the tanker force respond with valor; delivering goods, fuel, and hope throughout the world. It is a tremendous source of pride for me, and an entire nation. These achievements make leadership in the Air Force a most rewarding responsibility, but sometimes the responsibility comes with a burden that is nearly unbearable.

Tragedy is an unwelcome byproduct of an industry that is unforgiving – whether it be of neglect, error, bad luck, or even heroism. Since 1999 the crews of the tankers have set the high mark for safety; sadly, that long period with no loss of life in KC-135 history ended 3 May 2013 in the skies over Kyrgyzstan. This was a tragedy that struck us all with shock and grief. It is the darkest hour in my time as the commander of Air Mobility Command.

Mr. Hooctor has not only captured many of the facts surrounding the accident history, he also peeks behind the once closed door that was concealing the human element; an unspoken subject in this business. Hooctor provides names of all the victims, something rarely spoken of in a single accident but here gives a voice to all of them. In one accident case he goes even further to bring the reader into the living room with a family that lost a loved one. Opening this door, he hopes to elevate safety consciousness from mechanical to personal.

If knowing history will help prevent repeating it, I encourage you to read this book. It is about your heritage, but also about us, today. Safety is not just about the cost of airplanes and crews for the Air Force, it is about the ultimate cost of freedom for you, me, and our families.


Paul J. Selva
General, USAF

“Learn from the mistakes of others.
You can never live long enough to make them all yourself.”

Julius Henry ‘Groucho’ Marx, 1890-1977

Preface

The idea of writing about all these tragedies has been met with mixed reactions. It is my hopes that those who do not favor it will come to understand that I *am* sensitive to the survivors; it's not to re-open old wounds, nor is it to point fingers at anyone for mistakes. The intention is to raise awareness that we ALL make mistakes, and rather than hide the results I want to capture them; show the impact they had on us, show how important the lessons learned are, help operators think about safety with as much background as possible. I want people to understand the true cost behind flight rules, cautions, and warnings.

One columnist on the subject says it well: “We are all involved in this. The planes that chalk our sky have everything to do with us; we are not just spectators”. He continues in his article about the first KC-135 crash to say, “It happens these planes are the United States’ first line of defense. It is extremely costly. Today we know just how costly”.¹ It is my belief that those that fly them, maintain them, all should know and understand the history of these incidents, the causes, and the sacrifices that were made.

The many dead, the families that lost them, this side of the accident history has a profound impact on everyone, yet never a part of the discussion. While tragedy has silenced these many people, they truly have something to tell us. I am sharing these many names, how young they were, in hopes you HEAR THEIR VOICES as I have. Know them, and the sacrifice they made as we go forward with the lessons they taught us at such a high price.

I selected only 1 accident to share in detail the effect it had on a family. I leave it to you to imagine this happening to 652 families. Still, we cannot know the full magnitude of even one accident if it wasn't our family, our good friend. Nobody should have to experience that, but it's very apparent that we are not ready to deal with an accident and what it does to the community of survivors.

My personal experience in the KC-135 was in the ‘A’ model. Each engine produced a flat rated 12,500 lbs of thrust, if we were using water injection.ⁱ Even with this amazing power the jet would routinely eat up the entire runway for take-off. Crew dogs do not show fear so I emulated my brave fellow crewmembers, but I'm thoroughly convinced, whether aware of it or not every one of us was secretly terrified at certain times. We never really filled the tanks to maximum gross weight for take-off except while they sat on SAC alert. I heard stories about the crews that did it in the past. One crew used the entire runway at Guam, and legend has it that they lost an engine and rolled off the 558 foot cliff at the end of the runway. They reportedly fell 500 feet before they could arrest their descent, depriving the Pacific Ocean of another victim. The ‘joke’ around the alert facility was that if we launched 5 at that weight in a minimum interval takeoff, 3 would make it. It drew a few chuckles, but nobody really thought it was funny. We thank God the Cold War was won without launching the alert force.

When the KC-135 R model was introduced in the 1980s, we found out how ‘un-amazing’ the A model power is. Each R model engine produces 22,500 lbs of thrust, and that was after it was de-ratedⁱⁱ from a possible 34,000 lbs. To the traditional aircraft enthusiast, the R Model looked like a cartoon with those disproportionately large motors squeezed into the space between the wing and the ramp. The accident rate began to diminish as these powerful new

ⁱ During take-off, 670 gallons of de-mineralized water was injected in the engine, allowing a second set of fuel injectors to activate without melting the turbine buckets. The water turns to steam and is ejected out the rear of the engine, increasing the exhaust mass and increasing thrust. The result is a massive black cloud streaming behind the jet. The older model B-52s and the Convair F-102 (combined with afterburner) were the only other planes still employing this technology. This system gave the KC-135 the nickname “The Water Wagon”. People joked about the tanker that ‘burned water’, but the F-102 did it more literally.

ⁱⁱ In initial testing of the R model, the first landing required the test pilot to shut down the outboard engines in order to slow down enough to land. The engineers were sent back to the drawing board and select a lower thrust rating.

engines started replacing the old water wagon. The one 'Warning' they did not print in the dash one: "Do not be fooled by or take comfort in the power of the new engines; physics and the firmament of the Earth are not prejudice to the model".

It should not be overlooked that other things were going on in the -135 world and in the airlines that helped reduce the accident rate, such as changes in policies and training. Even though the current pace of flying rivals the Vietnam era, the valuable lessons learned from these horrific losses is probably the number one reason for the improved safety record. The accident in 2013 was the first loss of life in many years; although statistically inevitable, it had a dreadful impact on the hearts and minds of all they left behind.

This book started out as a research paper for school years ago, and it looked more like a technical manual, so here I present the material in numerous ways from several sources; witnesses, interviews, articles, even wreckage hunter stories, as well as my personal knowledge of the events.

The advertisements are for your amusement. To me, they help frame the concept of how old the plane is, how much the world has changed since they were made...

February, 2014 - Update

The book was released a month ago and went viral, I am delighted how many people took interest in it. A few dozen emails have come in with lots of support, and a handful of corrections. So today this book is being re-posted, and printed for the first time (a very limited run, sorry).

My hypothesis that the human aspect of this topic, and the impact on families, needs further study, is proving to be of wide-spread interest and may have some great value in the future of safety and training.

new Boeing jet tanker to stretch America's Air Arm with mid-air refueling

Almost daily, continuous flights halfway around the World are being made because huge KC-97 tankers must hover for refueling in mid-air. Tankers like the Boeing KC-135 will bring "targets" on faraway Continents within striking distance. The new Boeing KC-135 will haul extra large cargoes because added strength with less weight is possible with metal honeycomb construction. Kawneer is helping build more planes like the KC-135 faster because of excellent metal bonding facilities to produce any kind of honeycomb assembly. Our experience in metal bonding honeycomb will be helpful to you in designing new applications of this material. This is another example of how you can benefit by Kawneer's integrated engineering and manufacturing service.

Kawneer will produce the skins for the KC-135 utilizing honeycomb sandwich construction

Illustrated here is the Boeing 707 Tanker Transport prototype of the new KC-135.

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1955, Subcontractor on Dash 80

Acknowledgements

I wish to acknowledge the valuable and generous help in making this book, especially that of my principle research assistant, retired CMSgt Lee Winter. I was sharing the idea of updating the paper I did on the subject years ago, it was more or less just a list of accidents. He suggested I make it a book and offered to assist. Neither of us anticipated how much work that meant, but he stuck with it on researching some of the hard to find facts.

The most important part of this book required the bravest warrior I have met in the tanker business, Ms Bethann Brackney Toy. It is said when you marry a pilot, you marry the military. After losing her husband in a tanker accident she maintained a warm loyalty to the crews and their mission; keeping up with those friends and to this day honors the -135 and its crews as deserving heroes.

Significant website sources include: The Aviation Safety Network (Flight Safety Foundation) , The Air Refueling Archive which is the work of Mr Titan Miller, indeed a titan fan of air refueling, and B3A - the excellent work of the Bureau of Aircraft Accidents Archives, under the leadership of Mr. Ronan Hubert. Other great sources include NewspaperArchive.com, Ancestry.com, JohnWeeks.com, fas.org, and the Air Force Historical Research Agency at afhra.af.mil.

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- Ray Ruetsch
- Jack Waid, 354FW Historian
- Dr. Richard Warner's articles on the Dyess crash
- John A. Weeks III
- Daniel Williams, 22ARW Historian
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July, 1960

"If you gave us money for jet airplanes, I would buy tankers, not airplanes for MATS ... I think we would increase our combat capability more in that manner."

Gen Curtis E. LeMay
Strategic Air Command

Introduction

Most people underestimate what tankers contribute to the mission. CINC SAC General LeMay did not.ⁱⁱⁱ In the overall 'toolbox' of US war fighting capabilities, tankers don't appear to pose a threat. The current motto at Air Mobility Command is "We Answer the Call of Others...So They May Prevail". This has the hard nailing teeth of a marshmallow, but does illustrate AMC's resolve.^v What is understated is that air mobility is a powerful force projection; tankers are the multiplier.

Another motto, from one of AMC's tanker squadrons, "Always There", is not exactly a battle hardened war cry, but that is part of what makes the tanker one of the most valuable tools in the inventory; Reliability, speed, flexibility, in a package that is, to use another tanker unit motto, 'Second to None'. Reaching this pinnacle has taken 80 years of ideas, experimentation, testing, practice, and improvements. All that effort not only improved air refueling abilities, we could now write our motto: "We project US national policy; statesmanship, commerce, compassion when needed, war when necessary."

But that same effort also required horrific sacrifices in man and machines. KC135s have paid a heavy toll, but with every accident was a thorough investigation, and collectively the lessons learned created an evolution in training, in procedures, in system upgrades, and in risk management. The exhaustive investigations paid off in the form of improved safety records over time, but one cannot ignore the overall record of 77 KC-135's (including variant models) destroyed - about 9.4% of the entire fleet manufactured. This does not include the many that have been permanently grounded for exceeding their serviceability. A staggering 652 people lost their lives in flight or on the ground in C-135 related activity.

This book is meant to show the reader how important it is to think safety, airman safety, at all times when operating in their aircraft. For decades we focused on how costly it is when we damage or destroy an aircraft, we even talk in terms of how much it costs and how long it takes to replace pilots. That is not the real reason for safety, people are. People are at the center of all human effort. But we categorize the severity of an accident in classes where the worst, class A, is defined as greater than \$1 million or the loss of a life. A crash in which 84 died is the same class as an engine shelling out on a C-5. What does this logic serve? It's a cushion, shielding us from thinking of the accident in terms of the real cost, and the real suffering.

Flying with 1% distraction or impairment can be deadly. This is true on any aircraft, but the KC-135 is, as one General pointed out, "older than ME!"^{vi} With the painfully long wait for a replacement comes a higher cost per unit, which will equate to fewer units. The 135 will retire with 6-8 decades of service. It was tragic that there were some

ⁱⁱⁱ The term 'Commander-in-Chief', or 'CINC' (pron. sink) was used by all the commanders of Air Force Major Commands until 24 October 2002. Secretary of Defense Donald H. Rumsfeld directed that the use of "commander-in-chief" would thereafter be reserved for the President only.

^{iv} 'MATS' - Military Air Transport Service, an ancestor of AMC.

^v Author would write this motto with a less passive voice; We answer the call... so others will prevail.

^{vi} Based on the delivery schedule, December 4, 1960 is the date used to measure the 'average age' of the tankers. This is not calculated based on the actual tankers in the active fleet today.

serious improprieties going on that derailed the original KC-767 program in 2002; as this book is being published in Dec of 2013 we would have had 100 new tankers on the ramp.

In the near future the KC-46 will begin rolling off the assembly lines and into the hands of a very happy, very relieved crew force. It is not too early to look back at the early history of the KC-135; in the first 5 years of operational flying we lost 15 aircraft, some of them with less than 500 hours flying time.

Chapter 1 gives us some background on Boeing's highly successful and versatile design, and then Chapter 2 will delineate which of these many designations will be looked at analytically. In the Timeline, Chapter 3 of this book we find the general facts and figures that surround the many mishaps and accidents. Additional Significant Events in Chapter 4 are included to capture those events that could be labeled a 'close call'. This chapter is meant to draw attention to the lesser known activity that adds significantly to the overall inherent hazard involved in the -135 business. Chapter 5 will bring you closer to the crew of a mishap, and gives you a small glimpse into the hearts of those that suffer through the many dark days following the crash.

So the question might be, "With all these accidents, is our policy, training, and modifications enough"? A secondary question might be, "What should we focus on in the future"? In order to examine and answer these questions, Chapters 6 and 7 present Data, Analysis, and those things we did in response to accidents. The author presents his own Conclusions in Chapter 8.



NEW CARGO CHAMP. U. S. Air Force, flying a new Boeing C-135B turbofan cargo-jet, recently established ten new world cargo lift and speed records. These marks, certified by National Aeronautics Association, included lifting 66,000 pounds to altitude of 47,171 feet, and carrying same payload over 1,250-mile closed course at 615.81 miles an hour. This new Boeing jet logistic transport has a cargo capacity of 82,000 pounds, and can haul 126 troops nonstop over the longest intercontinental routes. C-135Bs are used to fulfill the Military Air Transport Service's primary mission of airlifting missiles, cargo and troops worldwide.

Capability has many faces at Boeing



SPACE VEHICLE control systems are tested at Boeing with this satellite attitude control simulator. Optical sensor system controls attitude through reference to light-source simulating starlight. Other Boeing space research involves propulsion, guidance, space vehicles and systems.

MINUTEMAN, right, is U. S. Air Force's solid-fuel ICBM, which will be stored in underground blast-resistant silos ready for immediate launch. Boeing is Minuteman weapon system integrator.



DASH is U. S. Navy's Drone Anti-Submarine Helicopter, designed to operate by remote control from a destroyer. Shown here on unmanned test flight, *DASH*, designed and built by Gyrodyne Company of America, is powered by a 270-hp Boeing T50 gas turbine engine. Boeing gas turbines, designed for reliability and ease maintenance, are used in land, sea and air applications.

BOEING

Boeing bulletin, 1962

The prototype

On a rare, sunny, dry day in Seattle, in May 1954, the prototype was ceremoniously rolled out through the factory doors. It was designated model 367-80 and came to be known as "The Dash Eighty". Dazzling the crowd was this titanic 128 foot long, smooth surfaced, swept wing piece of aeronautical art. Many knew right away; they were looking directly into the future, the jet age for air travel. US Gov't photo.

The DASH EIGHTY!²

On July 15, 1954, the "Jet Age" takes hold in Seattle with the maiden flight of the Dash-80 from Boeing Field. The Dash-80, tail number N70700, is the prototype for the commercial airliner Boeing 707... and the KC-135 jet tanker for the U.S. Air Force, begun by Boeing in 1951. The plane was officially listed as the 367-80 but became widely known as simply the "Dash-80." The commercial airliner variant, marketed under the company model number "707", flew in 1958.



Although preceded into service by Britain's troubled DeHaviland Comet airliner, the 707 was the first jet transport to win broad public and commercial acceptance and thereby ushered in the modern "Jet Age" of airline travel. Boeing derived the design from military plans, but financed development with its own funds in a gamble that literally "bet the company" on future sales. The risk began to pay off with the first aircraft sales a year later, and it established Boeing as the world's leader in jet transport manufacture.

The aircraft itself is both a formidable and, in the opinion of many aviators, an elegant design. Not the first large, swept wing jet, but the lines and proportions have been the template for most airliners since. It is certainly the most enduring design. Many say the aircraft was 'over-engineered'; its ongoing presence after 57 years only lends proof of the enduring design-work and the admiration of the public.

The prototype was developed to meet the demand for a tanker to match the high altitude, high speed, and

high fuel demands of modern bombers. It would also be the prototype for a faster and more comfortable airliner, in a vicious competition with Lockheed, Douglas, Convair, Fairchild and others for aircraft sales.

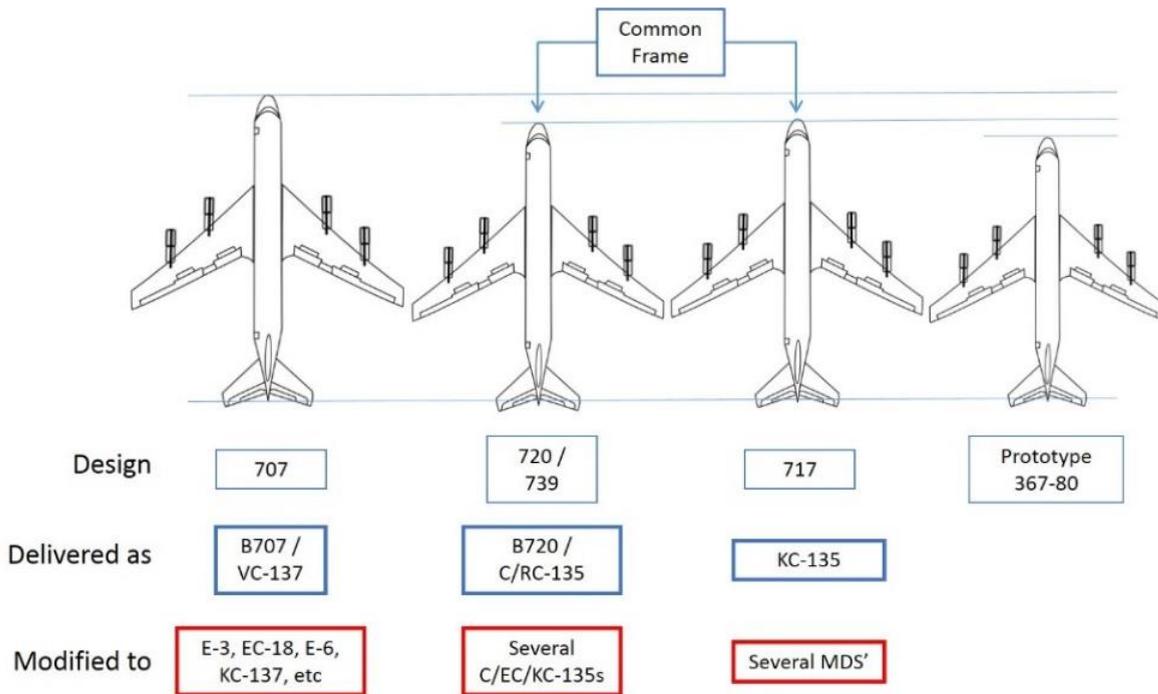
The First -135

Alas, in its final resting place, a proud display, just like that day in July, 1956 when she first rolled out in splendor, as though she knew the history she would write. 'The City of Renton' was emblazoned on the side of the nose, honoring the city of its birth. Tail number 55-3118 is even larger than the prototype, over 136' long. It makes its maiden flight 5 weeks later at the end of August with 'Dix' Loesch and 'Tex' Johnston at the controls. Its first air refueling contact, with a B-52, on 3 Oct 56. AF Photo, courtesy of Justin Pistone.



A handful of the first KC-135s were used in testing before release to the Air Force. Every aircraft could tell a story. The 'City of Renton' was used in several roles before retiring, including 4 years as a KC-135A and NKC-135A test-bed aircraft at Edwards (1957-61), EC-135K Airborne Command Post (sans the A/R boom) at Seymour Johnson, "numerous sorties during Viet Nam coordinating bombing and strike missions with various outfits of the Air Force and Navy",³ served as a VIP transport (although not re-designated) and carried "Secretary of Defense John McNamara, Venezuelan President Romulo Betancourt. In 1963, she flew as a decoy for Air Force One & (the assassinated) President Kennedy, and in 1971 she carried Henry Kissinger to China on his historic mission."⁴ The final assignment was continuing the airborne command post and VIP missions at Tinker, where it was the primary transport for the Commander of ACC.⁵ Today it rests on a pedestal in a departure configuration^{vii} at McConnell AFB (photo prev page).

Commercial designation



The Boeing 7X family, 1959

While this book is about accidents and incidents, it helps to know some background on the designation to clarify which plane we are talking about. The Boeing name of what we know as the KC-135A was called the Model 717. As production of the (820) -135s rolled on, Boeing began building certain -135s on the model 720 design; generally the same airframe, similar wing but has a decambered wing root glove, different system configurations, JT3 fan engines, and were built with different purposes, so you might find an A/C pack where our forward body tank would be in the tanker. The 720 would be the designation if it were delivered to the airline, 739 if it was delivered to the AF. The 739s were all (originally) C/RC-135A. Note: 154 Boeing 720s were built for the airlines, same airframe but never given the military '135' tag, and these are not included in the incidents of this book.^{viii}

USAF tail numbers USAF MDS Boeing model number

55-3118 to 55-3146 KC-135A 717-100A
 56-3591 to 56-3658 KC-135A 717-146

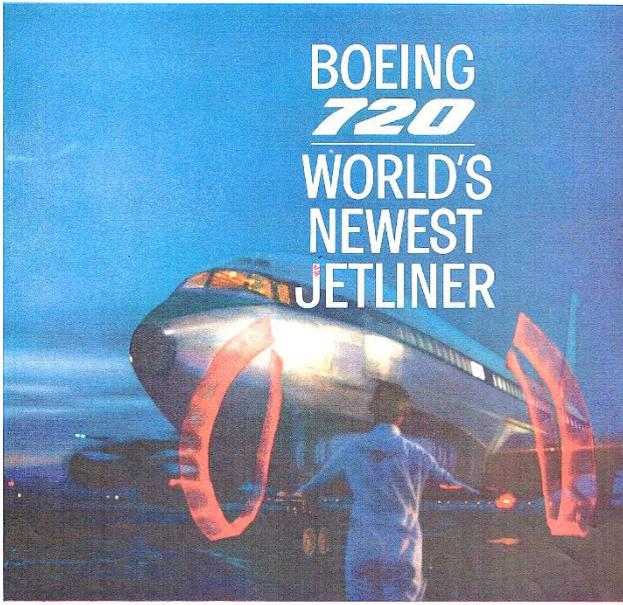
vii Flaps retracted is incorrect for take-off, but it looks cool on the pedestal.

viii Author notes that the first made of the commercial 720s gained fame before retiring as 'The Starship', ferrying the band Led Zeppelin in the 1970s.

57-1418 to 57-1514 KC-135A 717-148
 57-2589 to 57-2609 KC-135A 717-148
 58-0001 to 58-0130 KC-135A 717-148
 59-1443 to 59-1523 KC-135A 717-148
 60-0313 to 60-0368 KC-135A 717-146
 60-0369 to 60-0378 C-135A 717-157
 61-0261 to 61-0325 KC-135A 717-146
 61-0326 to 61-0330 C-135A 717-157
 61-0331 to 61-0332 C-135B 717-158
 62-3497 to 62-3580 KC-135A 717-146
 62-3581 to 62-3585 KC-135B 717-166
 63-7976 to 63-8045 KC-135A 717-146
 63-8046 to 63-8057 KC-135B 717-166
 63-8058 to 63-8061 RC-135A 739-700
 63-8470 to 63-8475 C-135F 717-164
 63-8871 to 63-8888 KC-135A 717-146
 63-9792 RC-135B 739-445B
 63-12735 to 63-12740 C-135F 717-146
 64-14828 to 64-14840 KC-135A 717-146
 64-14841 to 64-14849 RC-135B 739-445B

Adding to the confusion is a controversy created by Boeing, using the designation '717' for the DC-9 aircraft they acquired from McDonnell Douglas, and continued to build in the 1990s. ⁶ They followed this up with "reassigning" the original 367-80, all the 717s, 739s, 720s, and 707s as the '707'.

THE SATELLITE BUSINESS POST



BOEING 720 WORLD'S NEWEST JETLINER

BOEING DIVISION OF THE BOEING COMPANY, SEATTLE, WASHINGTON

It's new, sleek, fast... designed specially to serve cities not now on the jet-travel map, as well as major centers. The pure-jet 720 cruises at more than 600 miles an hour and operates easily from shorter runways. It is the newest jet by Boeing, world's most experienced builder of jetliners. United Air Lines will be the first to put 720s in service. Watch for the introduction of the exciting 720, newest of the jets.




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Twin Coach helps Boeing get them in the air

Sooner

The Boeing KC-119 jet tanker transport is of vital importance in the national defense. The purchase of this airplane—America's first jet transport—was chosen above all others and Boeing KC-119 is the Air Force as rapidly as possible, being ordered the aid of Twin Coach Aircraft Division as a subcontractor for major airplane assemblies.

This important equipment supplies the way from contract into the Twin Coach Aircraft Division. For Twin is staffed with experienced aircraft specialists in design and build testing... with experienced aircraft production personnel... with experienced aircraft supervision and management.

If you have an airplane you're thinking of subcontracting call Twin Coach Aircraft Division. They're so sure in the knowledge that your airplane will be built by aircraft specialists they know where they are in the field to specifications... on schedule... at the lowest possible cost.

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 Seattle, Wash. 98148, Everett, Wash. 98040, North Vancouver, B.C. Canada



Twin Coach Company ad, 1955

Military designation

Since 1956 the -135s were built or modified into more than 60 variations. See a typical identiplate here.⁷

The Dept. of Defense has a protocol to identify its aircraft, part of that is assigning a Mission/Design/Series designation, or 'MDS'. (For a complete list of MDS symbols, see DoD4120.15-L)⁸



Photo from FB, courtesy of Steve David

The Basic Mission: This alpha (letter) character identifies the primary function or capability. It is the first character of the designation separated by a dash.

Design Number: This number identifies major design changes within the same basic mission. It appears to the right of the mission symbol, separated by a dash. Design numbers run consecutively beginning with "1" for each category.

The Series: Another alpha character, this symbol identifies the first production model of a particular design number, and represents major modifications that significantly alter the components or change the logistics support of the aircraft. Series symbols start with "A," and appear to the immediate right of the design number. To avoid confusion, the letters "I" and "O" are not allowed.^{9, ix} In recent times the Air Force has added a 'block' designation, a number that identifies modifications that are considered significant, but not 'major'. A prime example in the KC-135 is upgrades to instrument displays.

Following the MDS' is not easy, consider the following aircraft; 63-8058 through 63-8061 were originally RC-135A 'Pacer Swan' aircraft (Boeing 739). The photomapping program they supported was cut back in 1972, and these planes were transferred to Strategic Air Command (SAC) as transports, re-designated C-135A, and as the air refueling equipment was installed in 1979 they were designated KC-135Ds. In 1990 they were re-engined and upgraded again to KC-135Es (*tankers, but not 717s*).

Do you fly a KC-135R? Are you sure? Because long before we strapped on those monstrous "R" model engines, the KC-135R MDS was applied in July 1967 to the three KC-135A reconnaissance aircraft under the Rivet Stand program. Among them: 58-0126, follow closely now... A KC-135A (boom on) becomes a KC-135R (with J57 engines), turns into an RC-135T (boom off, RC, but not a 739) and is now a KC-135R (boom on, with the CFM56 engines)!

NKC-135A, and variants developed from it:

- 55-3121 short-finned NKC-135A with long dorsal fence antenna.
- 55-3123 for USFA as High Energy Laser (HEL) research program.
- 55-3128 short-finned version with underwing pods, ventral and dorsal antenna fairings.
- 55-3129 a version with winglets added for testing by NASA.
- 55-3132 (Big Crow) research program fitted with large canoe fairings on fuselage.
- 55-3132 short-finned NKC-135 used to flight test SLAR fairing.
- 56-3596 USN & ECM tests: assorted nose and fuselage radomes and underwing pod.
- 55-3134 NKC-135A for celestial navigation research retaining flight refueling boom.
- 60-370 NKC-135A modified for celestial studies and monitoring nuclear explosions.
- 60-376 a version with many small windows/parts for Ionospheric measurement test.
- 61-2669 ASD, Satellite communications test; converted fan- engined C-135B.

ix No longer flying, but one particular model RC-135 was briefly assigned the letter 'O' suffix.

A quick rundown on our EC-135s:

- EC-135A - KC-135A modified for airborne command post role
- EC-135B - C-135B modified with large nose for ARIA mission
- EC-135C - purpose built C-135 variant for command post role, "Looking Glass"
- EC-135E - re-engined EC-135N
- EC-135G - KC-135A modified for airborne command post role
- EC-135H - KC-135A modified for airborne command post role, "Silk Purse"
- EC-135J - KC-135B modified for airborne command post role, "Nightwatch"
- EC-135K - KC-135A modified for deployment control duties
- EC-135L - KC-135A modified for radio relay and am dropout capability "Cover All"
- EC-135N - ARIA aircraft with "Snoopy Nose"
- EC-135J/P - KC-135A modified for command post role, "Blue Eagle" and "Scope Light"
- EC-135Y - NKC-135 reconfigured as C3 aircraft for Commander, USCENTCOM

These represent a few in a myriad of MDS changes, but for a comprehensive guide on the evolution of the -135, an outstanding source is the book, "*Boeing KC-135 Stratotanker, More than Just a Tanker*", by Robert S. Hopkins III, 1997.

There are a great many sources that say how many -135s there are, and a great many different numbers. See the figure in the next chapter where you see these numbers again. Hopefully this answers the mail:

KC-135A Stratotankers (incl 3 KC-135F)	732
KC-135B Stratotankers (SAC)	17
RC-135B (SAC)	10
C-135A Stratolifters (MATS)	15
C-135B Stratolifters (MATS)	30
RC-135A (MATS)	4
C-135F Stratotankers (France)	<u>12</u>
TOTAL	820

Still flying are approximately 454 total; 423 in the U.S.,^x France still has 14, Turkey with 7, Singapore has 4, and 3 in Chile. The RAF has 2 of 3 surplus KC-135s delivered, being retrofitted for reconnaissance platforms. Other similar tankers are built on the 707 frame, called KC-137 or other names.

The 707

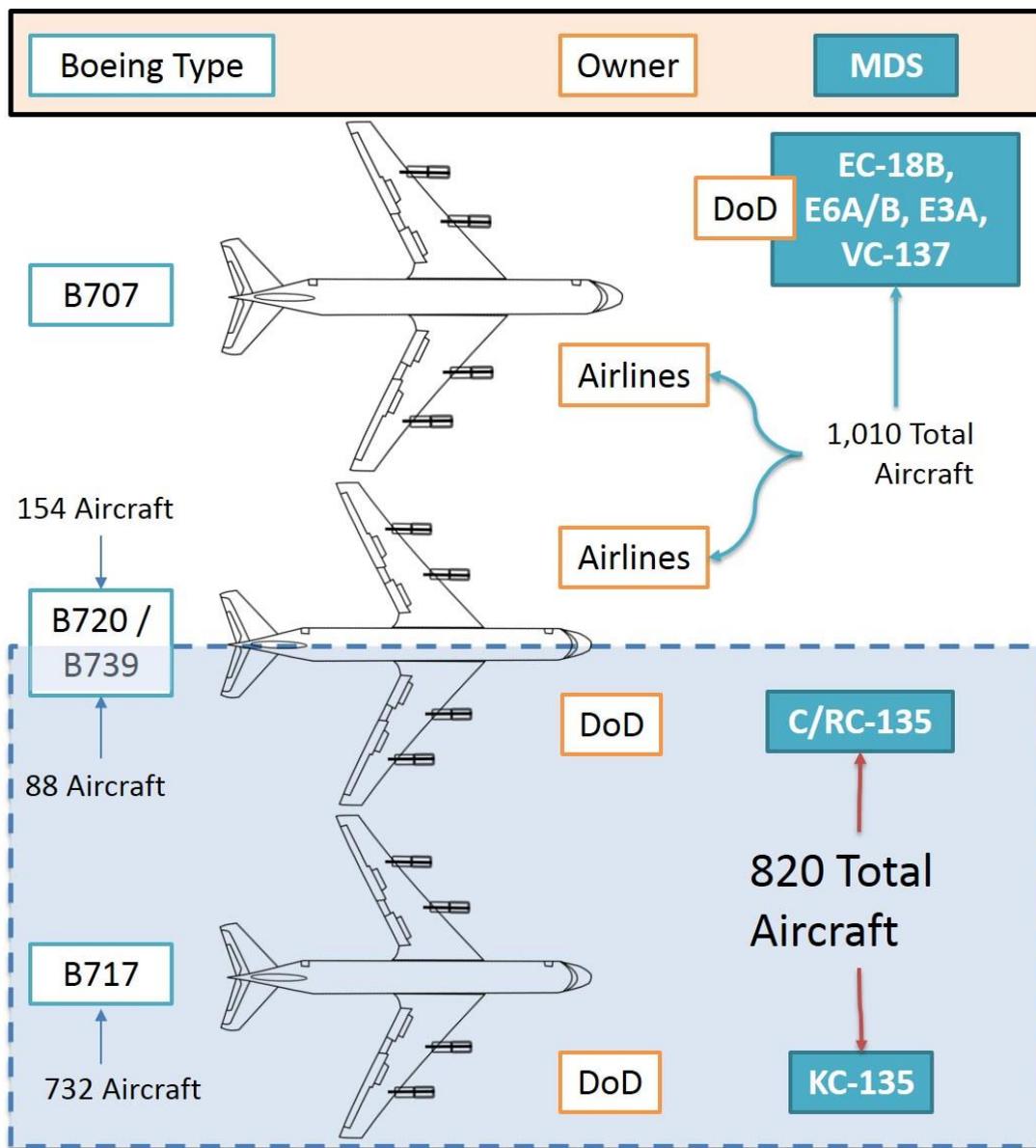
This one is simple: Unless you work at Boeing today (see last paragraph of 'Commercial designation', above) it is not really accurate to call the -135, of any Mission or Series, a variant of the Boeing 707. Many news articles you will see in this book make that mistake. But the following *are* 707s; the VC-137 (President's plane, now retired), the Navy E-6A/B TACAMO, EC-18B ARIA (retired program, now the E-8 Joint STARS), and the E-3A AWACS. The 707 is similar in appearance, but a wider body, and depending on model is between 20 and 200 inches longer.



^x AMC has 397 tankers, there are 22 RC-135s, 2 special purpose test KC-135s, and 2 Open Skies OC-135s.

This book encompasses the aircraft incidents involving 1) loss of life, 2) loss of aircraft 3) loss of the aircraft being refueled. This is strictly involving the (820) -135s built for the military (*found here in the dotted line area in the illustration below, also noted on previous page*). A few other incidents of less damage, but of notable attention are also included. Strictly for the benefit of capturing the risks of this business, the book includes the one Air Force KC-10 loss, and the Omega Air 707 crash, but these are not included in the statistics for the -135.

For each incident this book includes (where available): the date, event description, tail number, call sign, the damage, injuries, names of the crewmembers and all the other known victims that lost lives in these incidents. Where there are estimations of the causes and significant factors that led to the accidents, they are based on publically known factors and not from the official accident investigation reports unless noted otherwise.



Air Force MDS vs. Airline Family

The names of all the Boom Operators had been researched previously for the creation of monuments to them at Scott AFB and at Altus AFB (see photos in appendix). Some of the other names could not be found by the time of this publishing, but will be added to future revisions as they are discovered.

Most of the incidents led to the total loss of the aircraft or significant damage. Two inflight fatalities were not associated with an aircraft crash or system failure.

A word about bases

Even a seasoned veteran of the tanker business may not recognize some of the Air Force Base names here. The 1950s to 1970s Air Force was formidable in size compared to today's lean post-Vietnam and post-Cold War military. In the CONUS alone, SAC has operated out of 93 fixed or extended operational bases; there are now only 59 major Air Force installations in the US. Many of these bases closed, have transferred to other purposes, or the names changed. See appendix for a list of SAC bases.

1956	KC-135	\$3.6 M each
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Die neue Boeing 720 bietet die niedrigsten Sitz/Kilometer-Kosten aller Jetliner

Die neueste Antriebsentwicklung der Welt — die Boeing 720 — auf einem Prototyp. Die Leistung der neuen 720 ist in ihrem Preis/Leistungs-Verhältnis beispiellos. Die Luftverkehrsrevolution des nächsten Jahres ist die Boeing 720.

Die technologisch und wirtschaftlichste Lösung auf dem Luftverkehrsmarkt. Die Boeing 720 ist ein Jetliner, der sich durch seine niedrigen Betriebskosten auszeichnet. Die neue 720 hat eine Reisegeschwindigkeit von mehr als 570 km/h und eine Höchstleistung von 300 Kilowatt. Keine 1400 Stunden auf dem Boden in 100 Stunden im Flug. Keine 1000 Stunden im Flug.

schaffend. Da sie 30 bis 100 Passagiere aufnehmen kann, ist sie der Luftverkehrsrevolution des nächsten Jahres die Art der Lösung.

Die Boeing 720 ist ein Jetliner, der sich durch seine niedrigen Betriebskosten auszeichnet. Die neue 720 hat eine Reisegeschwindigkeit von mehr als 570 km/h und eine Höchstleistung von 300 Kilowatt. Keine 1400 Stunden auf dem Boden in 100 Stunden im Flug.

BOEING 720

Die Boeing 720 ist ein Jetliner, der sich durch seine niedrigen Betriebskosten auszeichnet. Die neue 720 hat eine Reisegeschwindigkeit von mehr als 570 km/h und eine Höchstleistung von 300 Kilowatt. Keine 1400 Stunden auf dem Boden in 100 Stunden im Flug.

“Even a mistake may turn out to be the one thing necessary to a worthwhile achievement.”

(Henry Ford, 1863-1947)

Chapter 3 - Timeline

27 June 1958, 56-3599, Westover, crash on departure

Western Massachusetts in June can have breathtaking weather and scenery. This one, in 1958, was no exception. Operation TOP SAIL was a plan for 4 US Air Force KC-135 tanker planes to launch from Westover and set a world speed record for New York to London (planned landing at RAF Brize Norton). The AF was so sure the record would be broken, they originally named it Operation SURE THING.

Four members of the ill-fated crew of Cocoa, the third of four KC-135s that was to attempt to break a transatlantic speed record, review a map on the flight line at Westover. The tanker behind them may be the one that went down at 12:30 a.m. on June 27, 1958. But there's no way to tell here because the four-digit serial number normally positioned behind the "Milky Way" band is not visible. The KC-135 was supposed to be the third of four taking off that night. The crews were attempting to beat a transatlantic speed record. The lead tanker, call sign "Alfa," and



piloted by aircraft commander Maj. Burl Davenport, did complete the trip to London to break the record, as did the second, "Bravo." SAC ordered the fourth tanker to remain on the ground at the base after the accident. (Photo - San Mateo Times, 1 Apr 1959.)

At 'O-dark-thirty' (1230 a.m.) tanker call sign 'COCOA', was the third plane to depart. After takeoff the airplane apparently stalled. It skidded across the Massachusetts Turnpike and disintegrated in flames.

Almost forgotten amidst the tragic news was the fact that Alpha and Bravo both achieved the record-breaking flight to England. At just under 5 and a half hours the average speed was 630.02 m.p.h. A sad Air Force Chief of Staff Tommy White said, referring to the newsmen who died: "We share

with them the conquest of time and space. They share with us the dangers of that conquest ... The men who observe and report the achievements of science and skill ... are partners in these achievements. They are also partners in the sacrifices that are sometimes the price of progress."

Aircraft Commander Broutsas, a 5,000-hour flying veteran and one of the most experienced of all KC-135 pilots, got his take-off clearance from Westover Tower at 12:30. The plane accelerated down the runway and lifted off exactly where everyone anticipated. Just beyond the field's edge, the right wing dipped; men on the ground saw it go down slowly, then sharply, in what seemed a power failure. The right wing dug into the ground as the left wing caught some high tension wires 70 ft. above the ground. The plane cartwheeled, slid through fields, bounced across the Massachusetts Turnpike, and exploded. Everyone on board died instantly. Of all Air Force disasters to that date, the crash of the KC-135 puzzled investigators most.

Ultimately the crash was attributed to the use of 40 degrees of flaps on take-off for which there was no tech data. Pilots all understand that the trade-off between lift and drag must be considered. The more thrust available, the

more we can overcome the drag factor (and the more dependent we are on the reliability of all four engines). The recommended flap setting for a heavyweight take-off at that time was 30 degrees. Subsequent tests showed that 40 degrees of flaps created more drag than lift which is why the aircraft could not sustain flight.¹⁰



Photo: West Point AOG

Among those on board was 57th Air Division Commander, Brigadier General Donald Saunders. Brig Gen Saunders is the namesake of the Saunders Trophy. Since 1960 this trophy is awarded to the tanker unit attaining the most points on all competition missions during SACs annual Bomb/Nav competition. It is still awarded now for the best KC-135 wing (or equivalent) in AMCs Rodeo competition.¹¹

In speculating, this accident and a number of others could also be attributed to lack of experience in the KC-135. The wing at Westover just started taking delivery of the new jets in the fall prior to this event. All the crews had been trained inside of the previous 10 months; there were no 'old heads' with lots of KC-135 experience. Compounding the lack of 135 flying experience could be a new and insufficient training program. In addition, although not noted anywhere, if the General was in the seat and the flap setting was wrong, they may have said nothing because of his experience and rank. This concept is explored further in chapter 7.

All 15 aboard died, there were no survivors.

Crew killed:

A/C: (99 ARS Commander): Lt Col George M. Broutsas, 39, Brattleboro, VT
Co: 1Lt Joe Carlton Sweet, 26, Chandler, AZ
Nav: Capt James E. Shipman, 35, Kansas City
BO: MSgt Donald Haydon Gabbard, 37, San Bruno, CA
3rd Pilot: Capt John Bennett Gordon, Jr, 29, Raleigh, NC
Crew Chief: TSgt Joseph G. Hutter

Also killed:

Brig. Gen. Donald W. Saunders, 45, commander of the 57th Air Division

8 Civilians killed:¹²

William J. Cochran, 36, and William R. Enyart, 57, were observers from the National Aeronautic Association

From US News and World Report, A. Robert Ginsburgh, 63 (a retired Brig Gen) and Glen Williams, 41

TIME-LIFE Washington Bureau Chief, James L. McConaughy Jr, 42

Veteran of the Boston Traveler aviation writer, Robert B. Sibley, 57

UPI Foreign Affairs writer Norman J. Montellier, 37

AP correspondent Daniel J. Coughlin Jr, 31



NEWSMEN BOARDING FLIGHT "COCOON"
Partners in the sacrifice.

Associated Press

25 November 1958, 56-3598, Loring, crash during touch and go



L to R: Unknown, Capt Morgan, Unknown, Capt HJ Dosenbach, Unknown

Capt Morgan and Capt Dosenbach were the two Standardization Board crew members on this crew. The crew member on the right is believed to be TSgt Holsclaw. Photo courtesy of Jim Dosenbach.

Only 11 months earlier this tanker made its first flight from the factory. On the 25th of November 1958 the 42nd ARS crew took off from Loring AFB at 04:45 in the morning for a training flight.¹³

The airplane was performing a touch and go at 7:30 a.m. when the #4 engine failed, the right wing dipped contacting the runway, and the airplane was destroyed in the crash. It struck 100 yards from the spot where a B-47 crashed 3 days earlier. 5 of 7 on board killed.

“The airplane experienced an engine failure during moderate crosswinds which led to a loss of controllability. The impact site was near the wreckage of B-47B, 51-2199 which had crashed 3 days prior. The airplane was brand new (only about 150 hours of flying time) and well designed. Doing touch-and-go landings is not inherently dangerous. During the 1950s, however, jet engine technology was poor and engine failures in all types of airplanes was relatively common. For the KC-135, there were some flight regimes where loss of one engine created a very dangerous situation.”¹⁴

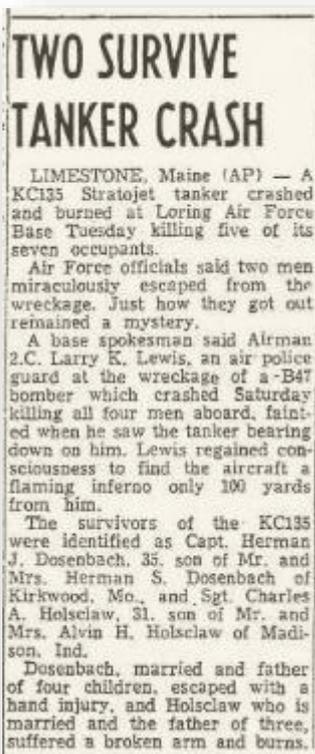
Injuries: 5 die, 2 survivors

Crew killed:

A/C: Capt Bernard E. Morgan, 40, Hope, KS
A/C: Capt John Peter Eifolla, 41, River Grove, IL
Co: 1Lt Donald Gladdings, 29, Mattawan, NJ
Nav: Maj John B. Brown, 39, San Benito, TX
BO: TSgt Ronald L. Champion, 26, Eau Claire, WI

Survivors:

IN: Capt Herman Joseph Dosenbach, 35, Missouri
IB: TSgt Charles A. Holsclaw, 31, Madison, IL



Jeff City Daily Capital News Nov 26, 1958

31 March 1959, 58-0002, Bergstrom 135 crash at Killeen, TX

This Bergstrom tanker was on a routine B-52 refueling mission with a navigation training leg (nav leg) to follow. Just after the nav leg the airplane entered a thunderstorm. Violent turbulence caused 2 engines to separate, one of the engines struck the tail. The airplane exploded at some point possibly by lightning strike, and crashed on a wooded hillside about 9 miles from Killeen, TX. The aircraft had just 50 hours flying time. All 4 on board perished.

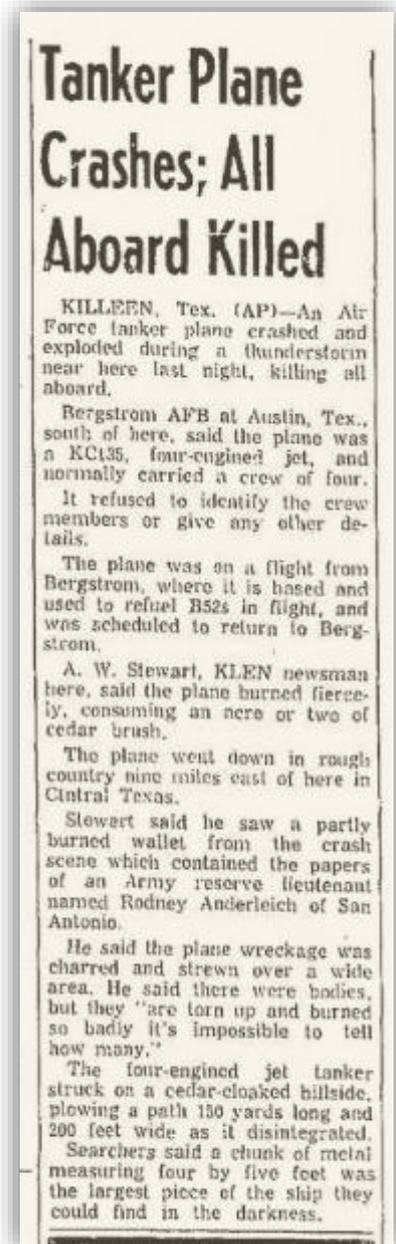
Crew killed:

A/C: Maj Jesse Lee Myrick, 40, Wichita Falls, TX
Co: 1Lt Rodney Anderlitch, 25, San Antonio, TX
Nav: 1Lt Phillip Camillo De Bonis, 25, Newark, NJ
BO: TSgt Herman Allison Clark, 45, Tampa, FL

Big Springs Daily Herald 1 Apr 59

22 June 1959, 57-1446, Roswell-Walker NKC-135 fire on ground

During routine ground maintenance a Roswell-Walker AFB, NM, KC-135A exploded in the hangar. It was suspected that a spark detonated fuel vapors. There were no reported injuries, but the aircraft and the hangar were destroyed. One source cites improperly grounded aerospace support equipment.



15 October 1959, 57-1513, Columbus, mid-air collision, Hardinsberg

A USAF B-52F, 57-0036, on an Operation Steeltrap^{xi} mission, collided with KC-135A Stratotanker from Columbus AFB, over Hardinsberg, Kentucky. The bomber was reported to have been at 260-270 knots indicated, and when reaching the tanker they believed it to be going too slow and requested the tanker slow down. In response, the tanker crew cracked open the speed brakes. While closing unexpectedly fast, the bomber initiated a descent at 500 fpm and right bank. The bomber pilot lost visual on the tanker before collision but said it was moving away to the left. An eyewitness reported the tanker fuselage broke in two just forward of the wing after collision. The B-52 crashed killing four of eight crew, all four tanker crew perished. The bomber was carrying two nuclear weapons on board. One bomb partially burned in fire, but both were recovered. Both aircraft were from Columbus AFB, Mississippi.¹⁵



UPI Headline

Crew killed:

A/C: Maj Robert Henry Imhoff, 44, Owosso, MI
Co: 1Lt William E. Epling, 26, Lake City, FL
Nav: 1Lt Harold E. Helmick, 25, Morgantown, WV
BO: SSgt Paul E. Thomasson, 27, Lancaster, SC

Imhoff, Epling, and Helmick, were found in the forward fuselage section. SSgt Thomasson was found short of KC-135 main impact point.¹⁶

Bomber crew killed:

Co: 1Lt Donald Arger, 27, Chicago
Nav: 1Lt John W. Mosby, 28, Petersburg, IN
IN: Capt Lyle Burgess, 31, Winamac, IN
Gunner: TSgt Howard Lloyd Nelms, 27, Fort Worth

Survivors from bomber:

A/C: Capt William G. Gusthall, 35, Elizabethtown, PA
Radar Nav: Capt James W. Strother, 40, Pineville, LA
EW: 1Lt Geno Fugazzi, 24, NYC
IP: Maj Milton E. Chatham, 38, Ennis, TX

^{xi} Operation Steeltrap, later called Chrome Dome, was SAC's 24/7 airborne alert B-52 force. It was later terminated following another A/R incident.

3 February 1960, 56-3628, 57-1449, 57-1457, Roswell, crash/collision

During some high gusty crosswinds, a Roswell AFB KC-135 was at or near rotate speed when the crew lost control and departed the runway



control and departed the runway laterally. The airplane skidded into two other KC-135 tankers (57-1449 and 57-1457) and a hangar, bursting into flames. Magnesium parts in the hangar became saturated with fuel and exploded in the fire. All 5 onboard were killed and 3 people on the ground. All three aircraft were destroyed.

One finding, although not identified as a cause; the Instructor pilot was in the jump seat, although required under those cross-wind conditions to be in the pilot seat by local policy.

Injuries: 9 killed, 2 injured

Crew killed:

Clovis News 4 Feb 60

- IP: Maj William L. Burke, 40, Flint, MI
- A/C: Maj James Francis Kelleher, 41, Geneva, NY (Wright Pat Pilot)
- Co: 1Lt James J. Muller, Woodbury, NJ
- Nav: Maj James W. McCormick, Homer City, PA (from Wright Pat)
- BO: SSgt George William Short, 25, Belle Gardens, CA (Wright Pat Boom)

Also killed:¹⁸

TSgt Robert E. McCallister, Columbia, MO, killed when acft struck his car

Killed in the hangar:

- A1C Raymond Brooks, fuels specialist
- A2C Charles Floyd Strong, 22, fuels specialist
- TSgt Carlton Price, 38, Garfield, GA (died 17 March from the severe burns)

Other known injuries:

- Capt Robert Rhodes, cuts on head
- A3C Charles R. Trunman, burning fuel vapor inhalation.

1960	KC-135	\$5 M each
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8 March 1960, 57-1466, Carswell crash, short of runway

FORT WORTH, Tex. (AP) — Seven men escaped death as an Air Force jet tanker sliced off a power pole, unroofed a small building and crashed in thick fog Tuesday night.

The craft, a KC135, struck with a heavy roar 500 feet off the south end of the main runway at Carswell Air Force Base, where it was assigned to the 7th Air Refueling Squadron. It was one of the planes used by the Strategic Air Command for speedy in-flight fueling of the U.S. global bomber fleet.

Two men suffered burns and two others broken ankles. Base hospital attendants dismissed the other three after checkups.

Groping toward the field in zero visibility, the plane struck at 11:23 p.m. after taking the top off a state highway department warehouse. Texas Electric Service Co. troubleshooters timed the crash from a flash on a control panel for spotting cable breaks.

Lights went off in the River Oaks district, a residential area occupied by many servicemen opposite Carswell on Fort Worth's northwest side. Service was restored to most houses in a few minutes.

Listed as injured were Maj. William A. Krouse and Capt. Charles A. Forbes, the copilot, both with burns; and Maj. Raymond A. Yahr and Sgt. Robert C. Newman, boom operator, both with broken ankles.

Others aboard were Capt. Everett Caudell, the pilot; Lt. James B. Lewis, navigator, and Lt. Col. Kenneth N. Morese, flight surgeon.

A Fort Worth-Carswell AFB KC-135 was returning home when it descended below the glide slope in thick fog. Although the GCA advised they climb, the pilot flying saw visual cues through the fog mistaking them for approach lights. It struck the roof of a state highway department warehouse and hit a power pole. It crashed short of the runway and caught fire, destroying the aircraft. The 7 occupants escaped.

Injuries: 2 are injured with burns, 2 with broken ankles¹⁹

Crew:

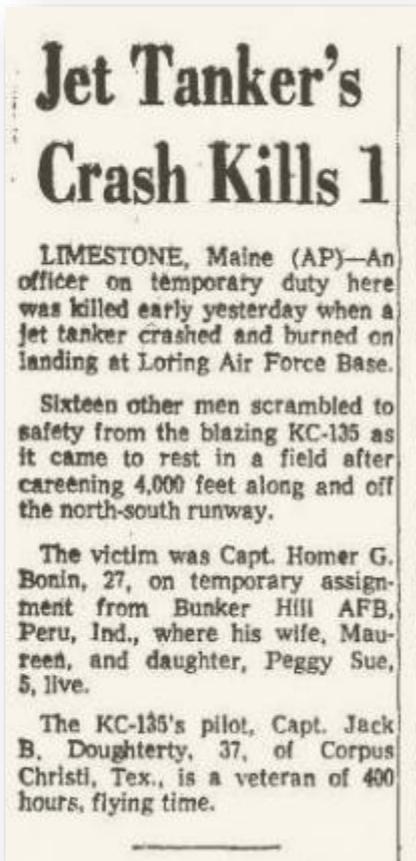
A/C: Capt Everett Caudell
Maj William A. Krouse
Co: Capt Charles A. Forbes
Maj Raymond A. Yahr
Nav: Lt James B. Lewis
BO: Sgt Robert C. Newman
Flt Surgeon: Lt Col Kenneth N. Morese



Salina Journal March 9, 1960

Photo AF Historical Research Agency

18 November 1960, 56-3605, hard landing at Loring, structural failure



A Loring AFB, 42nd ARS, KC-135 was attempting a landing, failed to flare early enough to prevent the nose gear from contacting the runway first. Aircraft was descending at a high rate, and controls were sluggish. The nose gear first impact caused the nose gear to collapse, shear off from the shock and pressure, and punctured the forward body fuel tank. The plane slid 4,000 feet and came to a stop on the runway, 16 of 17 occupants were able to escape the burning fuselage, 1 fatality. Sluggish controls may be an indicator that the aircraft was going too slow on this approach.^{20, 21}

Injuries: 2 hospitalized, 1 killed

Crewmember killed:

Capt Homer George Bonin, 27, Sturbridge, MA, (TDY from Bunker Hill AFB, IN.)

Crew:

A/C: Capt Jack B. Dougherty, 37, Corpus Christi, TX

Co: Capt Henry M. Enterline

Nav: Capt Lonnie Nelms Jr, Oxford, NC (burn injuries)

BO: SSgt James L. Mitchell

BO: MSgt Lloyd J. Estes, 38, Lenoir, NC (burn injuries)

Phoenix Arizona Republic

Passengers: Maj William R. Wilson, Jr, 39, Crisfield, MD (son-in-law of MD Governor), TSgt Fred H. Patton Jr, 29, Edinburgh, VA, Capt Thomas Luparello, 29, Drexel Hill, PA, Maj Bert S. Sanborn, Maj Stanley R. Potts, 2Lt Arthur G. Elser, TSgt Marvin R. Baker, SSgt Bennie J. Ashworth, TSgt William L. Hoots, MSgt Paul Chitwood, SSgt Francis S. Whitbeck



Fergus Falls, MN Daily Journal



A Larson AFB B-52 (55-0098), call sign SMITE 15, approached the tanker (SHORE 11) at an excessive rate. When the range had closed to 1/4 mile closure rate was determined to be excessive. Captain Campbell pulled the throttles to prevent an overrun. He was not successful. The B-52 collided with the KC-135 from behind. It would appear, after examining the report photos, that the B-52 hit the flying boom and possibly the lower rear fuselage of the KC-135 with its right wing.²²

On board Shore 11, the boom operator established visual contact with Smite 15 at 1/2 mile. At 1/4 mile Smite 15 climbed out of the boom operator's field of vision. He cautioned Smite 15 to slow closure rate. The next visual contact the boom operator had was immediately prior to impact.

When the bomber contacted the Fairchild tanker it crushed the stowed boom against the fuselage, damaging fuselage skin and stringers. About 5 feet of the crushed boom remained attached to the tanker, the remaining broke free striking the bomber, damaging the fuselage, the wing root and center wing tank.

After separation and damage assessment, Smite 15 was considered to be airworthy and the crew immediately set course for Larson. Descent, approach, and landing were normal. Near the end of the landing roll, at a speed of about 20 knots, disaster struck. The right wing separated from the aircraft in the vicinity of the damaged area. This separation provided fuel and ignition sources for the fire that subsequently destroyed the aircraft. All personnel successfully evacuated the

Findlay Republican Courier bomber, though some injuries were suffered.

Shore 11 had begun its return to McChord AFB when the crew was instructed to land at Fairchild AFB. A T-33 was scrambled to do an inflight damaged assessment. Approach and landing were made without incident. All men aboard Shore 11 were uninjured by the escapade. One finding, not a cause, was that procedures for eye testing and prescribing is inadequate.

Injuries: 3 minor, 2 major injuries on bomber, remainder and tanker crew unharmed

Tanker crew:

- IP: Capt Warren H. Williams
- Pilot: Capt Charles L. Beuechele
- Pilot: 1st Lieutenant Eugene A. J. Hendricks
- IN: Capt Jack W. R. Peters

Nav: 1st Lt John L. Hall
IB: TSgt Charles E. Cade
BO: SSgt Martin W. Gunder

Bomber crew:

Pilot: Capt Clifford L. Ponsness
Radar: Major Leonard Carmell
EW: Major David A. Eum (major injury)
Nav: Capt Glenn M. Bird
IP: Capt Thomas J. Campbell
Gunner: MSgt Henry W. Olschner (injured)

Extra crew on bomber:

Major Wayne D. Waller
IN: 1st Lt Basil L. Ciriello
Nav: Capt Robert W. Covarrubials
Pilot: Capt William C. Lane

25 January 1962, Altus, 56-3657, explosion/fire on the ground

During a maintenance crew engine start after replacing the fuel-air starter, an Altus AFB KC-135 number 4 engine exploded. The crew quickly ran the engine fire checklist, and abandoned the aircraft safely. Fuel leaked from the explosion and the aircraft was destroyed by the fire that followed. No injuries were reported.²³

Ardmore Daily Ardmoreite



1 Mar 1962, U-2 crash behind tanker

A Lockheed U-2F, 56-6677, originally delivered to the CIA as a U-2A, crashes near Edwards Air Force Base, California, during aerial refueling training, killing the pilot, Capt John A. Campbell, 39, of Strategic Air Command. Aircraft entered the wake turbulence behind the tanker, and the wing structures failed. ²⁴

Find Wreckage of Missing U2

EDWARDS AIR FORCE BASE, Calif. (AP) — The wreckage of a U2 "spy" plane containing the body of its pilot was discovered on the Mojave Desert a few miles east of this base Saturday. Killed was Capt. John Campbell, 36, of Blasdell, N. Y. The plane had been missing since Thursday night, when Campbell left Edwards on a two-hour orientation flight. It had been the object of a wide search.

Syracuse Post Standard



Six Die As Jet Burns In Maine

LIMESTONE (AP) — An Air Force KC-135 jet tanker plane carrying six men crashed and burned on takeoff early today at Loring Air Force Base.

Air Force public information officers reported all six bodies were recovered. The tanker normally carries a four-man crew. The fire started by the crash was reported under control.

KC-135 tankers have fuel-carrying capacity of 31,200 pounds or about 15½ tons.

The big plane, which costs \$3.5 million each, came down at 1:20 a. m., EDT, in a wooded area 1,500 feet north of the end of the runway.

The aircraft was attached to
(Continued on Page Nine)

9 May 1962, 56-3618, Loring crash during take-off

A 42nd ARS crew from Loring AFB experienced an engine failure on takeoff roll after the abort speed. Crew was unable to maintain speed or a controlled flight and crashed beyond the end of the runway. All 6 on board killed. Firefighters were not immediately able to reach the scene in the densely wooded area.

Injuries: All 6 on board perish²⁵

Crew killed:²⁶

A/C: Capt Robert M. Predmesky, 31, Detroit

Co: Capt Joseph Stewart, 30, Hamilton, OH

Nav: Capt Ronald Lee Cantrell, 29, Kewanee, IL

BO: SSgt Wallace Ray Adams, 27, Benson, NC

Crew chief: MSgt George T. Edmiston, 34, Golden Bridge, NY

Crew chief: TSgt Raymond J. Brugioni, 43, Granger, IA

Six Die

(Continued from Page One)

the 42nd Air Refueling Squadron at Loring and was on a routine refueling mission.

The rough terrain made it difficult for firefighting equipment to reach the scene, a public information officer said.

Biddeford Journal

8 August 1962, 55-3144, Hanscom Field crash on approach

Flying too low on the approach to Hanscom Field, MA, a KC-135 clipped the tops of trees and telephone poles, it skidded 200 yards across the field and crashed into a massive boulder. The impact with the boulder crushed the cockpit 20 feet back into the fuselage. Even after an hour, the fire fighters were unable to reach the red-hot wreckage. The Castle AFB -135 was on loan to Wright Patterson AFB to be used as a nuclear test support laboratory, and headed to Hanscom for modification of test equipment.

KC135 Flying Tanker Crashes, 3 Airmen Killed

CONCORD, Mass. (UPI) — An Air Force KC135 jet tanker, equipped as a "flying laboratory," crashed and burned Wednesday seconds before it was to land at an air base. All three crewmen aboard were killed.

A veteran pilot said the crash "sounded like an atomic blast."

The Air Force identified the dead as Capt. Clarence Kerr of Beach Grove, Ind., the pilot, Capt. William Lang of New York City, the co-pilot and Airman 1C Norman E. Ford of Monmouth, Ill., the flight engineer.

The \$6 million, four-jet Stratotanker, the military version of the Boeing 707 was, on a flight from Wright-Patterson Air Force Base outside Dayton, Ohio, to Lawrence G. Hanscom Field in Bedford near here.

Authorities at Hanscom cleared the huge plane for landing. A spokesman said the pilot was in radio contact with the control tower almost until the crash. He said everything "seemed normal."

The plane was carrying electronic equipment used to test atmospheric conditions.

Injuries: All 3 on board killed²⁷

Crew killed:

A/C: Capt Clarence E. Kerr, 38, Beach Grove, IN

Co: Capt William Long, Mount Vernon, NY

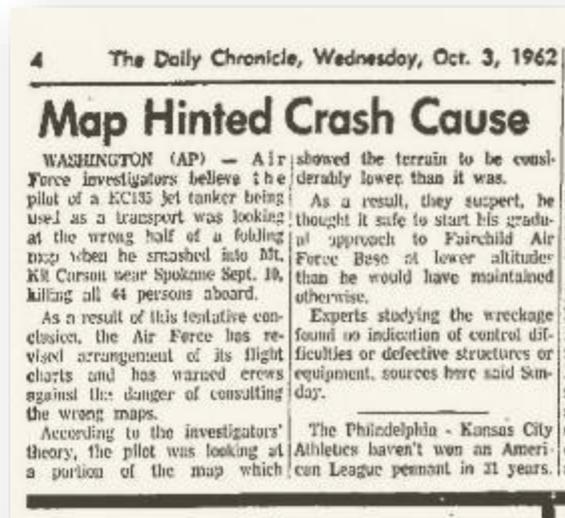
Flight Engineer: A1C Norman Everett Ford, 25, Monmouth, IL

Almost 18 months later the movie "*Dr Strangelove*" was released (Jan 64). At the very beginning of the movie is some stock footage of a KC-135A refueling a B-52. The tanker was this mishap aircraft (55-3144). The comedy/sci-fi movie was not Stanley Kubrick's best work, but became an instant cult classic among the bomber and tanker force.



Dunkirk Evening Observer

10 September 1962, 60-0352, Fairchild crash into mountain



Centralia Daily Chronicle, Centralia, WA, October 3, 1962

The 28th Air Refueling Squadron KC-135A, call sign MOURN 79, returning from Ellsworth Air Force Base in South Dakota with 44 passengers and crew, crashed into Mount Kit Carson (5,282 feet) at the 4,400 foot level, approximately 20 miles northeast of Spokane, while on landing approach to Fairchild Air Force Base. Later that day searchers found the wreckage on the mountainside, scattered throughout a deep ravine. There were no survivors. This was the worst aviation disaster in the history of Spokane County.²⁸

Among the passengers were 38 airmen, one civilian, and a soldier hitching a ride to Fort Wainwright, Alaska. These airmen were B-52 crew and maintenance personnel from the 28th Bomb Wing at Grand Forks. They were TDY to Fairchild while runway repairs were underway at Grand Forks.

Shortly after 4:00 p.m., three volunteers from Spokane, Bert Smith, Irving R. Hammon, and his son

Wayne Hammon, found the plane. As they were driving up a narrow, dirt road that led toward the summit of Mount Kit Carson, the men smelled smoke and stopped in a clearing to investigate. As they climbed down into a steep ravine, the smell of burning gasoline and debris got stronger. Eventually, the men found the crushed remains of the tanker's cockpit and saw three badly burned bodies on the ground. They drove to a telephone and contacted the Spokane County Sheriff's Department to report the discovery, and then waited there for help. The first Air Force rescue crews arrived at the scene at about 6:00 p.m., and were sent into the ravine to search for survivors. The men used a tow rope to climb up and down the steep, muddy hillside.

Before darkness set in, searchers had located 31 bodies. The search continued Tuesday morning and by 2:30 p.m., all 44 victims were accounted for.



Photo courtesy, B3A

The KC-135 plowed a huge swath through the thick forest 250 yards long and 25 yards wide, struck the mountainside, exploded and burned. Trees and branches, broken off by the plane's forward motion, crisscrossed the wreckage. The only recognizable parts of the aircraft were the landing wheels, the cockpit and the tail section. The wings and fuselage had disintegrated into small pieces. Wires, remnants of electronic equipment, personal effects and debris hung in the trees and littered the ground.

Although the details were not disclosed, the Air Force concluded the crash was primarily caused by a navigational error, combined with the adverse flying conditions. The pilot, flying an ILS (instrument landing system)

approach through the overcast, was completing a right turn to effect alignment with Runway 23 at Fairchild AFB and failed to level off at the proper altitude. The aircraft's wheels were down and flaps retracted when the pilot unwittingly flew into the northeast side of the hidden mountainside at an elevation of 4,400 feet. Tragically, the plane was only 10 minutes from landing safely at the air base.²⁹

Injuries: 4 Crew and 40 passengers Killed

Crew killed:

A/C: Capt Frank A. Johnson, 39, Philadelphia, PA
Co: Capt James Franklin Kaser, 29, Lafayette, Indiana
Nav: Capt Robert William Lloyd, 28, Alhambra, CA
BO: TSgt John L. Duncan, South Charleston, West Virginia
BO: TSgt Kenneth Alton Quinn, 33, Manchester, New Hampshire

Others killed:

1Lt David Edward Alexander, 22, Forest Grove, Oregon

A1C Curtis B. Allred, 25, Spanish Fork, Utah

SSgt Wallace E. Asay, 34, Lovell, Wyoming

A1C Willie L. Avery, Sacramento, California

SMSgt Lee Barney, Vienna, Louisiana

Capt Reed Bartlett Jr., 29, Steamboat Springs, Colorado

A1C Ruben Bayton, Brawley, California

A1C Sammy J. Bretz, 25, Poteau, Oklahoma

A1C Gerald Francis Burke, 24, Fort Lauderdale, FL

Capt John J. Critzer, Stuebenville, Ohio

A2C David Dolan, Bremerton, Washington

SSgt Robert K. Evans, Alvin, Texas

1Lt Dale Delbert Gray, 30, Keensburg, Colorado

A3C Robert George Ivey, 18, Portland, Oregon

Capt Stephen F. Karlowitch, Nazareth, Pennsylvania

MSgt Gordon F. Krah, Kenosha, Wisconsin

SSgt Francis William Kuban, 28, Fairfield, Connecticut

A1C Billy G. Lloyd, Walnut Hill, Illinois

SSgt Ray A. Martin, Pontiac, Michigan

A2C John L. Medland, Waterford, Wisconsin

TSgt Donald L. Moon, 33, Coopersville, Michigan

A1C Lauren M. Morey, Harbor Creek, PA

A1C Ervin Paszek, Grenville, South Dakota

Capt Richard Thomas Peckskamp, 32, Fargo, North Dakota

A3C Nicholas Posvenchuck, Chicago, Illinois

A1C Lynwood P. Raby, 25, Lansing, Michigan

A1C John Russell Rackley, 21, Willard, North Carolina

Russell William Read, 32, Shelbyville IN, AC Spark Plug Div., General Motors

Capt Verle H. Rusk, Decatur, Illinois

SSgt Leroy F. Seng, Pittsburgh, Pennsylvania

A2C Samuel H. Shields, 19, Elizabethton, Texas

A1C Douglas E. Sutton, Portland, Oregon

A1C Roger E. Tatum, Waldo, Arkansas

A2C Martin Thrush, 20, Perrington, Michigan

1Lt Gray E. Tillman, Columbus, Georgia

A1C Myron T. Umscheid, Emmetsburg, Iowa

PFC Joseph Walker, US Army, Kansas City, MO

TSgt Leamon Davis Wood, 33, Fort Worth, Texas

Capt Bobby Ross Wright, 31, Oxnard, California

23 October 1962, 62-4136, Guantanamo crash

A USAF Boeing C-135B Stratolifter of the 18th Air Transportation Squadron, Military Air Transport Service, was delivering a load of ammunition from McGuire AFB, New Jersey, to Guantanamo Bay Naval Base, Cuba. This was in direct support of the military response to the Cuban Missile Crisis. The aircraft stalled and crashed short of the runway, killing all seven crew. This was the first cargo C-135 hull loss.

*The Elkhart Truth, 21 Oct 2012:*³⁰

ELKHART — On the brink of a nuclear disaster on Oct. 23, 1962, a C135 Stratolifter jet carrying more than 75,000 pounds of fuel and 31,200 pounds of class A explosives left from Charleston AFB, SC, with Guantanamo Bay as its destination.

It was the same day U.S. President John F. Kennedy signed a proclamation authorizing the naval quarantine of Cuba. A day earlier the president had told the country the Soviet Union was building missile bases on Cuban territory.

Because of the quarantine, U.S. planes were prohibited from flying over Cuban territory, and in a last-minute readjustment of paths, the plane that departed from Charleston with seven men on board was ordered to make two 90 degree turns to land on the Guantanamo Bay U.S. Base. Officials at McGuire Air Force Base in N.J. had reported the landing approach was steep and difficult.

The plane crashed on the ground at Leeward Point Field, killing all men on board, including 1st Lt. Jack Douberteen, 24, of Elkhart.

"They had to make two sharp turns and the plane was heavy," said Bill Riblet, who was a close friend of Douberteen.

Riblet and Douberteen graduated from Elkhart High School in 1956. Douberteen went to Indiana University and graduated in 1960. During college, Douberteen enlisted to the ROTC and after he graduated he was sent to McGuire Air Force Base in N.J.

He enjoyed doing his service for the Air Force, Riblet said.

"He did, absolutely."

Douberteen was an only child, and was president of the class of 1956. His family lived on East Jackson Boulevard in Elkhart. Two months before the accident, Douberteen was the best man at Riblet's wedding.

Riblet served at a U.S. Marine Corps. Infantry company in Camp Lejune, and for two months, between March and May, he went to Guantanamo Bay as extra security along the fence line of the U.S. base. Riblet ended his service in August of 1962, before his wedding.

The other men on the plane who died Oct. 23 were Capt James Bailey, of Lexington, Tenn.; Capt. John Baird, of Fall Brook, Calif.; Cat. Edward Connard, of Milton, Del.; 1st Lt. Hahl Hogge, of Nampa, Idaho; T. Sgt Lester Elliott, of Duenweg, Mo.; and S. Sgt Booker Rigsby, of Kingston, N.C. Douberteen was the co-pilot in the plane when the accident happened.

"He was a great friend, he was very popular," said Riblet. "An outstanding person."

In a letter, Riblet wrote Douberteen's "memory has never been forgotten by the many close friends and Elkhart High School classmates in the 1950s."

Injuries: Crew of 7 killed:

A/C: Capt James Fred Bailey, 33, Lexington, TN
Co: 1st Lt. Jack Douberteen, 24, of Elkhart, IN
Capt John Baird, 26, Fall Brook, CA
Capt Edward James Connard, 29, Milton, DE
1st Lt. Hal Pixton Hogge, 26, Nampa, ID
TSgt Lester Elliott, 32, Duenweg, MO
SSgt Booker Thomas Rigsby, 26, Kingston, NC

27 February 1963, 56-3597, Eielson, crash during t.o.

A Castle AFB KC-135 deployed to Eielson AFB, was taking off to conduct a Chrome Dome refueling mission. The airplane lost an engine on takeoff, veered to the left and crashed. All 8 on board killed. Before crashing, an explosion directly overhead rained debris on a guard house, killing the gate guard and a pedestrian nearby. The gate was subsequently named after the gate guard A2C Hursey.

Injuries: 9 killed (7 crew, 2 on ground)

Crew killed:

A/C: Maj John C. Harris, 41, Dallas, TX
Co: Capt John J. Weatherwax, Jr. 29, Oak Lawn, IL
Nav: Capt Richard H. Hess, 31, Chicago
BO: TSgt Daniel C. Cameron, 30, Washington, DC
TSgt Harold W. Butler, Jackson, OH
Crew Chief: A1C Ronald W. Hiley, 26, Beaver Dam, WI
A3C Douglas L. Pettner, Lynwood, CA

Killed on ground:

A2C Martin C. Jones
Gate Guard, A2C Roy L. Hursey, Star, NC



*Eielson Times, Eielson AFB, AK, 6 Mar 1963,
courtesy of Jack Waid*

3 May 1963, 135 and B-47E collide Yellowstone area

B-47 crashes after air collision

ASHTON, Idaho (UPI) — An aerial search started at dawn today for an Air Force B-47 bomber lost Friday night in a collision with a tanker over the wild and rugged Idaho-Wyoming border.

The Air Force at Mountain Home AFB, Idaho, said the bomber apparently went down about 20 miles northeast of here. This would position the crash scene in the Idaho portion of Yellowstone National Park.

The KC135 tanker sustained wing damage but managed to limp to the Mountain Home base for a safe landing.

A sighting of the missing B47 had not been made. Its position was estimated by members of the tanker crew. Four crewmen were aboard the bomber.

The Air Force said the collision occurred about 6:45 p.m. as the aircraft engaged in an aerial refueling drill. The pilot of the tanker radioed a Federal Aviation Agency tower that the B47 had gone into a "flat spin" and disappeared into a cloud bank.

Idaho and Wyoming law enforcement personnel were attempting to make their way to the scene. Sheriff's deputies at St. Anthony, Idaho, said the Forest Service roads in the vicinity were snow clogged and snowcats probably would have to be used.

An Air Force rescue unit was alerted at Mountain Home, and the Air Force said it would be dispatched as soon as a sighting was made.

There was no indication what

The receiver was having trouble closing during rendezvous, requested tanker to slow down a little. The tanker pilot responded by momentarily applying the speed brakes. The boom operator lost visual as the receiver passed below them. Tanker copilot observed bomber appear under the right wing, just before striking. Bomber lost controlled flight and went into a flat spin before crashing into remote sight at 10,000' elevation. 3 men were killed in the B-47, 1 safely ejected. The KC-135 sustained extensive wing damage but landed safely, aircraft restored to service.³¹

B-47E, 52-0051 (Mountain Home AFB) bomber crew names:³²

A/C: Capt Frank G. Zumbra
Co: Capt Bruce A. Chapman (ejected, only survivor)
Nav: Capt Loren R. Matthews
Eng: SSgt Lawrence E. Harrison

Tanker Crew:

A/C: Capt G. F. Frazier, 34, Winfield, WV
Co: Capt Gary E. Spohen, 31, Yakima, WA
Nav: Capt Clarence M. Garrett, 28, Winton, CA
BO: TSgt Robert D. Miller, 32, Brook, IN

Passenger: Maj Frank Santore, 41, Philadelphia, PA

There was no indication what caused the crash. The Air Force said an investigation was underway. The FAA said the collision occurred between 24,000 and 29,000 feet. The bomber was assigned to the Mountain Home base, the KC135 to Larsen AFB, Wash.

Bomber crew members were identified as Capt. Frank G. Zumbra, 32, the pilot; Capt. Bruce A. Chapman, 33, the co-pilot; 1st Lt. Lorin B. Matthews, 30; and the crew chief, S-Sgt. Lawrence E. Harrison, 35.

The tanker was assigned to Larsen AFB, Wash. The B47 was assigned to Mountain Home AFB. None of the tanker crew was injured.

Officials at Larsen AFB said the KC135 was piloted by Capt. G.F. Frazier, 34, Winfield, W. Va. Other crew members included co-pilot, Capt. Gary E. Spohen, 31, Yakima, Wash.; navigator, Capt. Clarence M. Garrett, 28, Winton, Calif.; boom operator, T-Sgt. Robert D. Miller, 32, Brook, Ind., and a passenger, Maj. Frank Santore, 41, Philadelphia, Pa.

*Redlands Daily Facts,
Redlands, CA, 4 May 1963*

21 June 1963, 57-1498, Westover crash on approach

At 1:00 a.m. after a night refueling mission, a Westover KC-135 was flying too low on a published approach in weather, they struck a large hill/wooded area in the town of Granby, about 3 miles from the base. 3 of the crew suffered minor injuries, the boom operator died in the crash.

Crew:

A/C: Maj Harold P. Farr, 45, Tunkhannock, PA
Co: 1Lt William O. West, 26, Oklahoma City
Nav: Maj Jerome A. School, 38, Brillion, WI

Crew killed:

BO: MSgt Daniel F. Donahue, 32, Rye, NY

28 August 1963, 61-0319 and 61-0322, Homestead -135s disappear

By 2002 the military lost approximately 40 aircraft,^{xii} and about 52 commercial/private aircraft have been lost in what is called the "Bermuda Triangle". This incident was not the first loss of a large modern aircraft to the Triangle. It was 2 years earlier a B-52 was lost in the triangle, and 1 year earlier a KB-50 disappeared.

On 28 August 1963, two KC-135 Stratotankers assigned to the 19th Bomb Wing (then at Homestead AFB, FL), completed their scheduled 'Reflex'³³ air refueling with B-47s from Schilling AFB, Kansas (both of which landed safely) when contact with them was lost. It is believed they were conducting navigation exercises when both disappeared over the Atlantic between Bermuda and Nassau, all eleven crew aboard the two jets were lost. Debris and oil slicks were found ~750 miles ENE of Miami, Florida. The search was suspended Monday night, 2 September 1963, when wreckage recovered by the Air Rescue Service, and the Coast Guard cutter Owasco,³⁴ is positively identified as being from the missing tankers.

Injuries: All 11 crew killed

Crew killed:

A/C: Capt Donald G. Edson, 30
A/C: Capt Richard A. Larson, 34, Minneapolis
Capt Allan C. Ferguson, 29
Capt Gerard A. Garner, 28, Lincoln, NE
Capt Keith R. Goffin, 29, Bellevue, IL
Capt Julius O. Womack, 30, Pioneer, LA

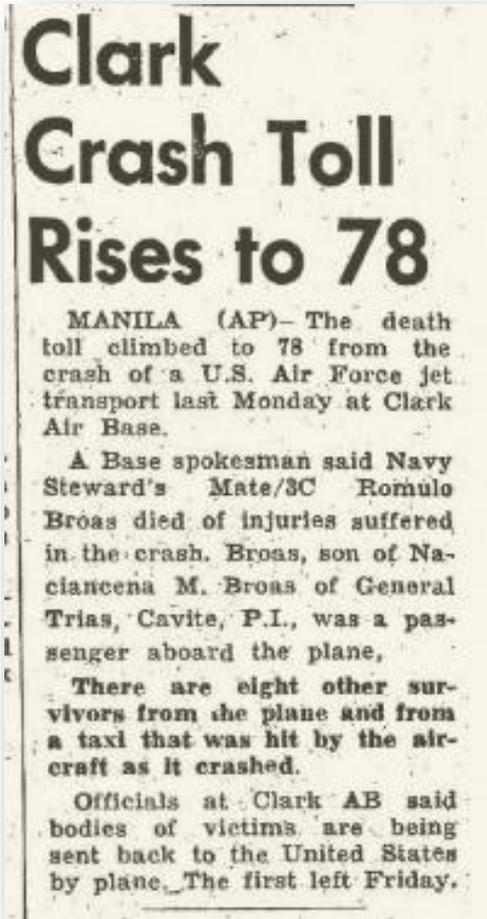


Corpus Christi Times August 30, 1963

1Lt Melvin C. Pump, 29
Lt William E. Smith, 26, Memphis, TN
BO: MSgt Carl H. Burris, 39
BO: TSgt Ray L. Fish, 30
SSgt Lyle E. Overlees, 25

xii The author does not subscribe to the many myths associated with 'The Bermuda Triangle'. Not all these losses were inexplicable, and the boundaries of the 'triangle' are not clearly defined. In fact, a similar 'triangle' could be laid over almost any part of the earth's oceans, marking the area of many lost aircraft and ships that have not been solved.

11 May 1964, 61-0322, C-135 Crash on approach to Clark AB



This was 1 of 4 military plane crashes throughout the world that day. There were 83 on board (9 crew, 2 flight nurses, 47 other AF pax; 19 Navy, 3 Coast Guardsmen, 3 Chinese Nationalists). Initially 12 survive from the aircraft, 5 of them died from their injuries later (leaving 7, 5 are crewmembers, the other 2 survivors are 2 Navy men).

An American in a taxi cab was also killed, the 2 others injured in the cab recover; 1 American and the Philippine driver.³⁵

The Air Force C-135 Stratolifter assigned to the 44th Air Transport Squadron at Travis, crashed on landing at Clark Air Force Base, Philippines, striking a navigation aid tower and a taxi before a violent impact with the ground. The crash occurred while attempting to land during a rainstorm at approximately 1920 local time. They had left Travis AFB, stopped at Hickam AFB enroute to Clark, and were scheduled to bring sick and injured back to the U.S.

Cause of the crash is unknown, the weather was not believed to have been a significant factor as the ceiling was 500' AGL.

Injuries: 77 killed, 7 survivors

Injured survivors from the crew:

Capt Eugene Wilfred Dolan, Atwater, CA
Capt James Henry Johnson, Vacaville, CA
Capt Leroy Ralph Bullock, Fairfield, CA
Engineer: MSgt Henry Thaddeus Duda, Milwaukee
Major Clarence Raymond Harper Jr, Fairfield, CA

Airmen killed:

1Lt James Walter Dixon, Washington, DC
2Lt Jack A. Neubauber, Cameron, WV
A1C Alvin L. Brasseaux, Wichita, KS
A1C Benjamin M. Buck, Flint, MI
A1C Bobby Wayne Jones, Thomasville, NC
A1C Charles R. Lilly, Upper Darby, PA
A1C Dorothy R. L. Buck, Davenport, IA
A1C James William Gollings, Pittsburgh, PA
A1C Richard York, Columbus, MS
A1C Robert Lee Neal Jr, Brooklyn, NY
A1C Tom E. Mitchell, Augustine, FL
A1C Wayne Mahler Gatke, Brooklyn
A1C William A. Nelson III, Mill Valley, CA
A1C William C. Davis, Newark, NJ
A1C Willie Perkins, Phoenix, AZ
A2C Carlos Lugo, Bronx, NY
A2C Danilo L. Tan Calamba, Laguna, Phillipines
A2C David Richard Hebda, Wyandotte, MI

A2C Douglas F. Humes, Philadelphia
A2C Edward M. Hiner, Flowerville, MI
A2C Harold G. McKinney, Marianna, WV
A2C Harold G. McKinney, Marianna, WV
A2C James E. Maxwell, East Point, GA
A2C Lionel Lovelace, Canton, MS
A2C Manuel Hernandez, Munford, TX
A2C Peter J. Curry, Far Rockaway, NY
A2C Philip F. Agnoletti, Malden, MA
A2C Roby N. Shaddy, Albuquerque
A2C Ronald B. Susman, Edgewood, RI
A2C Ronald E. Stine, Port Huron, MI
A2C Virgil David Degrace, Dearborn, MI
A3C Dale W. Pettit, Yorba Linda, CA
A3C Daniel S. Burr, El Cerrito, CA
A3C Eugene Posey, Kerrville, TX
A3C Francis M. Nemicik, Bayonne, NJ
A3C Frederick J. Belmore, Alderwood Manor, WA
A3C James E. Carlson, Morgantown, WV

A3C James E. Carlson, Morgantown, WV
 A3C James Solvio Larcher Jr, Chicago
 A3C Levi G. Rose, Toledo, OH
 A3C Monte R. Brown, Phoenix, AZ
 A3C Philip E. Thonas, Milwaukee, OR
 A3C William J. Fordyce, Bethlehem, PA
 Amn Daniel Donald Brant, Conception Junction, MO
 Amn Joseph W. Craig, Pleasant, PA
 Capt Frederick W. Meyer, Teaticket, MA
 Flt Nurse, Cpt Dorothy A. Gifford, 37, El Monte, CA
 Flt Nurse, Cpt Carolyn Marie Wagner, Georgetown, OH
 Lt Col Thomas Eugene Myers, Mayodan, NC
 SSgt Comer H. Parker, Highland, CA
 SSgt Curtis H. Koehler, Phoenix
 SSgt Dale W. Evans, Fort Walton Beach, FL
 SSgt Frank Andrejko Jr, Alexandria, LA
 SSgt George L. Howell, Peterson Fld, CO
 SSgt Norman E. Bridwell, Alexandria, LA

Coast Guard personnel killed:

Edward Roney, Engineman, Pottstown, PA
 Marc N. Williams, Seaman Apprentice, Oklahoma City

Robert L. Beck, Aviation Radioman, Brooklyn

Navy personnel killed:

Dennis J. Dostert, Phoenix, AZ
 Donald N. Howard, Oak Harbor, WA
 Engraciano B. Maurin, Fullerton, CA
 Fireman Apprentice John D. Truesdell, Newton, KS
 Fireman Apprentice Wallace L. Wright, Peoria, IL
 Fred J. Barton, San Fernando, CA
 Gary W. Peake, Wellsboro, PA
 John D. Welch, Monroe, LA
 Juan A. Rotor Jr, Manila, Philippines
 Julian Carlin, TX
 Lt Lawrence A. Galierani, Agawam, MA
 Lt (JG) R. G. Minor, Subic Bay, Philippines
 SM3 Romulo M. Broas, General Trias, Cavite, Philippines
 Ronald B. Richardson, Florence, SC
 Ronald L. Peterson, New Plymouth, ID
 Walter M. Deaver, Cavite, Philippines
 Warren E. Splett, 21, New Richland, MN (was home for his mother's funeral)
 William J. Coulter, Long View, WA
 Y1C Charles S. N. Ziolkowski, Milwaukee, WI

8 July 1964, 60-0340, Larson 135 mid-air with 105

A KC-135, call sign SHAG 21, assigned to Larson AFB, WA, experienced a midair collision over Death Valley during air refueling with a Republic F-105D Thunderchief, 61-0091, call sign TAR 86 from George AFB. This was the only time a fighter and tanker were both lost due to mid-air collision.^{36, 37}

Jets Crash in Midair; Utahn, Four Others Perish

By Associated Press

LOS ANGELES—A jet tanker plane and an F105 Thunderchief fighter collided during a refueling exercise over Death Valley Wednesday and crashed, the Air Force reported. Five men were killed, one from Murray, Utah.

A SPOKESMAN said four of the victims were on the KC135 tanker, from the 51st Air Refueling Squadron at LARSON Air Force Base, Wash.

The fifth was the pilot of the F105, from George Air Force Base near Victorville. He was not immediately identified.

THE SCENE was 65 miles north of George, at the southern tip of Death Valley.

The men killed in the tanker included 1st Lt. Erwin W. Boelter Jr., 23. He was a son of Mr. and Mrs. Erwin W. Boelter Sr., 6111-329 East Murray.

OTHERS ABOARD the tanker were identified as Capt. Thomas F. Dozier, 36, the aircraft commander, Indio, Calif.; 1st Lt. Ronald D. Williams Jr., 25, navigator, Eugene, Ore., and S.Sgt. Robert J. Graves, 31, boom operator, Moses Lake, Wash.

Erwin Walter (Walt) Boelter Jr. was born July 21, 1940, in Salt Lake City, a son of Erwin W. and Ther Holdaway Boelter. He married Drurygene Nettlett, Oct. 10, 1960, in the Salt Lake Temple, Church of Jesus Christ of Latter-day Saints.

A GRADUATE of Granite High School, he entered the Air Force in 1958. He was an active member of the LDS Church and a geology teacher.

Survivors are his widow; two sons, Walter Hugh, Sterling Keith, all of Larson AFB; parents, Murray; two sisters, Sylvia, Dorothy, both Murray.

Iowan to Inspect River Storage

Rep. Ben F. Jensen (R-Iowa), senior member of the House Appropriations Committee, is scheduled to make an inspection tour of the Colorado River Storage Project Thursday and Friday.

HE IS TO visit Glen Canyon Dam Thursday and the Flaming Gorge Dam Friday before coming to Salt Lake City for a Saturday briefing on status of the Central Utah and Weber Basin water projects.

Erwin Walter Boelter Jr. . . Dies in collision of planes.

Crews were experiencing communication problems due to another tanker scheduled simultaneously on the same track. Because of an adjacent special use area the same tanker crew had been vectored away on another mission 2 days prior, which is why it is believed they made a right hand turn in the orbit. Also, the term MARSAS³⁸ had

different meanings between SAC, TAC, and FAA. Reportedly the tanker's number 4 engine struck the cockpit of the F-105D when beginning a right turn. Both tanker and receiver exploded, all crewmembers in both aircraft killed.

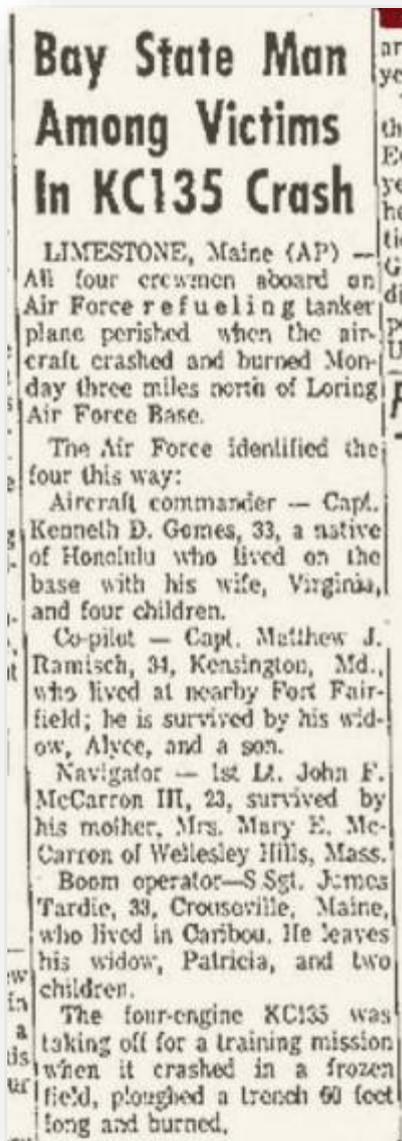
Tanker crew killed:

- A/C: Capt Thomas Franklin Dozier, 36, San Antonio, TX
- Co: 1Lt Erwin Walter Boelter Jr, 23, Murray, UT
- Nav: 1Lt Ronald D. Williams Jr, 25, Eugene, OR
- BO: SSGT Robert L. Graves, 31, Moses Lake, WA

F-105D crew killed:

- Pilot, Capt Leonard F. Reynolds, 28, Victorville, CA

4 January 1965, 61-0265, Loring Crash, loss of 2 engines in turbulence



This Loring tanker crashed after takeoff when they encountered severe turbulence, followed by the #3 engine drag brace failing. The engine rotated over the upper strut mounts and separation of both #3 and #4 engines occurred before impact. All 4 aboard killed.

Crew killed:

- A/C: Capt Kenneth D. Gomes, 33, Honolulu
- Co: Capt Matthew J. Ramisch, 34, Kensington, MD
- Nav: 1Lt John F. McCarron III, 23, Wellesley Hills, MA
- BO: SSGT James Tardie, 33, Couseville, ME

Portsmouth Herald, Portsmouth, NH, January 5, 1965

16 January 1965, 57-1442, Clinton-Sherman crash in Wichita



Photos courtesy of B3A

including the one that bailed out.

Crew killed:

A/C: Capt Czeslaw "Chester" Szmuc, North Royalton, OH

Co: 2Lt Arthur W. Sullivan, 22, Miami, FL

Nav: Capt Gary James Widseth, 26, Minneapolis, MN

BO: SSgt Reginald R. Went, 34, Baltimore

Crew Chiefs killed (also from Clinton-Sherman):

SSgt Joseph W. Jenkins, 29, Middlesboro, KY

A1C Daniel E. Kenenski, 20, Harrisville, RI

A2C John L. Davidson, 21, Philadelphia, PA

Killed at crash site, all citizens of North Piatt, Wichita:³⁹

Gary L. Martin, 17
Joe T Martin Jr, 25
Clyde Holloway, 44
Tracy Randolph, 5
Dewey Stevens, 66
Claude L. Daniels Sr, 32
Mary Daniels, 56
Julia A. Maloy, 8
Julius R. Maloy, 6
Emmit Warmsley Sr, 37
Emmit Warmsley Jr, 12

Laverne Warmsley, 25 (and unborn child)
Ernest E. Pierce Jr, 46
Delwood Coles, 34
Albert L. Bolden, 22
Wilma J. Bolden, 24
Wesley I Bolden, 9 mos
Denise M. Jackson, 6
Brenda J. Dunn, 5
Cheryl A. Dale, 2
Alice Dale, 47
James L. Glover, 22

This accident was chronicled in a recent (2013) book: *Mayday over Wichita*, by D. W. Carter.



26 February 1965, 63-8882, Dow 135 collision with B-47

A B-47E Stratojet, 52-0171, 2nd of 3 in cell behind the Pease AFB tanker collides while positioning to start air refueling 410 miles SSE of Harmon Air Base, Newfoundland, both aircraft lost. All on both crews are killed.^{40, 41}



Tanker crew killed:

A/C: Capt James Reddig, 27, Webster, NY
IP: Maj Charles E. Michigan, 35, Medford, MA
Co: Capt Milton Stone, 32, Normal, IL
Nav: 2Lt Milburn D. Taylor, 22, Carbondale, IL
BO: MSgt Carey W. Addison Jr., 32, Independence, IN

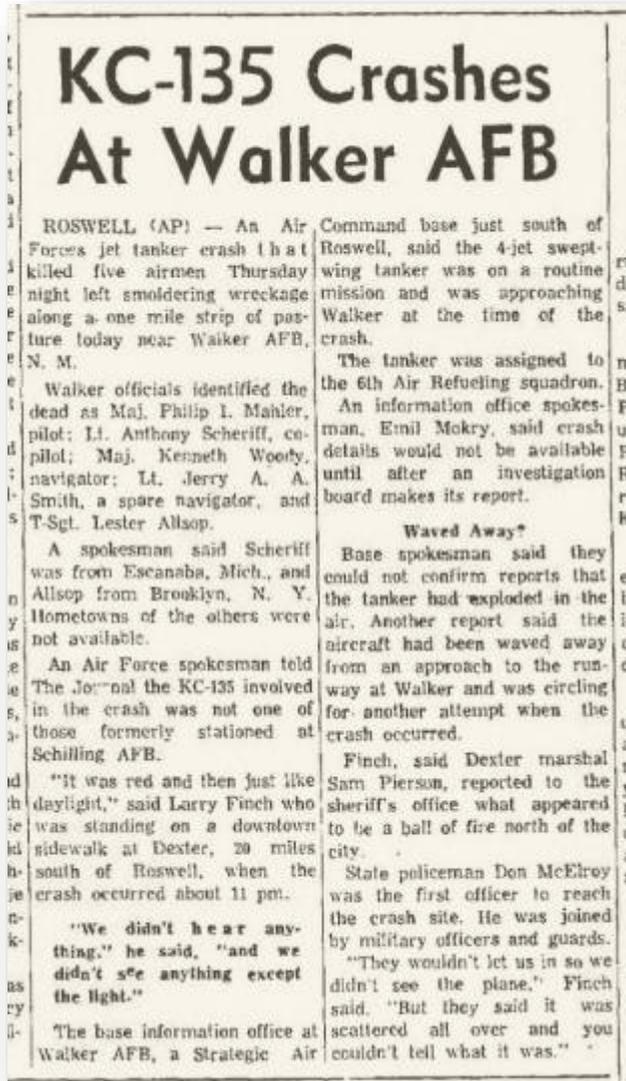
Bomber crew killed:

A/C: Capt Noland W. Payn, 32, LaPass, TX
Co: Capt Robert G. Lowe, Arlington, VA
Radar Nav: Capt Frank Velazquez, 31, Brooklyn

Albuquerque Tribune February 26, 1965

3 June 1965, 63-8042, Roswell-Walker AFB crash on arrival

The Walker AFB KC-135 had descended below the glide slope on a night instrument approach to runway 21. Another account was that they lost electrical power during this touch and go. The KC-135 crashed, and all 5 aboard were killed.⁴²



Within hours, an F-100 Super Sabre also crashed in New Mexico, but the 2 incidents were not related. The fighter jet pilot bailed out safely.

Crew killed:

A/C: Maj Phillip I. Mahler

Co: Lt Anthony Scheriff, Escanaba, MI

Nav: Maj Kenneth Woody

Nav: Lt Jerry A. A. Smith

BO: TSgt Lester M. Allsop, 31, Brooklyn, NY

*Salina Journal, Friday, June 04, 1965,
Salina, Kansas*

25 June 1965, 60-0373, McGuire C-135 at Santa Ana



Lawton Constitution June 25,

This was the worst loss of life tragedy in a single C-135 incident. A United States Air Force C-135A out of McGuire AFB, New Jersey, crashed after 0135 hrs. Take off in fog and light drizzle from MCAS El Toro, California, USA. Aircraft flew into Loma Ridge at 0146. All 72 passengers and 12 crew (84 total) died. Aircraft was conducting a troop movement to support the Vietnam War, bound for Okinawa.

Photo courtesy of B3A

At 1:35 a.m. on June 25, 1965, under fog and light drizzle, an Air Force C-135A transport jet took off from MCAS El Toro. The plane was en route from McGuire Air Force Base in New Jersey to Okinawa, with another scheduled stop at Hickam AFB in Hawaii. Aboard were 71 Marines on their way to Vietnam, along with 12 U.S. Air Force crew members.



At 1:46 a.m., about 4 miles from the control tower, the jet disappeared from radar. For reasons unknown, the pilot did not (or could not) make a planned left hand turn and flew directly into Loma Ridge. The plane was destroyed, killing all 83 people on board.

Navy sailor Steve Bedunah was scheduled to take the flight as far as Hawaii. However, a family emergency waylaid him. He arrived at El Toro just in time to see the plane heading down the runway. Seconds later, he saw a huge orange fireball. "I was supposed to be on that plane," he said in a 2005 O.C. Weekly interview, "I've spent 40 years trying to live that down."⁴³

A Marine stationed there recalls:

I, too, was one of the young enlisted Marines that went up on the mountain that June morning. The evening before, that MATS plane was parked in the area of H&MS-15 and many of the men leaving for the far east were hanging around that area. I left work, noticed the men and

the plane and thought no more of it. The next morning as I drove towards base, I noticed several military helicopters hovering near the mountain top and wondered if there was some sort of maneuvers going on.

When I arrived at H&MS-15, I noticed the MATS plane was gone and soon heard about the crash. My mind went back to the evening before and all those men hanging around and the plane. All gone now. They asked for men to fly up on helicopters to the site and help with the tasks that needed to be done. I went up and I do not know why.

Once in the air, circling the site, we were too high to really get a view of what was about to change our lives, at least mine. Once on the ground, we were immediately formed away from the crash site facing El Toro off in the distance. We were told that no one survived and we were there to do a job. Walk almost arm's length apart from the crest, down a small valley and up the other side. We had to observe, mark areas and once we made our sweep we went back and picked up our (lost) "men."

Once there, and we saw our first, many changed their minds and went back to base, we were told once the helicopters leave we HAVE to stay and finish our task. At first, I sort of wished I had not come to the mountain. I was not ready for the sight but once we started, I believe every man did what he was supposed to do and did THE RIGHT THING. With respect and a silent prayer BUT FOR THE GRACE OF GOD. I recall the media being at a distance and a couple of negative comments I won't go into, not from the Marines but from some "officials" who were in the area.

There are certain scenes BRANDED into my brain that I will never forget. By the end of the day we had gathered all the men, except one that I recall. He was found the next day. We drove slowly in the trucks down the mountain, full of live and fallen Marines. Once unloaded at one of the hangers I was dismissed and I drove home. My wife at that time wanted to know WHY I was covered in blood. I told her what had happened.

She told me to throw the uniform away, I refused. I never did. I guess after our divorce she got rid of it. I thought about all the men that were a part of that uniform, it hurt, but I was PROUD of what we young Marines did that day to make sure we collected all of our men.

I would love to go back up there, walk that same hill side. I wish I could contact every family, tell them what I saw and how respectful I thought we were, that day in June.

SEMPER FI, Jim Keith, St. Louis, MO⁴⁴

McGuire Air Force Base, N. J. (UPI) -- Air Force officials Friday identified the 12 crewmen aboard the military transport jet that crashed near El Toro, Calif.:

A/C: Capt. William F. Cordell, JR., 27, GA
Co: First Lt. John A Zietke, JR., 27, MI
Co: First Lt. Gary M. Rigsbee, 23, CA
Nav: Capt. Jacques G. Senecal, 32, CA
Nav: First Lt. Robert H. K. Shannon, 29
FE: S/Sgt James E. Burns, 29, IL
LM: S/Sgt Bobby L. Calhoun, 28
FE: M/Sgt William H. Meredith, 34, KY
FE: T/Sgt Marlin W. Tatom, 41, MI
LM: Airman 3/C Elwood C. Van Nole, Jr., 19
Flight traffic specialist: Airman 1/C Charles A. Reives, 23
Cadet Gary L. Zimmerman, 20, class of 1967, Air Force Academy

Passengers killed:

Dwight L. Aldridge, 18, AR
PFC Russell J. Babcock, JR., 19, Tomkins Cove, NY
PFC Roger J. Beiter, 18, W. Seneca, N. Y.
Lance Cpl William B. Breen, 20, Bellefonte, Penn.
Cpl James Harold Brock, 25, Birmingham, Ohio.
Cpl Emerson K. Brown, 24, Kent, Wash.
Lance Cpl John G. Brusso, Jr., 22, Ontario, N. Y.
Cpl George C. Burrow, 20, Norman, Ark.
Cpl Tucker Ross Burt, 24, Mt. Vernon, Ohio.
Phillip V. Caraccio, 24
Cpl Paul T. Chapin, 21, Coronado, Calif.
Cpl George E. College, 21, Davisburg, Mich.
Donald A. Davidson, 19, MI
Lance Cpl Douglas D. Everett, 19, Allentown, Pa.
PFC Rosco Ford, 24, Miami, Fla.
Capt Victor M. Girodengo, 28, San Diego, Calif.
Cpl Thomas Barton Gladstone, 25, Largo, Fla.
PFC Dickie L. Glover, 32, Muskegon, Mich.
PFC Gerald Griffith, 18, Jackson, Miss.
Henry D Grimm, 18
Lance Cpl Howard D. Hall, 18, Winfield, Kan.
Lance Cpl Gail K. Haning, 23, Albany, Ohio.
Cpl Charles Harmon, 21, Estill, S. C.
Lance Cpl Robert E. Harvey, 18, Upland, Calif.
PFC Harry R. Hawk, 20, Oberlin, Penn.
PFC Gerald G. Hawkins, 18, Mableton, Ga.
Kenneth J Haywood, 21
Thomas K Heacox, 18
Lance Cpl Danny E. Holder, 18, Nashville, Tenn.
Joseph M Kelly, 18
PFC James T. Kitchens, 19, Madleton, Ga.
Cpl William R. Kittel, 28, Suisun City, Calif.
Sgt James E. Lee, 28, Compton, Calif.
Richard W Leeman, 19
Robert C Lisicki, 23
Cpl Michael J. Mando, JR., 22, Tayler, Pa.
Lance Cpl Brian Elvin Martin, 20, Minersville, Pa.

Cpl James V. Matruski, 23, Johnson City, N. Y.
Henry B McKine, 18, CA
James D Meade, 21
PFC Joseph D Mogelinski, 18, Greenfield, Mass.
Capt Edward M. Morehead, 27, Pittsburgh, Pa.
Sgt James C. Moultrie, 18, Moza City, Okinawa.
Cpl Anthony E. Nelson, 22, Wilmington, Calif.
PFC Franklin Newman, 20, Loomis, N. J.
Cpl Rich G. Pacheco, 20, Portland, Ore.
Lance Cpl Enrique Danny Padilla, 20, Santa Rosa, N. M.
Cpl Michael A. Palmieri, 28, Elmira, N. Y.
Lance Cpl Alfred Eugene Peterson, 20, Littleton Commons, Mass.
Cpl Edward P. Ray, 23, no hometown listed.
PFC Robert J. Rhodes, 19, Patterson, N. J.
PFC Ronald Richard Richert, 18, Pontiac, Mich.
Cpl Lawrence O. Rohde, 22, Las Vegas, NV
PFC Gerald W. Ross, 19
Pvt. Robert S. Shedis, 22, Calumet Park, Ill.
PFC Joseph B. Sheppard, 18, Philadelphia, Pa.
Sgt Jackson Sinyard, Jr
Pvt. Gerald Skidmore, 18, Cincinnati, Ohio.
PFC Arthur Slaughter, 23, Pittsburgh, Pa.
Quinton Smith, 22
Theodore Eugene Stark, 24, Louisville, KY
Lance Cpl Charles L. Stevens, 18, Cambridge, Ohio.
Jimmie I. Swink, 26
Lance Cpl James C. Tischer, 20, Hannibal, Mo.
Cpl Timothy M. Treweek, 24, Los Angeles
PFC Lawrence R. Vanness, 19, Rochester, N. Y.
Elwood C Vannote, 19
Cpl Harrison Wallace, 25, Clemens, Ala.
David E. Walsh, 18
Ralph E White, 23, IN
James R. Wilson, 24, IN
William J Wilson, 29, MO

17 January 1966, 61-0273, Collision with B-52G, Palomares, Spain

Redlands Daily Facts January 26, 1966

A B-52G, 58-0256, flying from Moron AB, Spain, collided with the Bergstrom KC-135A Stratotanker, during Operation Chrome Dome air refueling near Palomares, Almería, Spain.

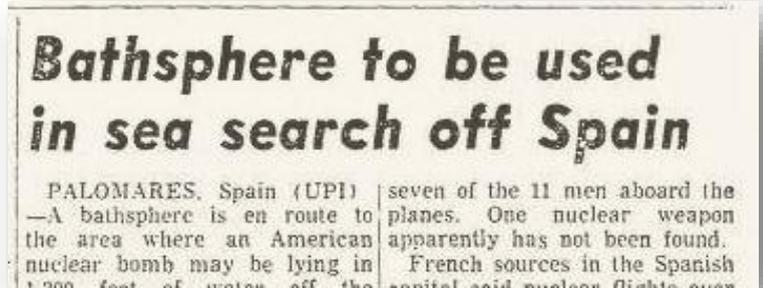
The B-52 was assigned to the 68th Bomb Wing at Seymour-Johnson AFB, North Carolina. The collision broke the bomber's back. All 4 crew in the tanker were killed. Seven crew members in the B-52 are killed in the crash, 3 eject safely, and two of the B-52's Mark 28 nuclear bombs rupture, scattering radioactive material over the countryside. One bomb lands intact near the town and another is lost at sea. It is later recovered intact 5 miles (8 km) offshore in deep trench. Two of the recovered weapons are exhibited at the National Museum of Nuclear Science & History, Albuquerque, New Mexico.⁴⁵

During the rendezvous the bomber was aligned behind the tanker, the boom operator reported an overrun about to occur but the bomber could not slow down enough to avoid striking the boom, in a position where the bomber pilot could look directly up and see the tanker fuselage. The bomber began an immediate descent while the tanker also began an involuntary descent, exploded and crashed. Some reports have stated the bomber struck the A/R boom, but there was no evidence of damage to the boom except ground collision.

The bodies of Lane, Simmons, and Snyder were never found.

The nuclear material that scattered on Spanish soil required an extensive cleanup effort:

- 700 US airmen and scientists employed to search for bombs and clean up
- Three inches of topsoil removed, sealed in 4,810 barrels and shipped to storage facility in US
- 20 ships, including mine-sweepers and submersibles, deployed by US Navy to find missing bomb in sea
- Cost of sea search over \$10m
- Yearly health checks thereafter on residents, monitoring of soil, water, air and local crops



Almost everyone has forgotten about Palomares, except the people of Palomares. That's because the US clean-up operation missed some areas of contamination. Jose Maria Herrera is a local journalist who's been investigating the accident since the 1980s. Between his and others efforts, they have renewed a Spanish government call in 2012 for the US to return and finish the clean-up.⁴⁶

Injuries: Tanker crew killed, 3 of 7 on the bomber also killed

Tanker Crew killed:

Lt Col Emil T. Chapla, 42, San Antonio, TX
Capt Paul Raymond Lane, 27, Maryland
Nav: Capt Leo E. Simmons, Jr, 27, Newkirk, OK
BO: MSgt Lloyd C. Potalicchio, 31, New York

Killed on the B-52 crew:

Gunner: Tech. Sergeant Ronald P. Snyder
1Lt Steven G. Montanus
1Lt George J. Glesner

Survivors on B-52: ⁴⁷

A/C: Capt Charles "Charlie" Wendorf
Pilot: Major Larry Messinger
Co: 1Lt Michael Rooney
Radar: Capt Ivan Buchanan

Conspiracy theorists, in accordance with their nature, tried to establish a connection to the James Bond movie released that year.^{xiii}

^{xiii}The 007 connection. In December 1965, a month before the accident, James Bond film Thunderball was released. "The film's plot had strong similarities to what subsequently happened in real life", says author Barbara Moran. "Bond's mission was to find atomic bombs that had been lost at sea. All the news stories at the time were making the connection. "Much of the movie was shot underwater with Sean Connery battling baddies in weird submersibles trying to get the bombs... In the movie, they had all this really awesome underwater technology that got the bomb. But in real life, it was much harder to first locate, and then recover the bomb from the sea bed."

17 May 1966, 57-1424, Crash at Amarillo AFB

909th AREFS Amarillo; Aircraft struck the ground during an oscillating unstable approach to land following a refueling mission. A witness reported the wing struck first, rocked the other way and cartwheeled. All 5 on board killed. ⁴⁸

The day prior, the base began a shutdown of operations to move to March AFB in California.

Crew killed:

A/C: Capt Thomas W. Hurt, 34, Waco
Co: Capt Max J. Katz, 30, Little Neck, NY
Nav: Maj Richard H. Doughty, 35, NYC
BO: TSgt Harry L. Alexander, 29, Amarillo

Passenger: A2C Stephen M. Mulvenna, 19, Baltimore, MD

Crash of KC135 Kills 5 Persons

AMARILLO, Tex. (AP) — A jet tanker dug a wing into a runway while landing at Amarillo Air Force Base and cartwheeled in flames Tuesday night, killing the four crewmen and a passenger.

The Strategic Air Command craft, a KC135 assigned to the 909th Refueling Squadron here, was returning from a four-hour local mission. Its tanks still contained 2,700 gallons of fuel, officials said.

They listed the crew members as Capt. Thomas W. Burt, 34, the pilot, from Fort Worth, Tex.; Capt. Max J. Katz, 30, co-pilot, from Little Neck, N.Y.; Maj. Richard H. Doughty, 35, navigator, from New York City, and

T. Sgt. Harry L. Alexander, 29, boom operator, from Amarillo. Families of all four live here.

Authorities withheld the name of the passenger aboard the plane pending notification of relatives. They said he was an Air Force man.

It was the first fatal crash at the Amarillo base, which has operated continuously since 1951 and now is being phased out.

The Squadron was scheduled to start moving today to March Air Force Base near Riverside, Calif.

Chief M. Sgt. Philip A. Horn was checking runway lights and heard the tanker hit as it approached from the south.

He reported the big craft flipped, broke open and exploded as flames enveloped the wreckage.

"There was no chance to save the crew," Horn said.

Several other witnesses told of seeing the plane veer after its right wing dipped to the runway. The cockpit was torn off as the fuselage split in half.

All four engines broke free and debris was strewn for 200 yards.

*Abilene Reporter News,
Abilene, TX, May 18, 1966*

19 May 1966, 57-1444, Turner 135 at Kadena

This incident is shrouded in mystery, as the exact nature of the mission was classified. It took place within hours of another KC-135 crash in Texas.

A Turner AFB KC-135 was TDY to Kadena supporting Young Tiger missions. On the day of this crash the crew was waiting for a break in the heavy rains to t.o. Three tankers ahead of him aborted their t.o. because of the rain and runway condition.

On one account they were asked to ferry an engine to a stranded RC-135 in Alaska. In another report they were supporting a surprise bombing in Vietnam at a time it would be least expected. In this report they were also carrying some aircraft generator parts bound for Yokota. When they were halfway down the runway on t.o. they got a radio call to cancel the flight, the Yokota tankers were fixed. It was too late to abort the t.o., and it is believed they were hydroplaning. Once airborne, they are thought to have touched back down and got airborne again,⁴⁹ then lost engines, possibly 1, 2, and 3 at once. They veered left, came down nose high, and crashed into a hill by the ammo depot, and a cement bridge nearby. Some of the debris impacted at Highway 16, killing a motorist. All 11 on board killed.

Injuries: 12 killed; All 5 crew, 6 pax, and 1 civilian on ground

Crew killed:

A/C: Capt Benny Thomas Stowers, 41, Juno, GA
Co: 1Lt James Nelson Spangler, 23, Mayking, KY
Nav: Capt Charles Thomas Haffendorfer, 25, Louisville, KY
Nav: 1Lt Ronald Walter Ringwall, 25, Millburn, NJ
BO: SSgt Charles Edgar Stuart, 34, Bangor, ME
Crew Chief: SSgt Glen Everett Wallace, 29, Albany, GA
Asst. Crew Chief: A1C Kenneth Alston, 24, Sautee, CA
SSgt Clyde Arthur Crow, 24, Boise, ID

From Ellsworth:

TSgt Franklin Delano Waters, 32, Greer, SC

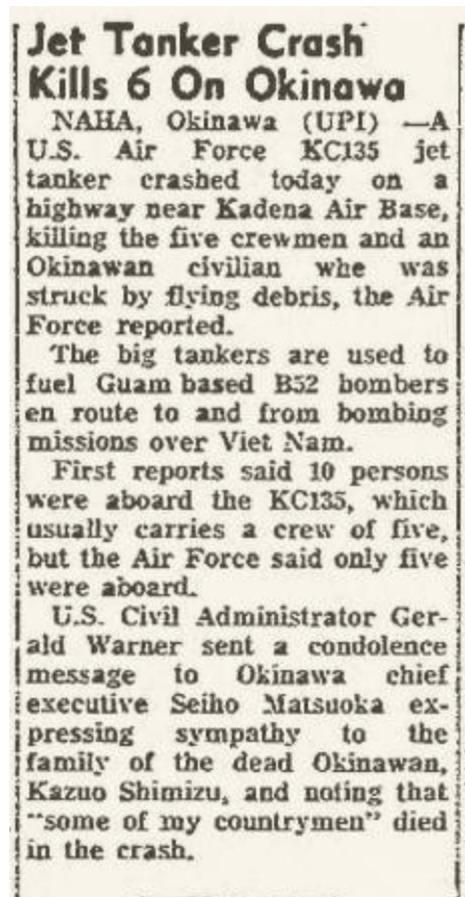
From Kadena:

Sgt Marvin Louis Dooley, 25, Seneca, SC
A1C Thomas Richard Annis, 22, Hesperia, MI

Okinawan killed at scene:

Kazuo Skhimizu

*Western Kansas Press, Great Bend, KS,
May 20, 1966. As reported before the full
details were known.*



19 January 1967, 56-3613, Fairchild crash at Shadow Mountain

KC-135 Returning from Hickam AFB, crashed into Shadow Mountain while descending towards Fairchild AFB. All 9 occupants killed. This crash had many similarities to the previous KC-135 crash in the area in September of 1962.

(*HistoryLink.org*) U.S. Air Force KC-135 Stratotanker crashes in Mount Spokane State Park, killing nine airmen, on January 19, 1967.

By Daryl C. McClary, June 07, 2009⁵⁰

On January 19, 1967, a U.S. Air Force KC-135 Stratotanker, en route from Hickam Air Force Base, Hawaii, with nine passengers and crew, disappears from radio and radar contact while on landing approach to Fairchild Air Force Base in Spokane County. The following day, two searchers on snowcats will find the wreckage of the aircraft scattered on semi-forested Linder Ridge approximately two miles southeast of Mount Spokane. There are no survivors. The accident nearly duplicates the crash of a KC-135 into Mount Kit Carson in September 1962, killing 44 airmen, the worst aviation disaster in the history of Spokane County.

A Routine Flight

At noon on Thursday, January 19, 1967, Air Force KC-135, No. 56-3613, assigned to the 92nd Strategic Aerospace Wing, 43rd Air Refueling Squadron, Fairchild Air Force Base (AFB), departed Hickham AFB, Oahu, Hawaii, for a six-hour flight to Spokane, Washington. The tanker was escorting a group of Air Force McDonnell-Douglas F-4C Phantom jet-fighters, with a ferry range of 1,403 miles, from Hawaii, 2,680 miles to the U. S. mainland. In addition to the four-man crew, the aircraft was transporting five airmen from Fairchild.

At approximately 6:00 p.m., the KC-135 was flying eastbound toward Spokane and was in radio contact with the Radar Approach Control Center (RAPCON) at Fairchild AFB. The pilot, Capt Billy E. Cammack, was directed to hold position, awaiting the landing of another KC-135, then given the go-ahead to enter a designated approach pattern and descend for landing. This routine approach maneuver takes the aircraft in a wide circle over Mount Spokane State Park at 14,000 feet, then on a line between Mount Spokane (5,883 feet) and Mount Kit Carson (5,282 feet), and over Mead at approximately 8,000 feet. The aircraft, now on final approach for Fairchild AFB, gradually descends over Spokane, onto the airfield.

Missing in High Winds and Heavy Snows

At 6:09 p.m., Capt Cammack reported to RAPCON he was at 14,000 feet and entering the approach lane for Fairchild when the aircraft vanished from the radar screen and radio contact was broken. Besides being night, weather conditions in the Spokane area were extreme, with high winds, heavy snow, a low cloud cover and limited visibility, requiring pilots to fly entirely by instrument flight rules (IFR) and land via an instrument landing systems (ILS) approach. The area surrounding Mount Spokane was immediately pinpointed as the probable crash site.

The first place search teams headed for was Mount Kit Carson, where a KC-135 had crashed on September 10, 1962, killing 44 airmen. Volunteers from the Spokane Snowmobile Association set out from the Mount Spokane Ski Lodge on trails toward Mount Kit Carson, searching for signs of the downed aircraft. Washington State Patrolman Clyde Singleton drove to the earlier crash site in a borrowed four-wheel drive vehicle, but found nothing.

The Mount Spokane Ski Patrol planned a systematic search of the general area by skiing down the slopes in patterns, attempting to cover as much ground as possible. But, after further analysis of the radar data, Air Force officials decided the KC-135 may have been blown off course and went down east of Mount Spokane. Search efforts were shifted toward the Idaho border and a field command post was established near Twin Lakes, Idaho, to coordinate activities. Search and rescue workers, braving blizzard conditions, hunted for the missing tanker throughout the night, without success.

Recovering Wreckage and Bodies

Finally, at about 9:00 a.m. on Friday, January 20, 1967, Gerald L. "Jerry" Deitz and Del Kerr, two snowcat drivers from Coeur d'Alene, Idaho, found the wreckage of the missing KC-135. The two men had been operating in the

vicinity of Shadow Mountain (4,875 feet) when they spotted an area of burned trees on a distant slope. After an hour of searching, they finally found the bulk of the wreckage near the top of Linder Ridge (4,856 feet), approximately one-quarter mile north of Quartz Mountain (5,180 feet), in three feet of fresh snow. All that was left of the tanker was the tail section, sitting upright among the scrub pine trees, and a burned-out portion of the fuselage. The remainder of the large aircraft was in bits and pieces, scattered over the steep, semi-forested hillside. The bodies of four airmen were discovered laying in the snow; the other five bodies were inside the section of fuselage.

Throughout Friday morning, men from Fairchild's Air Force Survival School worked to recover the bodies and by afternoon Air Force accident investigators were at the crash site. Colonel William Culbertson, vice-wing commander of the Strategic Air Command's 93rd Bombardment Wing, Castle AFB, Merced, California, had convened a 13-member investigation board, made up of Air Force and civilian aviation specialists from other SAC bases, to begin a formal inquiry into the cause of the accident. Their first task, however, was to find and remove any classified equipment and documents from the wreckage.

The Air Force established a command post one-half mile down from the Mount Spokane Ski Lodge and some 50 persons were sent to the crash area to aid in the investigation. The assemblage included Air Police to keep away curious spectators and mess cooks with a field kitchen. The next three days were spent hunting for pieces of the tanker, which was scattered over 400 square yards of snow-covered hillside.

Since the KC-135 wasn't equipped with a flight-data recorder (known as the "black box") like commercial aircraft, the investigation would center around radio transmissions between the air traffic controller and the pilot, the aircraft's maintenance records and whatever the investigators could discover from minutely examining pieces of twisted wreckage. Of particular interest were the aircraft's flight instruments, if they could be found, and the jet engines.

Investigating the Cause

A study of the recorded data and audio tapes between Fairchild AFB and the KC-135 determined neither air traffic controllers nor the RAPCON system was at fault. The pilot was in the correct approach lane at a reported altitude of 14,000 feet, well above the minimum safety altitude for that area, when Fairchild lost radar contact with the tanker.

Winds over the mountainous area were reported to be in excess of 100 m.p.h. Although there was considerable air turbulence, it was well within the safety margins established by SAC. Lieutenant Colonel Stanley Ratto, commander of the 92nd Air Refueling Squadron, flew the exact same route in a KC-135, under the instruction of RAPCON, minutes before Capt Cammack's tanker crashed, and had landed safely.

On Sunday, January 22, 1967, a period of clear weather allowed investigators to photograph the crash scene from the air. The pictures helped determine the direction and angle of the aircraft when it hit the hillside. The tanker would have cleared Linder Ridge, if it had been flying just 200 feet higher, but some unidentified problem could have caused the tanker to crash elsewhere.

The Accident Investigation Board wanted to determine why the KC-135, reportedly flying at altitude of 14,000 feet, was below 5,000 feet when it entered the approach lane for a landing at the airfield. Capt Cammack, a 12-year veteran of the Air Force, was described by his supervisors as a very capable pilot. The 43rd Air Refueling Wing had been reassigned from Larson AFB (now Grant County Airport) in Moses Lake, to the 92nd Strategic Aerospace Wing at Fairchild AFB on April 2, 1966, but Cammack had flown the approach route numerous times. In addition, the crew was accompanied by Lieutenant Colonel Clifford J. Agenbroad, operations officer of the 92nd Air Refueling Squadron, who had been at Fairchild for more than six years. Argenbroad was also an instructor-pilot who often went on flights to certify crew proficiency and was thought to be riding in the instructor's seat directly behind Capt Cammack, and his copilot, Capt Herbert O. Zoeller.

Some aviation experts surmised that icing conditions could have caused the accident. But the pilot hadn't reported any problems and there had been no emergency distress signal. Others speculated the radar altimeter, which should alert the pilot when the aircraft falls below a "minimum descent altitude" could have been rendered useless by the snowstorm. Recent studies had shown clearly that low-flying pilots, relying on radar altimeters in poor visibility over snow or thick ice, could be fatally misled by gross errors in altitude data.

On Monday, January 23, 1967, the Air Force sent a special team into the area to begin the arduous task of removing designated pieces of the wreckage to a hanger at Fairchild for examination. Their efforts, however, continued to be hampered by bad weather and heavy snowfall. A civilian construction company was contacted to cut an access road into the remote area from the Mount Spokane Ski Lodge. A large crane was brought in and lifted the heavy engines and larger pieces of the aircraft onto special sleds which were then towed away. Removal of the wing sections and smaller pieces of wreckage would be postponed until after the spring thaw.

On Friday, February 3, 1967, the Air Force announced that the investigation into the crash of KC-135, No. 56-3613, had been concluded. Colonel Culbertson, Accident Investigation Board chairman, stated that the cause would not be made public and declined to comment on whether the accident resulted from human error, flawed procedures, or mechanical failure.

Although the accident nearly duplicated the earlier KC-135 crash, Culbertson said that there was no similarity. That accident had been caused by navigational error combined with adverse weather conditions, whereas the cause of this accident was secret. Culbertson added that although the landing approach pattern to Fairchild AFB over Mount Spokane State Park would not be altered, board-recommended changes in the "particular instrument procedure" had been put into effect to prevent further such accidents.

Injuries: No survivors, all 5 crew and 4 pax killed

Crew killed:

IP: Lt Col Clifford James Agenbroad, age 44, Nampa, ID
A/C: Capt Billy E. Cammack, age 34, Matador, TX
Co: Capt Herbert Olsen Zoeller, age 31, Watertown, WI
Nav: Capt James O. Wakeland, age 28, Godley, TX
BO: MSgt Orville Montgomery, age 38, Saginaw, MI

Also killed:

Capt Valentin F. Hemm, 35, aviation psychologist, Mount Dora, FL
A1C Terry O. Fletcher, aircraft mechanic, Pasco, WA
A3C Michael R. Kerr, 20, aircraft mechanic
SSgt Ralph D. Ogle, 33, crew chief, Watertown, TN

19 April 1967, 55-3140, Explosion on ground at Wake

Wake Island, Castle KC-135 Explosion during servicing of the landing gear; damaged beyond repair, no injuries were reported.

One killed in jet tanker crash at SAC base, Omaha

OMAHA, Neb. (UPI) — One man was killed and four injured Monday when a KC135 jet tanker crashed on take-off at Offutt Air Force Base south of here.

Killed was Maj. Robert J. Templeton, 44, of Wentworth, Wis., who lived in a housing area near the base.

Injured were Lt. Col. James K. Hailey, 46, Papillion, Neb.; Capt. Thomas M. Kennedy Jr., Madison, Wis.; Capt. James A. Reinhardt, 32, Fort Jarvis, N.Y.; and Capt. Richard Beringston, 29, Cass Lake, Minn.

The survivors, reported in good condition, freed themselves from the wreckage and attempted to help Templeton, who died en route to the base hospital, according to Col William Reynolds, base commander.

Similar to a Boeing 707 jet, the tanker was taking off in a westerly direction and appeared to tip as it neared the end of the runway. One witness said the plane exploded before it hit ground.

Black smoke billowed from the wreckage. The tail and fuselage were torn apart by the impact. The thick smoke clouds could be seen at least 10 miles from the crash scene as long as 50 minutes after the crash.

The \$3.5 million plane, assigned to the 55th Strategic Reconnaissance Wing at Offutt, was on a routine training mission.

Offutt serves as headquarters for Strategic Air Command operations around the globe.

Paul Rubin of Bellevue, who was working at a sewage treatment plant near where the plane went down, said he saw the plane as it started coming off the runway.

"It was in the air and I turned my back," he said. "Then I heard what I thought was a sonic boom. I turned around and saw the heavy smoke." Then, Rubin said, "came a series of explosions and flames burst out."

Some of the Kc-135s are equipped with elaborate electronic gear and are used in operation looking glass. Reynolds said that the crashed plane was not one of them.

The plane was making a series of landing practice runs at the time of the accident.

Franzenburg recovering from surgery

17 July 1967, 59-1465, Offutt crash on departure

KC-135R ('Rivet Stand', later 'Rivet Quick'). Pilot over rotated during takeoff, stalled and crashed. 1 of the 5 on board is killed.⁵¹ Note: See chapter 2 regarding the KC-135 'R' model of the 1960s.

Crew killed:

Lt Col Robert J Templeton, 44, Wentworth, WI

Injured:

Lt Col James K. Hailey, 46, Papillion, NE

Capt Thomas M. Kennedy Jr., 26, Madison, WI

Capt James A. Reinhardt, 32, Fort Jarvis, NY

Capt Richard Beringston, 29, Cass Lake, MI

Ames Daily Tribune, July 18, 1967

17 January 1968, 58-0026, March 135 crash at Minot

The KC-135 left March AFB where it was stationed, carrying Maj. Gen. Charles M. Eisenhart (Deputy Commander of 15th Air Force) on a staff visit to Minot AFB. The next morning shortly after 9 a.m. the flight took off from Glasgow AFB, MT. The airplane over rotated during takeoff in a moderate fog, stalled and crashed about 3000 feet from the tower. 12 of the 13 occupants killed instantly, the one survivor, TSgt Wright, was taken to the John Moses Air Force Hospital at Minot in critical condition and died soon after.⁵²

Injuries: All 13 aboard killed

Crew killed:

A/C: Lt Col James 'Jack' A. Mercer

Co: Capt James J. Sullivan, 27, Farmingdale, NY

Nav: Lt Col Clifford V. McConnico

BO: TSgt Charles C. Chaplin, 35, Arkansas City, KS

Flt Steward: TSgt Willaim G. Wright

Also killed:

Major General Charles M. Eisenhart, 53, Culbertson, NE

Col Rex E. Epp

Col Charles S. Rathburn

Col William H. Davidson

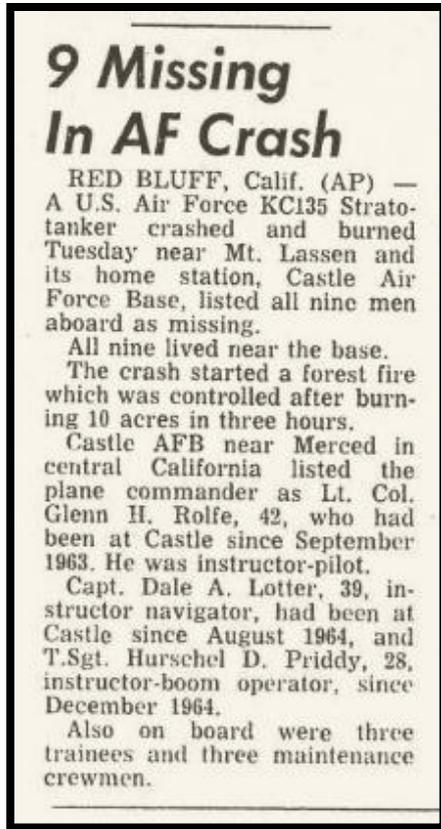
Lt Col F. G. Mauch

Major Paul Edwin Davis, 36, Washington

Sgt William F. Mason

Sgt Thomas A. Powers

30 July 1968, 56-3655, Castle, crash at Mount Lassen



The KC-135 departed Castle AFB on a refueling training mission. The crew was conducting a practice emergency descent from FL390 to FL230. After a sharp turn the vertical stabilizer separated and the airplane crashed in a timberland forest on Mount Lassen, about 50 miles east of Castle. In another account the crew was practicing a Dutch Roll recovery and applied too much rudder.⁵³

Injuries: All 9 occupants killed

Crew killed:

IP: Lt Col Glen H Rolfe, 42, North Dakota

A/C: Lt Col Laval D. Trembley, 47

Nav: 1Lt Gail M Blakeley, Jr, 26, Ohio

IN: Major Dale A Lotterer, 39, California

IB: TSgt Hurschel Duane Priddy, 25, Tulare, CA

BO: Sgt Charles A. Olvis Jr, 25, Pennsylvania

Crew Chiefs killed:

Sgt Daryl D, Dix, 21

Sgt David W. Decante, 26

A1C Benson M. Shames, 21 William E. Berzinec ??

Pacific Stars And Stripes August 2, 1968

24 September 1968, 55-3133, Anderson to CONUS, divert to Wake

I do remember the accident you are speaking of. (My accident) was on Wake Island coming home from U-Tapao, and others coming home from other areas, but on the Vietnam wall internet site one of the guys (who I had to identify) it says we crashed in South Vietnam. It cannot say where we were. I looked up others on the wall and they all said the same thing, there are conflicting stories as to where we were, but I do not care, 11 young men died on their way home, many I knew, and they were not identifiable I can tell you that.

It was a somewhat normal emergency landing, #4 engine was shut down for zero oil pressure. I swapped gauges around, restarted #4, still nothing so we started our descent. There is a lot to this story from here on so to make it short, we came in too low, the pilot put the gear back up to make a go around, but with gear up and throttle to the wall we hit the deck, ripped #1 engine off the wing, bellied in. The aircraft buckled in half and it sat there and smoked JP-4 for what seemed to be a nightmare.

I worked on that damn thing for a month, I was the Jet engine man and I knew I was going home on it, I changed #1, #2, #3 engines that month for minor things, #4 was the best, and that one failed.

This crash made National News that day, my father and mother saw the news, Mom knew I was in that (aircraft), she had a feeling (mothers intuition). We were able to call home via short wave radio. Of course I will never forget that day, I have thought of those 11 guys every day since 1968.

Frank⁵⁴

11 of 56 GIs Killed In AF Tanker Crash

WAKE ISLAND (AP) — A huge Air Force jet tanker crashed off Wake Island's runway after skipping off the water Tuesday. Eleven of the 56 men aboard were killed and 23 others were injured, 14 seriously.

The landing wheels were still up on the plane, a KC135 used by the Strategic Air Command to refuel B52 bombers on runs to South Vietnam from Guam.

The plane was flying from Andersen Air Force Base, Guam, to Honolulu's Hickam Air Force Base, when the pilot diverted to Wake because of an emergency.

A SAC spokesman said most of the passengers aboard were headed for leaves in Hawaii.

Action by Federal Aviation Administration firemen on the tiny atoll 2,300 miles from Honolulu may have reduced the loss of life.

"The fire was tremendous," said Ray Caudle, acting area manager of Wake, which is un-

der the control of the Federal Aviation Administration.

"Ten or 12 probably would have gotten out of the front of the aircraft anyway."

Caudle said if rescue workers had not reached the plane quickly, others would have been killed. He said the rescue workers foamed the plane, opened emergency exits and pulled the airmen out.

The plane was returning to its home base at Loring Air Force Base, Maine, when the pilot shut down the No. 4 or left outboard of the military version of the Boeing 767. Then the pilot diverted to Wake.

FAA tower observers saw the plane hit the Pacific waters just short of the 9,800-foot runway, then skipped onto the atoll's runway which is 10 feet above sea level.

The plane skidded wheels up, to a stop 3,000 feet from the east end of the runway and burst into flames. The wings and tail assembly broke off.

The seriously injured were flown to Guam, which is 1,000 miles closer to Wake than Honolulu. One of Wake's two FAA doctors accompanied them.

The other nine men injured were treated at Wake. Presumably the remaining 22 men aboard were unhurt.

*Syracuse Post Standard
September 25, 1968*

A Pease KC-135 departed Andersen AFB, Guam. The plane bounced off the water short of the runway and then touched down again (gear retracted) on the runway, skidding into a crash. They had diverted to Wake Island because of engine problems; 11 of the 56 on board died. The plane was en route to the United States from Guam.

REPORTER: Walter Cronkite. The KC-135 transport plane was en route from Guam to Loring AFB, ME with en route stops at Honolulu-Hickam AFB, HI and California. Over the Pacific Ocean the airplane developed engine problems. They crew decided to divert to Wake Island Airport. On final approach the airplane contacted the surface of the water and bounced onto the east end of the runway. It struck ILS aials and burst into flames.

The passengers were Strategic Air Command personnel returning from duty in Guam. All the passengers that were killed were in the tail section of the fuselage. As a result of the investigation, policy prohibited seating anyone aft of the emergency escape hatch.

The Allan S. Major Award recognizes a historian assigned to a single-person history office at the wing or independent group level. Airman 1st Class Allan S. Major was the first enlisted historian killed in the line of duty. He perished in a KC-135 crash at Wake Island on Sept. 24, 1968, while returning to Pease AFB, N. H., from deployed duty at Andersen AFB, Guam.

Injuries: 11 killed, 23 are injured (unconfirmed reports say 1 or 2 died later in the hospital)

Passengers killed:

- Sgt Alfred I. Brooks, Dayton, OH
- Sgt Arthur B. Crews, Barnesville, GA
- Sgt Paul D. Grosick, Wexford, PA
- A1C Richard Halgren, Nashua, NH
- A1C Carl V. Hansen, Cleveland, OH
- Sgt John L. Johnson, Waterbury, CT
- TSgt Gene Lauer, Shamokin, PA
- A1C Allan S. Major, Maspeth, NY
- A1C Kenneth Shook, Dayton, VA
- A1C Larry Wright, Ceres, CA
- SSgt John Martin Quigley, 25, Philadelphia

1 October 1968, 55-3138, Crash on takeoff at U-Tapao

The crew, assigned to the 320th BW at Mather, were flying a Castle AFB tanker while TDY to U-Tapao in support of the war in Vietnam. ^{55, 56}

Prior to this accident the water injection system was linked to the left wing (eng. 1 and 2) and right wing (3 and 4). According to Flight Safety Foundation: No. 4 engine power was lost on take-off from U-Tapao at 2235 PST on 1 Oct, causing an asymmetric thrust condition. The Stratotanker then hit concrete and steel light stanchions beyond the end of the runway and crashed. Witnesses report that 3 and 4 lost water simultaneously, and that the water injection system fleet wide was modified to pump the inboards, and the outboards.

From John Mickley, retrieved from Facebook, 10 Sep 2013:

They were lead in our cell and I stepped out on the wing to take this picture as obviously nobody was taking off. Back in the day you held full forward yoke and had your hand on the steering wheel. They lost #4 and while attempting to steer back to the centerline blew a nose gear tire, followed by the other one. The drag made the takeoff impossible and they crashed off the end of the runway, killing all on board.

That was my first Young Tiger deployment and I was a 1st Lt Copilot.

Injuries: 3 of 4 killed instantly, A/C survived crash but died from the injuries on 7 Oct.

Mather crew killed:

A/C: Maj Dean L. Beach, 39, Vestaburg, MI
Co: 1Lt Richard M. Welch, 24, Maxwell, IA
Nav: 1Lt Robert C. Profflet, 27, Cairo, IL
BO: TSgt Earl B. Estep Jr, 47, Winifrede, WV



Photo courtesy John Mickley

22 October 1968, 61-0301, Westover KC-135 crash at Ching Chuan Kang

A Columbus AFB crew flying a Westover KC-135 from U-Tapao AB, Thailand, crashed about 55 miles short of its destination of Ching Chuan Kang AB (Taiwan). The aircraft was reported to be below the published approach altitude in a mountainous area at night, and struck the ground just below the top of a 7,000' mountain.

Columbus crew killed:

A/C: Capt Kent Vincent Allison, 28, Prairie Village, KS
Co: Capt Mark F. White, 29, VA
Nav: 1Lt James J. Hayes Jr, 23, NJ
BO: SMSgt Howard B. Bengel, 49, Concordia, KS

Westover crew chiefs killed:

SSgt Raymond Robert Goyette, 53, Chicopee, MA
Sgt Robert Dudeck, Ipswich, MA

13 January 1969, 59-1491, Rivet Ball crash at Shemya

To begin the use of the -135 for a reconnaissance platform, the AF converted one KC-135A tanker and three C-135A transports to RC-135D during 1962-1963. From the assembly line this aircraft was a B717/KC-135A and was delivered to Wright-Patterson AFB on Oct. 1, 1960 for conversion to a JKC-135A named "Nancy Rae". After modifications, Nancy Rae deployed to Shemya on New Year's Eve 1961 to record Soviet ICBM launches into the Kamchatka peninsula. This conversion program was called Rivet Brass. On March 1, 1963 Nancy Rae was converted to an RC-



135S (First of its kind) and renamed *Air Force photos* "Wanda Belle". The name "Wanda Belle" was changed to "Rivet Ball" in early 1967.

On 13 January Rivet Ball was returning from an operational mission and attempted a night landing on runway 28 at 12:30 AM. Runway conditions appeared to be within limits according to all reports. After a normal touchdown she struggled to brake on the runway slush and then began to hydroplane. She was unable to stop in time and hydroplaned off the end of the runway 28 into a 40' ravine! Fortunately, the Aircraft Commander, Maj. John Achor, was able to shut down the alternators in time and avoid crashing into the telephone poles

that supported the approach lights for runway 10. Had he failed, surely Rivet Ball would have exploded in a ball of fire and consumed everyone and everything. John did good.

Seconds before final impact the MT, Capt. Robert L. "Viper" Brown, sounded off with.... "Ride 'Em Cowboy!"⁶⁷

One of the crew stated "Actually, the landing was half way decent; (the bad part) was the forty-foot cliff at the end of the runway where the crash occurred." All 18 on board survived without injury.

25 March 1969, 56-3602, 135 at Loring crash on departure



*Portsmouth Herald
March 26, 1969*

A Loring KC-135 lost water injection at or near rotation due to frozen water injection surge tube; takeoff aborted and overran. Aircraft was destroyed, crew survived.

5 June 1969, 62-4137, RC-135 lost after departing Shemya

RC-135E "Rivet Amber" was at that time the most sophisticated reconnaissance plane of the US Air Force. It was converted to this configuration in 1963 to fly reconnaissance missions against the Soviet re-entry range off the Kamchatka Peninsula. On June 5, 1969, Rivet Amber departed Shemya for a flight to Fairbanks for routine maintenance. About thirty minutes after departing Shemya, Rivet Amber (Call sign IRENE 92) transmitted the following



message to Elmendorf AFB: "Elmendorf Airways, Irene 92 experiencing vibration in flight. Not certain of the emergency. We have the aircraft under control, IRENE 92." This was the last radio contact with the flight. Unidentified microphone keying clicks continued until 10:22. The aircraft crashed at sea, 19 people lost.⁵⁸

62-4137, before it was converted to an RC-135. Photo courtesy of B3A

Wikipedia Article:

Originally designated C-135B-II, project name Lisa Ann, the RC-135E Rivet Amber was a one-of-a-kind aircraft equipped with a large 7 MW Hughes Aircraft phased-array radar system. Originally delivered as a C-135B, 62-4137 operated from Shemya Air Force Station, Alaska from 1966-1969. Its operations were performed in concert with the RC-135S Rivet Ball aircraft. The radar system alone weighed over 35,000 pounds and cost over US\$35

million (1960 dollars), making Rivet Amber both the heaviest C-135-derivative aircraft flying and the most expensive Air Force aircraft for its time. The radiation generated by the radar was sufficient to be a health hazard to the crew, and both ends of the radar compartment were shielded by thick lead bulkheads. This prevented the forward and aft crew areas from having direct contact after boarding the aircraft. The system could track an object the size of a soccer ball from a distance of 300 miles (480 km), and its mission was to monitor Soviet ballistic missile testing in the reentry phase. The power requirement for the phased array radar was enormous, necessitating an additional power supply. This took the form of a podded Lycoming T55-L5 turboshaft engine in a pod under the left inboard wing section, driving a 350kVA generator dedicated to powering mission equipment. On the opposite wing in the same location was a podded heat exchanger to permit cooling of the massive electronic components on board the aircraft. This configuration has led to the mistaken impression that the aircraft had six engines. On June 5, 1969, Rivet Amber was lost on a ferry flight from Shemya to Eielson AFB for maintenance, and no trace of the aircraft or its crew was ever found.

A message was received from the aircraft stating they were experiencing a vibration but not declaring an emergency followed by "crew go to oxygen."

Crew lost:

Maj Charles B. Michaud, 34, Drummond, OK
Maj Peter S. Carpenter, 36, Idylwild, CA
Maj Richard N. Martel, 37, Raymond, NH
Capt Michael E. Mills, 28, Alderwood Manor, WA
Maj Horace Beasley, 33
Capt James Ray, 31, Greensboro, NC
TSgt Eugene Benevides
SSgt Roy Lindsay, Beaumont, TX
SSgt Richard J Steen Jr
SSgt Douglas Arcano, Stamford CT
Sgt Sherman Consolver Jr, Orlando, FL
Sgt Lucien Romaniecki, Maple Shade, NJ
Maj Rudolph J. Meissner Jr, Grand Rapids, MI

From Offutt AFB:

MSgt Herbert C. Gregory
TSgt Harvey Hebert
TSgt Lester J. Schatz
SSgt Robert W. Fox
TSgt Charles F. Dreher
TSgt Donald F. Wonders, Newton, IA

19 December 1969, 56-3629, Castle 135 crash leaving Ching Chuan Kang

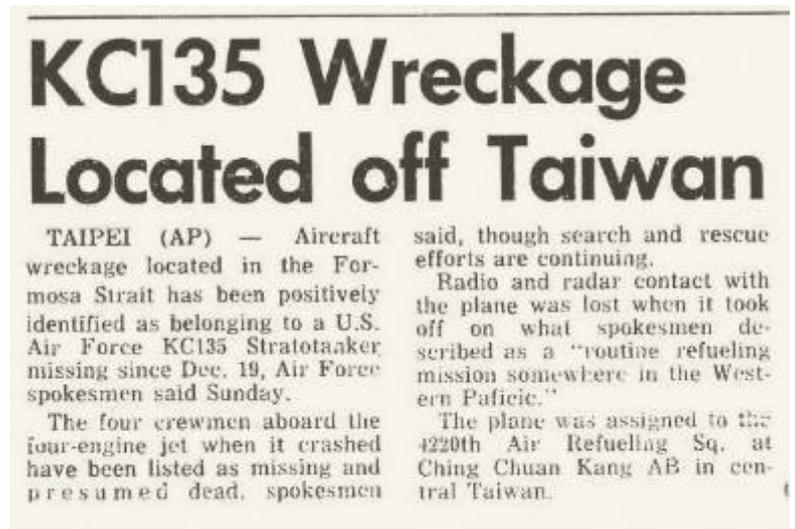
Ching Chuan Kang AB (Taiwan), Castle KC-135 Crashed during climb out. There were reports of low level windshear, but cause of crash could not be ascertained with any certainty.

Crew killed:

A/C: Maj Gene T. Wright, 37, San Diego, CA
Co: Capt John M. Olsson, 25, San Antonio, TX
Nav: Douglas W. Murphy, 28, Richmond, VA
BO: SMSgt Howard G. Benford, 47, Taylor County, GA



*Bonham Daily Favorite, Bonham, TX,
December 21, 1969*



Pacific Stars And Stripes December 25, 1969

13 Jan 1970, 58-0020, Andersen AB, 135 on take-off roll strikes F-4

"That accident occurred on 13 Jan 1970. The F-4D was piloted by Lt Col Michael E. Styer and his back-seater was 1st Lt. Terry L. Banning. They were returning to the U.S. from Danang Vietnam. They were positioning on the runway for take-off waiting for their wing man, another F-4D to line up with them. Before the second F-4D could taxi out the KC-135 started his take off roll. The tanker left wing and #1 engine struck the F-4 sitting to the left of the runway centerline. The impact drug the F-4D down the runway creating a fireball from ignited JP-4 and caused the left strut to collapse tilting the aircraft at 45 degrees. Lt. Col Styer attempted to eject but due to the angle the F-4 was to the ground after the strut sheared he was unable gain enough altitude and impacted the ground before his chute could open. Lt Banning unstrapped in an attempt to escape and did not attempt ejection and perished in the fire. [James O. Helms, CMSgt, USAF Ret].⁵⁹

On 14 Jan 86, BMAC converted 58-0020 into a KC-135E,⁶⁰ it retired from Sioux City ANG and went into storage at AMARC 24 Jul 2008.

Damage: 1 engine and wing damage to KC-135, total loss of F-4

Injuries: BO injured, William M. Barber, (now) SMSgt Ret., Alden, MI

2 killed in F-4D

A/C: Lt Col Michael E. Styer

WSO: 1st Lt. Terry L. Banning

0020, after conversion to E-model, w/ permission from Matthias Becker / Editor



1 May 1970, 62-3535, BMAC test to destruction at Wichita Airport

The Boeing Military Aircraft Company facilities at Wichita (sharing the field with McConnell AFB) took delivery of this 7-year-old KC-135 on 6 April 1970, to conduct 'cyclic testing'. The company deliberately "tested it to destruction" on 1 May 1970. It was sent to AMARC (the boneyard), but no longer registered there (probably scrapped).

17 June 1970, Beale 135 collision with SR-71 at El Paso

A Lockheed SR-71A collided with a KC-135Q tanker 20 miles East of El Paso, New Mexico. Pilot Buddy Brown and RSO Mort Jarvis eject safely. The damaged tanker limped back to Beale Air Force Base, California, and was restored to service. There were no injuries.

3 June 1971, 58-0039, inflight explosion near Torrejon

The tanker crew, from the 34th ARS at Pease AFB, was flying a McCoy AFB jet, returning from an A/R back to Torrejon AB, Spain. They were actually sparing that day, and the primary aborted takeoff for losing water. Crashed following in-flight explosion of the number 1 main fuel tank. Chafing of boost pump wires in conduits was determined to be a possible ignition source. The aircraft was scheduled to rotate home the next day.

All 5 onboard killed:

A/C: Maj James Metcalf, Pringhar IA
Co: Capt Russell C. Anderson, St Louis, MO
Co: 1Lt Elmo A. Evans Jr, Cumberland, MD
Nav: Maj Ernest Servetas, Dover, NH
BO: SSgt Richard D. Rousher, Youngstown, OH

13 June 1971, 61-0331, C-135 nuclear test observation lost in Pacific

This C-135B was assigned to the Aeronautical Systems Division of AF Systems Command at Wright Patterson. It departed Pago Pago, American Samoa, headed to Hickam AB in Hawaii. It was being used to monitor French atmospheric nuclear tests in the Pacific and disappeared after one such test. All 24 onboard were lost approximately 700 mi. SSW of Honolulu. A beacon of the type carried on the aircraft was found, but no explanation for the crash was ever determined.

The AF released the names of 24 on board:⁶¹

Lt Col Victor J. Reinhart, Dayton, navigator
Lt Col Billy L. Skipworth, Papillion, NE, aircraft commander
Maj William Edward Page, Jr, Xenia, OH
Maj William Unsderfer, Xenia, OH, an aircraft commander
Maj John R. McGinn, Jamestown, OH, navigator
Capt Perry Thomas Rose, Dayton, OH, pilot
Capt Byron C. Burnett, San Bernardino, CA
1Lt James Gilbert, San Bernardino, CA
TSgt Hubert Miles Jr, Fairborn, OH, boom operator
SSgt Kenneth S. Kowal, Youngstown, OH
SSgt Elno Roe Weimer, Springfield, OH, flight engineer
Maj Joseph B. William, Albuquerque, NM
Thomas J. Walter, Chelmsford, MA
David Penney, North Reading, MA
Anthony J. Theriault, Newbury, MA
John P. Cahill, Andover, MA
Rola F. Blanchard, Arlington, TX
Charles V. Dito, Arlington, TX
Dean L. Hoar, Arlington, TX
John B. Tumas, Greenville, TX
Thomas R. Connor, Los Alamos, NM
Edward M. Slagal, (Westinghouse Corp., Baltimore)
Donald E. Ashland, San Bernardino, CA
Allen Morrisette, (Avco Corp. Wilmington, MA)

*Des Moines Register,
18 June 1971*

IOWAN ABOARD MISSING PLANE
Des Moines Register Page 20
Date: June 18, 1971

HONOLULU, HAWAII (AP) — Nine planes and two ships searched an area of the Pacific on Monday for a C-135 Air Force jet missing with 24 persons, including an Iowan and 22 civilians.

The four-engine jet disappeared Sunday during a 2,007-mile flight from Pago Pago, American Samoa, to Hickam Air Force Base near Honolulu.

A spokesman at Wright-Patterson Air Force Base in Ohio said the plane was based at Wright-Patterson. He said eight crew members aboard the plane were assigned to the Aeronautical Systems Division at Wright-Patterson.

Parents in D.M.
Wright-Patterson identified the aircraft's commander as Major William Unsderfer, Jr., 36, whose parents, Mr. and Mrs. William Unsderfer, live at 985 Forty-first St. in Des Moines. Unsderfer was born in Oskaloosa. A sister, Mrs. Jan Carson, also lives in Des Moines. Major Unsderfer's wife lives in Xenia, Ohio.

Also listed as being aboard the plane was Lt. Col. Billy L. Skipworth, 42, commander of the 2nd Airborne Command at Offutt Air Force Base near Omaha, Neb.

Military officials in Honolulu said that 12 of those on board the plane were civilians and the remainder were military personnel.

Slight Debris
An Air Force official said some unidentifiable debris had been sighted 200 miles north of Palmyra Island, the site at which a crash position indicator, an emergency radio beacon, was located Sunday. No survivors were seen.

Air Force officials at Hickam have refused to talk about the plane's mission, but the aircraft is of the type that sometimes flies from American Samoa to monitor French nuclear tests in the South Pacific. The most recent French test was conducted last week.

Map: A map shows the flight path from Pago Pago, Samoa, to Hawaii. Key locations marked include Palmyra Island, the Hawaiian Islands, and the Equator. The Pacific Ocean is labeled.

13 March 1972, 58-0048, Carswell crash on landing

After getting checkrides, the crew brought the Carswell AFB KC-135 back to base and let the 2 evaluators off. They resumed flying in the pattern. During a practice landing, the right wingtip struck the ground and the airplane crashed and exploded. Among the witnesses were the children of an elementary school near the runway, they saw the wing strike the ground and the plane went into a violent cartwheel.

The 5 crew onboard perished

A/C: Maj Charles N. Ventimiglia, 46, Brooklyn, NY

Co: 1Lt Alexander E. McCarthy, 25, Phoenix, AZ

Co: Capt John C. North, 26, Enid, OK

Nav: Maj John L. Snow, 40, Springfield, MO

BO: A1C Bruce J. Klaverkamp, 19, St Cloud, MN

30 Jun 1972, 63-8473^{xiv}, French Air Force at Hao Island, French Polynesia

A L'Armee De L'Air (French Air Force) C-135F was on a weather reconnaissance mission associated with a planned nuclear test at Mururoa.^{xv} The aircraft lost power on one Pratt & Whitney TF-33 engine, and then a second engine and crashed into the sea near Hao Island Airport, French Polynesia.^{62 63}

All 5 crew died⁶⁴

CDT Dugue

LTT Frugier

CNE Parage

ADC Hecq

ADC Langlais



63-8473, photo from Air-Britain PIC, with permission from Stephen Rendle

1973	KC-135	\$10M each
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^{xiv} Many sources incorrectly say this was 63-8743, on 1 July. Corrected here by Boeing tail number registry and photos of the plane, and the date from a monument on Hao Island placed by the French Air Force.

^{xv} This aircraft was equipped with an A/R boom. Note: My research did not reveal what the positions on the crew were.

8 March 1973, 63-7989 and 63-7980, Lockbourne ground collision

During a practice alert at Lockbourne AFB, two KC-135 Stratotankers (63-7989 and 63-7980) taxied from an unlit ramp towards the runway. Both aircraft collided while maneuvering off the ramp. Stratotanker 63-7989 continued 200 yards before coming to a stop in a muddy, grassy section just off the concrete apron. Flames engulfed the tanker from the cockpit to the mid-section and burned two large holes in the plane. 63-7980 was restored to service.



Journal News, Hamilton, OH, March 9, 1973

“Check out the story behind the current Speckled Trout tail: 63-7980. Very interesting, as it is cobbled together from two aircraft that were involved in the same accident (63-7989 and 63-7980). During a practice alert at Lockbourne AFB in 1973, the two KC-135's taxied into each other--the right wing of 63-7980 sliced through 63-7989 killing the copilot and navigator. The crew escaped, but the aircraft continued to roll under power and in flames towards the egressing crew. In the end, the undamaged right-wing of the fatally wounded 7989 was used to replace the destroyed right wing of the crippling 7980. 63-7980 was later chosen as the R-model replacement aircraft to be modified to the VKC-135R configuration by L3 Corp under Big Safari and is in use today by the CSAF as a flying avionics testbed and a senior-leader C4 aircraft.

An interesting story, to say the least...”⁶⁵

MONTY
Matthew T. "MONTY" Fritz, Lt Col, USAF

(Letter to author): Captain James Blackwell had severe burns. He was the AC on the bird where two others died immediately. Jim jumped out of his pilot's window while the throttles were still full forward. In addition to being severely burned, the left main landing gear squished his legs. He was medevac'd to Brooks Burn center in San Antonio by a C-9 that afternoon. He lived for nearly a week, before dying. We were told that the treatment for his burns made his legs worse and the treatment for his legs made the burns worse. Anyway, he was ultimately killed in that crash.

In those days a SAC ORI was initiated by a klaxon, and the crews not only started engines, they taxied across the hold line and were timed. (Later on, as a result of this accident, the crews merely started engines, and time was added for the assumed taxi time to the hold line.) They blew the klaxon at about 5AM, while it was still dark. It was foggy, with terrible visibility. And the fog actually steamed up the windows, which weren't covered like they were in later years on alert birds. Spool time on the J-57 was about 20 seconds from idle to enough power to move the aircraft at alert fuel loads. One pilot cleared and thought it was okay to push up his throttles and taxi. Unfortunately, the other pilot already had spooled his engines up with enough power to move. The jets were parked side-by-side, with minimum clearance between wingtips. As one turned, his wingtip actually moved backwards. (You can see that by moving a model airplane or even your hand.) That wingtip went right into where the LOX (Liquid Oxygen) tank was by the nav's legs at the same time the reserve tank fuel was dumped into the cockpit, and the sparks from cut wires caused everything to explode. Thomas died instantly. Bari Stone (my next door neighbor) got out of the CP seat and made it to the crew entry chute where he succumbed to the flames. In all, there were 13 major causes for the accident. It was truly freakish.

The fatal aircraft continued straight ahead until getting stuck in the mud, all four engines still screaming for some time. Our DO at the time was brave enough to go in and shut the engines off after the fire department quelled the cockpit flames. I started a 12 hour shift as Supervisor of Flying about three hours after the accident happened and spent the

worst day of my life. Jim Blackwell was a friend of mine, and I saw him as they loaded him onto the medevac – his head was two or three sizes bigger than normal and all black.

From May to Oct of the previous year, all our jets and most of our crews deployed to Thailand, where we flew day and night during Linebacker I without a single incident. Then we come home and kill three guys during an inspection. Our Wing CO during both the deployment and the accident was Col Bill Nicholson. I was a young captain at the time and planned to make the AF a career. But, while speaking from the podium at the memorial service for the three who died, Col Nicholson said, "They're still putting pilots through pilot training and navs through nav school, but they're no longer making KC-135s. Gentlemen, we've got to take better care of these birds." I left the chapel and went right to CBPO and put in my paperwork to get out ASAP. And I did.

Ronald L. Albers
Colonel USAF (retired)

Killed on 63-7989:

BO: TSgt Kenneth L. Graham
Crew Chf: Sgt Charles L. Cassady

Survivors:

A/C: Capt James R. Blackwell,
Nav: Maj William E. Thomas, 41, Shuqualak, MS
Co: 1Lt Bari Wayne Stone, 25, Buies Creek, NC

On 63-7980, crew not injured:

A/C: Capt George W. Warner
Co: Capt William M. Truesdale
Nav: 1Lt Kenneth D. Robinson
BO: SSgt Bruce W. Lawson
Crew Chf: Sgt Dan T. Sedberry



Citizen Journal, March 9, 1973, thanks to Ray Ruetsch

9 February 1974, Kirtland 135 over Peterson

SMOLDERING METAL — All that was left of a T-39 jet trainer assigned to McClellan AFB, Sacramento, Calif., was a pile of smoldering metal. The small jet aircraft collided with an NKC-135 Celestial Observation jet about 8:30 p.m.

Saturday killing three to maybe seven passengers and crewmen. The NKC-135 landed safely at its assigned base at Kirtland AFB, New Mexico, following the collision.

(Gazette Telegraph Photo by John E. Hall)

A United States Air Force North American T-39A Sabreliner, returning to McClellan AFB, California collides at 8:30 p.m. with a USAF Boeing NKC-135A Stratotanker at 23,000 feet over Peterson Field, Colorado, killing all seven on board the Sabreliner. The T-39 had experienced landing gear trouble, rendezvoused with the NKC-135 for look-over, accidentally strikes rear fuselage and fin of Boeing. NKC-135 with 18 persons on board lands safely, was en route from Seattle, Washington to Kirtland AFB, New Mexico.

Damage: Tanker damaged but restored, T-39 destroyed

All seven on board the T-39 killed:

Capt Michael C. Zigler, 26
Maj John D. Arnold, 36
SSgt Edwin E. Jackson, 38
SSgt Donald L. Zeilstra, 33
1Lt Lewis G. Allen, 26
Sgt George R. Clark, 26
Amn Michael C. Schneider, 28

(Continued from Page One)
were in the area of Van Buren Street and Templeton Gap Road when they sighted the plane.

"I looked up into the sky and at first thought I saw an aerial flare over Peterson Field," explained Jackson. "I looked again and saw that it was burning furiously and knew it wasn't a flare. From the time I first saw it until it disappeared the fire seemed to flare up furiously five or six times."

Jackson's account of the fire seeming to flare up verifies statements from witnesses at the scene who said the plane was cartwheeling on its way down.

Police Officer Robert Fisher, who was cruising in the area of Fountain Boulevard and Circle Drive, also saw the plane and it appeared to be tumbling.

Police dispatcher Thomas Smith said he received a call minutes after Jackson radioed from an unidentified woman caller in the Templeton Gap-Academy Boulevard area.

The woman, according to Smith, told him she had heard a loud explosion overhead and that "two planes had collided."

Smith said the woman did not have time to get the information from any radio or television reports, leading to the theory the collision occurred over the city.

A spokesman from Kirtland told the Gazette Telegraph that the KC-135 landed "normally" in Albuquerque at 10 p.m.

"There was no damage that affected the flight or landing at all," he said.

He said the only damage was to a piece of the "skin" that covers the fuselage on the left side of the aircraft behind the wing.

Colorado Springs Gazette February 10, 1974

5 March 1974, 57-1500, McConnell crash during departure



Abilene Reporter News

A USAF Boeing KC-135A Stratotanker of the 91st Air Refueling Squadron, 384th Air Refueling Wing, crashed and burned shortly after take-off from McConnell AFB, Kansas, killing two of seven crew. Air Force spokesmen reported that the aircraft was carrying 136,000 pounds of fuel when it crashed 3,000 feet from the main runway, after it apparently lost power.

According to the Aviation Safety Network: The pilot lost control of the airplane immediately after takeoff. Confusion between the instructor pilot and student pilot during a perceived nr.1 engine failure caused overcontrol of the airplane.

Injuries: 2 of the 7 crew killed

Crew:

A/C: Maj Patrick G. Richmond, 35, Fort Pierce, FL

Co: 1Lt James Egan, 26, Queens, NY

Co: 1Lt Glen R. Montgomery, 24, Cullman, AL

Nav: Maj Glenwood Arnold, 38, Waco, TX

BO: TSgt Joseph J. Richardet, 34, Perryville, MO

Crew killed:

Nav: Maj Emil J. Leidolf Jr, 36, Dallas, TX

Pilot: 1Lt Tadeusz S. Jurzysta, 26, Ithaca, NY. Tadeusz was 2 yrs old when his family escaped the oppressive Stalinist regime of post-war Poland.

5 March 1974, Carswell 135 rapid decompression over Canada

A USAF Boeing KC-135A Stratotanker of the 7th Air Refueling Squadron, 7th Bomb Wing, en route from Eielson AFB, Alaska to its homebase at Carswell AFB, Texas, suffered explosive decompression when a small window near the aft hatch blew out at 35,000 feet at 1630 hrs. EST about 40 miles SE of Fort Nelson, British Columbia. One passenger of the 25 aboard died from the effects of the rapid decompression; others and eight crew okay. The tanker made an emergency

landing at a Canadian Armed Forces Base at Edmonton, Alberta.

1 killed as jet tanker loses window

EDMONTON, Alberta (UPI) — A small window blew out on a U.S. Air Force KC135 jet tanker flying at high altitude Tuesday, decompressing the huge plane and killing one of 33 military men on board.

A Canadian armed forces spokesman

said the plane was flying at an altitude of 35,000 feet about 40 miles southeast of Fort Nelson, B.C., when the incident occurred.

The aircraft was carrying eight crew members and 25 passengers, all military personnel, from Eielson AFB in Alaska to its home base at Carswell AFB in Fort Worth, Tex. The plane made an emergency landing at the Canadian armed forces base here.

"The other members of the crew and the 25 passengers suffered no injuries," said Canadian armed forces spokesman Sgt. Jim Cochrane.

He said the exact cause of death of the one fatality was not known, but he said it was "directly attributable" to the decom-

pression of the aircraft.

The name of the victim was not released. It was the second incident involving a U.S. Air Force KC135 jet tanker Tuesday. In Wichita, Kan., a loaded KC135 crashed in flames shortly after takeoff from McConnell Air Force Base, killing two of the seven crewmen aboard.

Killed were Maj. Emil J. Leidolph of Dallas, copilot, and Lt. Tadeusz S. Jurzysta of Rochester, N.Y.

Conversion table

BRUSSELS (UPI) — Wednesday's closing rates of the U.S. dollar to European

Closing N.Y. Stock Prices through the courtesy of Bankhaus Bache and Co.

	Mar 4	Mar 5		Mar 4	Mar 5
Gulf Western	26.2	26.2	Penn Cent	3.1	3.1
Hilton	18.4	18.2	Pepsico	64.5	64.2
Honeywell	75.4	74.7	Pfizer	39.2	40
IBM	244.2	247.4	Pitt Morris	106.4	107.2

25 March 1975, Crewmember dies in-flight

On a return flight to Plattsburgh AFB, after pulling a SAC alert tour at Goose Bay, Labrador, the boom operator, SMSgt Jackie V. Egbert, 42, was resting in the bunk when he suffered an apparent heart seizure. He was a 25 year veteran, after growing up in Mt Vernon, IL.

7 December 1975, 60-0354, Eielson crash on frozen lake

Near Eielson AFB, Alaska, a Plattsburgh KC-135 being flown by an Ellsworth AFB crew, crashed on the frozen Tanana River just south of Eielson, following landing gear problems. All four crew members were killed in the accident. Investigators cited that the crew may have been suffering from hypothermia, after a long delay on the ground before takeoff, with temperatures around 40 below zero.

Daily News - Miner
"America's Farthest North Daily Newspaper"
 25c Per Copy FAIRBANKS, ALASKA, MONDAY, DECEMBER 8, 1975 20 Pages

Air Force lists four S. Dakotans missing

Four crewmembers were listed as missing today following a Sunday night crash of a KC-135 tanker shortly after takeoff from Eielson Air Force Base.

Base officials reported communications with the aircraft until immediately before the time of crash, but the cause of the accident has not been determined.

The four crewmembers were from Ellsworth Air Force Base in South Dakota and were temporarily assigned to Eielson, according to a spokesman at the Eielson information office. No Eielson information office. No Eielson information office. No Eielson information office.

Missing were identified as Capt. Martin R. Graham Jr., 1st Lt. Joseph M. Furda, 1st Lt. Karwin D. Plucker, and Sgt. David M. Wandel. Hometowns of the men were not immediately available, the Air Force spokesman said.

The crash occurred in an unpopulated area just south of Eielson, with the plane coming to rest near the Tanana River. Indications were that the plane caught fire following impact and that there were no survivors, the Air Force said. It was reported the plane was in several pieces.

Rescuers today searched with helicopters for a sign of survivors in the wreckage.

A helicopter reached the scene near the frozen Tanana River about midnight, with rescuers arriving on foot about mid-morning. By late morning, however, there still were no reports of survivors.

Temperatures at the crash site, about 30 miles south of Fairbanks, were estimated at about 50 below zero. There are no roads in the immediate vicinity of the site.

An Air Force information officer said the plane's destination probably was classified, as flights out of the air base frequently are.

Another spokesman said he assumed the four-engine jet was carrying a full load of fuel.

A board of qualified Air Force officers will be convened to investigate the specific cause of the crash.

CRASH SITE--The arrow points to the crash site of an Air Force tanker plane which went down shortly after takeoff from Eielson Air Force Base late Sunday time an Air Force not sure what side plane was located.

Champion memo irks state officials

By RICHARD A. FINBERG
Staff Writer

Two state commissioners have demanded the pipeline coordinator rescind instructions to his field staff implying they can override state laws.

Department of Mueller of the tion (DEC) sent pipeline coordinatify field per...

Champion backed Mueller said-he...

tween the state state agencies s. The Pipeline 1974 to overne...

Fairbanks Daily News Miner December 8, 1975

Comment by Bill Nesbitt (KRCA 1972-1977) | May 16, 2013 | "The mission was to support an RC listening to whatever RCs listen to while snooping off the northern edge of the Soviet Union en route to Mildenhall. A KC was to follow the RC and refuel him once they were both at altitude and the RC was on its way. The primary KC had some maintenance issue so the alternate KC was tasked to go, but it crapped out too, so the backup had to go. The backup was Marty and his crew.

The temperature was 50 below and the crew had been in the aircraft for two hours with no heat because the APU was inop. By the time they got the order to go and got the engines started, they were half frozen and in no condition to fly. The problem started when the gear wouldn't retract after takeoff. Marty exacerbated that minor problem when he began a right turn, pulled the power back, and retracted the flaps. The aircraft began to descend and landed on the Tanana River (frozen over at the time) and then slid for a distance until it hit an island in the middle of the river and began to break up and burn. I say that the aircraft "landed" on the river, but the accident report stated that the aircraft hit hard enough to render everyone unconscious.

There were two accident reports. SAC's report blamed the crew (what a surprise). USAF's report blamed SAC. Later they set up a simulator with the same conditions ... same gross weight, same temperature, gear down, turn, reduce power, retract flaps, etc., and had 20 (I think) experienced pilots see if they could recover. I heard that all but one crashed."

Crew killed:

A/C: Capt Martin E. Graham Jr
Co: 1Lt Joseph M. Furda
Nav: 1Lt Karwin D. Plucker
BO: Sgt David M. Wandel

6 February 1976, 60-0368, Cabanillas, Spain

Torrejon crash of C135 killed 7

MADRID (AP) — The Air Force said Saturday that the C135 tanker that crashed five minutes away from landing at Madrid's Torrejon Base Friday killed all seven crewmen.

First reports Friday said there was a crew of six.

The aircraft was on its way from Mildenhall, England, on a refuelling mission.

The crash occurred in a field of Guadalajara Province, north of Madrid and 10 miles away from the plane's destination.

Later a spokesman at the U.S. Air Force Base in Torrejon identified the victims as pilot Capt. Jeffery Nye, 29, of Wooster, Ohio; copilot 1st Lt. Steven Sterling, 26, of Lincoln, Neb.; navigator 1st Lt. Timothy Kline, 25, of Iowa, and boom operator S. Sgt. Lloyd Baker, 22, of Kentucky, all four based at Seymour Johnson Air Force Base, N.C.; T. Sgt. Joe McCalister, 29, of Princeton, Ky., and flight mechanic Airman 1C John Hancock, 20, of Ferdinand, Ind., both based at K I Sawyer Air Force Base, Mich., and 1st Lt. John Barnes, 27, of Joliet, Ill., based at Pease Air Force Base, N.H.

A Seymour Johnson crew flying a KI Sawyer KC-135 from Mildenhall to Torrejon crashed into a mountain near Cabanillas, Spain. No survivors.

Injuries: All 7 crew killed

Seymour Johnson crew killed:

Capt Jeffery Nye, 29, Wooster, OH
AC: 1Lt Steven Sterling, 26, Lincoln, NE
CO: 1Lt Timothy Kline, 25, IA
BO: SSgt Lloyd D. Baker
NAV: 1Lt John Barnes, 27, Joliet, IL, based at Pease AFB

KI Sawyer crew chiefs killed:

TSgt Joe McCalister, 29, Princeton, KY
A1C John Hancock, 20, Ferdinand, IN

European Stars And Stripes February 8, 1976

17 Aug 1976, 58-0079, collision with F-4C

Collision during A/R with F-4C from the 58th TFW at Luke. During A/R F-4 struck boom hard enough to break it off the forks and drive it up and through side of fuselage. Aircraft lost right hydraulics, diverted to Edwards, landed safely. F-4 crew ejected, aircraft destroyed. (relayed by Ray Ruetsch)

Back in the mid-70s (when I was at Castle) there was an incident where an F4 got into a PIO while in contact. It was a Beale tanker if memory serves me right, and they were in the China Lake range area. End result, tanker 1, F4 0 as the F4 crew had to bail out. Tanker returned, minus most of boom and landed without further damage. (Thanks to JM)

26 September 1976, 61-0296, KI Sawyer crash on departure

On its way to Wurtsmith to pick up officers for a FIRST TEAM visit to Offutt, the KI Sawyer airplane developed a cabin pressurization problem. Because of the pressurization issue the crew chose to fly at a lower altitude and struck high terrain during their approach into Wurtsmith 12 miles SW of Alpena, MI. The airplane broke up and ended up in a swamp. 5 of the 20 onboard survive.

Alpena, MI Military Air Tanker Crashes, Sep 1976⁶⁶

PLANE CRASH KILLS 15. 5 SURVIVE CRASH IN AIR TANKER. AIR FORCE OFFICIALS UNABLE TO DETERMINE CAUSE OF ACCIDENT.

Alpena (UPI) -- Four survivors in the crash of an Air Force KC-135 tanker that killed 15 others were moved to an Army medical center in Texas today while the fifth survivor was released from a local hospital to join the crash investigating team.

The Air Force said the four were in serious but stable condition at the Brooke Army Medical Center burns unit in San Antonio.

They were Capt. JOHN HARRISON, 33, Ravenswood, W. Va.; Capt. CLIFFORD CALL, Seattle, Wash.; 1st Lt. DWAIN E. CRANE, 26, Pine Bluff, Ark.; and Capt. FREDERICK ANDERSON, 32, Upper Saddle River, N. J.

Airman DALE J. SOLON of Lakewood, Ohio, escaped serious injury in the crash and explosion Sunday of the giant tanker. He was released today from Alpena General Hospital, and the Air Force assigned him to the team investigating the disaster.

Air Force officials said they may not know for months what caused the tanker on a routine training mission to crash.

The military equivalent to a Boeing 707 was enroute from K. I. Sawyer Air Force base, located near the Upper Peninsula town of Marquette, to Offutt Air Force base in Nebraska when it crashed about 8:30 a.m. EDT Sunday into a densely wooded swampy area.

The violent crash which pulverized the plane into hundreds of pieces ranging from inches to ten feet in length.

The plane's body carved a 100-foot long gouge in the ground. Wreckage was strewn along a 50-yard wide path for more than half a mile.

The only known witness to the crash, ELMER LISKE, 48, a Hubbard Lake farmer, said he saw the plane flying low over the treetops while he was walking across his front yard about 8:30 a.m. EDT Sunday.

"It suddenly started to go down," LISKE said. "It blew up, and I saw a big ball of fire, and then it exploded several more times."

An Air Force team of investigators spent all day Sunday sifting through wreckage and another team of probers was due to arrive Monday from Strategic Air command headquarters in Nebraska.

"They will sift through every part of that plane until they find out why the aircraft did not stay in the air," one Air Force information officer said.

The spokesman said it will take at least a week and possibly several months to determine the cause of the crash.

Crew killed:

46 ARS:

A/C: Maj Frederick Richard Wrinkle, 36, Lebanon, MO
Co: 1Lt Ronald Patrick Roach, 28, IL
Nav: Capt Richard George Dankey, 28, SD
Pilot: Capt Oscar Wade Duggan, 28, GA
BO: TSgt Gary Lee Carlson, 33, IA

Capt Van T Cook, 28, FL
Daniel Hughston Craven, 39, CA
Capt Jerry B Richardson, 26, NY
Sgt James Martin Singleton, 20, OK
Capt Richard Neal Smithwick, 28, WI
Capt William Harley Warren Jr, 28, TX

Passengers killed:

Capt David Allen Phelps, 29, Brosely, MO^{xvi}
Capt Jack A. Kuzanek, 27, IL^{xvii}
Capt Charles R. Adams
Lt. Robert S. Witt

Survivors:

Capt John Harrison, 33, Ravenswood, WV
Capt Clifford Call, Seattle, WA
1Lt Dwain E. Crane, 26, Pine Bluff, AR
Capt Frederick Anderson, 32, Upper Saddle River, NJ
Amn Dale J. Solon of Lakewood, OH

4 March 1977, 62-3522, Griffis, engine explosion and fire on ground



During a ground engine maintenance run a KC-135 from Griffis had an engine shell itself out, throwing debris that tore open a fuel tank. This led to a fire and subsequent explosion that left nothing but the tail and one wing remaining. There were 2 reported injuries; SSgt James Aldrich from the maintenance squadron had minor burns of the hands, and Sgt Mark Darlington of the fire department was treated for a minor burn around the eyes. Both were treated and released that day.

Syracuse Post Standard March 5, 1977

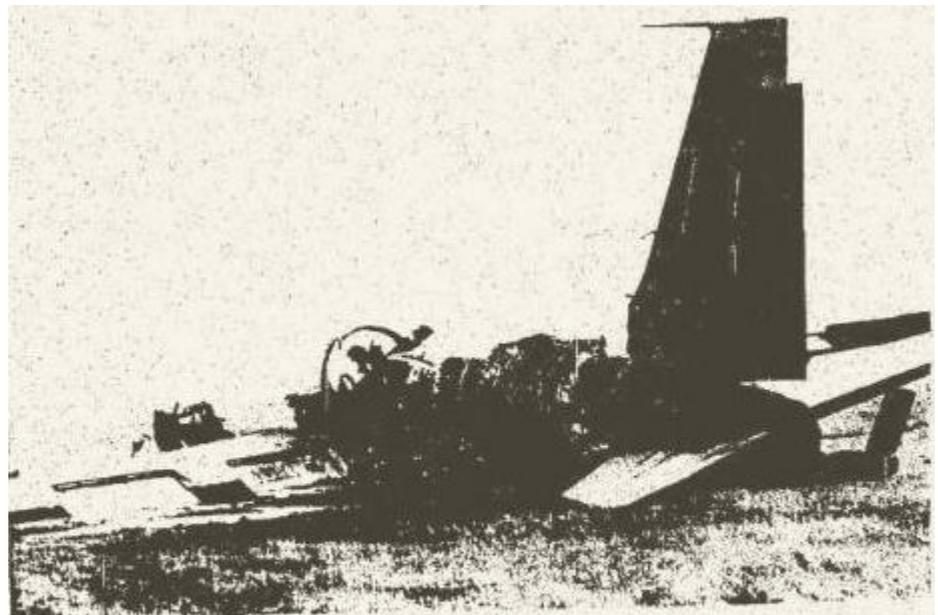
^{xvi} Also from 46 ARS

^{xvii} Also from 46 ARS

29 April 1977, 58-0101, Beale collision with cattle, crash on runway

A first in KC-135 history, the cause of this crash was cattle (obstruction on runway). This Castle AFB KC-135A was practicing night takeoffs and landings at Beale AFB. Nearby, some cattle strayed through a broken fence and on to the main runway. During one of the touch-and-goes, the airplane struck five or six cattle. Takeoff was aborted and the plane overran the runway and caught fire. 3 of 7 on board sustain minor injuries, all escaped before the plane was destroyed.

The crew elected the abort rather than continue the flight because the condition of the aircraft (fly-ability) was unknown. Lack of thrust reversers and insufficient braking power made it impossible to avoid exiting the runway.



Cattle Cause Tanker Crash

THE BURNED WRECKAGE of an Air Force KC135 jet tanker lies on the runway at Beale Air Force Base near Marysville, Calif. after hitting some cattle that had wandered onto the runway early Friday morning. Air

Force officials said some of the cattle apparently broke down a fence and wandered onto the runway, where they were hit as the plane landed. Three of the crew of seven from Castle Air Force Base suffered minor injuries. (AP Wirephoto)

Casa Grande Dispatch, Casa Grande, AZ, April 30, 1977

14 September 1977, 62-3536, Kirtland crash in Manzano Mountains

This EC-135K, converted from KC-135A, was part of the 8th Tactical Deployment Control Squadron, based at Seymour Johnson AFB, North Carolina. After departing Albuquerque International Sunport airport (Kirtland AFB, NM) on a joint training mission they crashed in steep terrain, at about 8,500 in the Manzano Mountain range, two miles S of the Four Hills housing development, killing all 20 on board. They had stopped at Kirtland for fuel. When departing the aircraft was observed flying too low and did not heed the controller's warnings. Fatigue may have played a part in the accident.

TEAMS PROBE MOUNTAINSIDE PLANE CRASH.67

A Tactical Air Command jet crashed and exploded on a mountainside nuclear storage facility at top-secret Manzano Base late Wednesday night killing all 20 men on board.

The plane, which had just taken off after a refueling stop at adjacent Kirtland Air Force Base, blew up about two miles south of the Four Hills housing development, sending a cloud of fire billowing from the wreckage and lighting the horizon with a dull-orange glow.

The EC-135 jet, designed for use as an airborne command center in time of war, was part of the 8th Tactical Deployment Control Squadron, based at Seymour Johnson AFB, near Greensboro, N. C. It had flown from Hunter AFB near Salina, Ga., on its way to Nellis AFB, Nev., for a training exercise with the Army. It crashed about six miles from the end of the east-west Kirtland base runway.

None of the victims -- which included nine officers up to the rank of colonel -- was from New Mexico, officials said.

"There was no indication that the pilot was having trouble," Capt. Ben Orrell, Air Force information officer, said. "It was strange -- there was no radio call at all."

It has been reported that an air traffic controller tried to warn the jet moments before the impact.

"Either the pilot was too busy trying to correct a problem of some sort, or he may have been unaware the mountain was there," Orrell said.

The pilot has been identified as Capt. D. M. Hicky, 29, of Colorado Springs.

The crash, which scattered wreckage across 10 acres of the rugged mountain terrain, woke residents in Four Hills. As calls began jamming switchboards at every Albuquerque office likely to have information, ambulances, trucks and four-wheel drive vehicles began hauling bodies to a makeshift morgue in a gymnasium at Manzano Base.

Small groups of spectators gathered in the mesa between Four Hills and the base, which is surrounded by a high-voltage electric fence, watching the flares and the two helicopters which spotlighted the area.

A Four Hills woman who lives about two miles from the crash site said when she saw the explosion she thought a hydrogen bomb had blown up.

"I was kind of in shock," ANN LINDSAY, 23, of 641 Stagecoach Road, told the Journal.

"Planes fly in low over our house all the time," she said. "But I'd never heard one like this. I ran to the window and saw the explosion. It billowed out like an orange balloon-type cloud of fire. It looked like pictures I'd seen of a hydrogen bomb."

"I've seen other planes that looked like they were going to hit the mountain -- because of the angle, I guess -- but this one seemed to head straight for it, on a horizontal course."

"I said, 'Why don't you go up!' but it didn't seem to. Then it hit and I thought, oh no, a hydrogen bomb has gone off."

"I've lived here for 12 years and I know they store atomic bombs at Manzano."

It has been reported in the past that Manzano Base is a stockpile for nuclear weapons, but it has never been confirmed nor denied by base officials.

When asked if the plane crashed in an area near where fissionable material was stored, ORRELL said, "I can't comment on that."

Although no official cause for the crash has been given, it has been speculated that the jet lost power on take off and was laboring to fly over the mountain without all four engines working.

But the reason for the crash won't really be known until an investigation team, due at Manzano this morning, finishes sifting through the debris.

Air Force victims:

Capt. Dan M. Hicky, 29, pilot, Colorado Springs
Capt. Lee Eggericks, 27, co-pilot, Orchard Lake, MI
Maj. E. W. Hargert, 36, navigator, Charlotte, NC
Staff Sgt Randy C. Madison, 28, flight engineer, McCroy, AR
Master Sgt David W. Lewis, 36, radio operator, Goldsboro, NC
Staff Sgt Alfred A. Crump, 30, radio operator, Louisville, KY
Staff Sgt Joseph H. Batton, 29, flight steward, Southport, NC

Staff Sgt Theron D. Quattlebaum, 37, flight mechanic, Murfreesboro, TN
Staff Sgt Jack A. Lester, II, 28, flight mechanic, Virginia Beach, VA
Also Airman 1C Charles H. McCorkle, 19, flight mechanic, Beckley, W. VA
Staff Sgt Richard K. Arthur, 28, flight mechanic, Charleston, W. VA
Col. Harlan B. Hume, 45, passenger from Hurlburt Field, Fla., Chico, CA
Staff Sgt Dennis Hill, 28, radio operator, Miami

Airman 1C Jonathan R. McSwain, 21, flight mechanic,
Charlotte, NC
Col. Keith R. Grimes, 42, passenger from Scott AFB,
Ill., Austin, TX
Army:

Staff Sgt Thomas B. Merriweather, JR., 33, Dowdy, AR
CWO Robert A. Vogt, 34, Olivia, MN
Maj. James E. Bryan, 36, Long Island, NY
Maj. Paul T. Murphy, 37, Largo, FL
Capt. Leslie C. Judd, 28, Hamilton, OH

*I saw this crash!*⁶⁸

On October 10th, 2008 Lynne says:

I was 12 years old, and I was up late because the family dog had died that night. My bedroom window framed Manzano Mountain, and I could hear the plane laboring. The bright light of the explosion made me open my eyes (I had just gotten into bed). I will never forget that night.

On January 16th, 2009 glb says:

I was working as an active duty USAF Security Officer in the area where this plane crashed. I was involved with securing the area and guarding the temporary morgue. I think of this devastating experience almost every day of my life and can't imagine the grief and sadness the families of the victims must have dealt with and may still be dealing with. Now, 32 years later, I came across this article and I would like to offer my sincere condolences to the surviving family and friends.

On December 15th, 2009 Jim Coady says:

I was there also working as an SP. I saw the plane crash while on my way back from chow, with 3 other SPs. I was then assigned to escort the priest while he tried to bless everyone on board. I too will never forget it.

On December 21st, 2009 John Landin says:

As an Airman First Class (at the time) and with the Munitions Handling Crew, I remember going to work the next day. We were briefed about the accident, it was difficult to hear about and see the devastation that happened over night. I couldn't believe my eyes and I remember how my heart felt so heavy. It's a memory that has stayed with me for all these years, I'll never forget the wreckage site. It's a memory I've shared with others over the years and it's still as if it happened yesterday. I too offer my sincere condolences to the surviving family and friends.

John Landin, USAF (Retired)

19 September 1979, 58-0127, Castle crash on landing

Seven occupants were on a training flight at Castle AFB were killed during a landing. During a touch-and-go a wing contacted the runway and the crew lost control.

SMSGt Evans is the namesake of the Al Evans Award, granted annually to the best in-flight refueling operator section. The Air Mobility Command Director of Operations presents the trophy at the annual Boom Operator Symposium, when possible.⁶⁹

5 of 7 Crew killed:

IP: Capt George Warren Ziegler, 31, Santa Fe, NM

Pilot: Capt Milton O Buchanan, 37, Abilene, TX

Pilot: Capt Mark L Dobbs, 28, MA

Nav: Capt Earle Boyce Squier, 28, Proctor, VT

BO: SMSgt Albert Leroy Evans, 45, Longview, WA

Surviving the crash were Capt Brian Burns, 31, MD, and MSgt David R. Moore, 35, Fergus Falls, MN.

2 January 1980, 58-0007, Langley EC-135 fire

A USAF EC-135P (with J57 engines) was destroyed by fire at Langley AFB, VA. Investigation determined an electrical short occurred in the water injection tank heater wiring. There were no injuries on the unoccupied Tactical Air Command (TAC) aircraft.

8 February 1980, 60-0338, Plattsburgh aircraft explosion, fire on ground

During ground refueling operations this KC-135Q burned out on ramp following an explosion of the aft body fuel tank. A faulty fuel probe was found to be the cause of the explosion. Aircraft destroyed, no injuries.

15 March 1981, 61-2664, Eielson RC-135S at Shemya

5 die in Air Force crash

ANCHORAGE, Alaska (AP) — Air Force officials, saying "horrible" weather was hampering their ability to get information from a remote snowswept base, say five people died and one person was missing after the crash of a reconnaissance jet in the Aleutian Islands.

The latest information from Shemya Air Force Station late Monday indi-

cated that seven of the 24 people aboard the RC-135 jet were injured in the Sunday night crash, said Lt. Col. Richard Stevenson of the Strategic Air Command in Omaha, Neb.

The high-altitude jet crashed in gusty winds and low visibility while trying to land after a training flight from Eielson Air Force Base near Fairbanks, he said.

Santa Ana Orange County Register March 17, 1981. Photo,

At Eielson, a 6SW crew on an RC-135S, call sign EXULT 66, struck the approach lights at night while on final approach to Shemya AFB in marginal conditions (turbulence fog, blowing snow, and sleet). 6 of the 24 occupants were killed.

One of the survivors, TSgt Tommie C. Wood of the 6985th, woke from being unconscious after the crash. He returned into the burning debris to retrieve an officer on the

crew whose legs were burning. With the aid of another survivor he was attempting to carry the officer out when he was knocked unconscious again by a subsequent explosion. When he came to the second time his help



was unconscious, so alone he continued to remove the injured officer from the wreckage while suffering from 3 broken ribs, a broken nose, and a cut from his forehead to his chin. He made his way to the rescue personnel to be sure they knew where to find the two others, before he allow them to take him to the clinic. He was later decorated with the Airman's Medal.



Pacific Stars and Stripes March 19, 1981

Injuries: 6 of 24 on board killed

Killed from crew, 6 SW, 24th Strategic Reconnaissance Squadron:

- Maj William R. Bennett, 36
- Capt Larry A. Mayfield, 34
- 1Lt Loren O. Ginter, 28
- MSgt Stephen L. Kish, 37

Killed from the 6985th Electronic Security Squadron:

- SSgt Harry L. Parsons III, 24
- SSgt Steven C. Balcer, 24

6 May 1981, 61-0328, Wright Pat EC-135N crash in Walkersville, Maryland



Photo from B3A, before conversion from C-135.

EC-135N aircraft 61-0328, call sign AGAR 23, was scheduled for an Advanced Range Instrumented Aircraft (ARIA) training mission out of Wright-Patterson AFB. The mission was designed provide training for the navigator and primary mission electronic equipment (PMEE) operators. On

board the aircraft were 17 crewmembers and four authorized passengers, 2 of them were spouses of crewmembers participating in an orientation flight program. AGAR 23 departed at 10:05 and climbed to FL290, which was reached at 10:30. The aircraft commander occupied the right pilot seat and a passenger, his wife, occupied the left pilot seat.

For undetermined reasons, the aircraft pitch trim moved to the full nose-down position. The autopilot can overcome the trim until near full nose-down. The aircraft then rapidly pitched over, most likely upon release of the autopilot, and induced sufficient negative g forces to cause the generators to trip off line and loss of all AC electrical power. The pitch trim could not then be moved electrically. This condition, while unusual, can be easily controlled if prompt corrective action is taken; however, if corrective action is delayed approximately 8 sec., the aircraft pitch angle will be greater than 30 degrees nose-down and the airspeed in excess of 350 KIAS. Under these conditions, the aircraft cannot be controlled until the pitch trim is moved toward neutral. While it is clear that recovery was delayed, the reason for the delay is unknown. The aircraft became uncontrollable and entered a steep descent. The aircraft emerged from the clouds at 2,000 ft. AGL. Airspeed was in excess of 400 KTAS and dive angle was 20 to 30 deg. Engine power was above 2.0 EPR. At approximately 1,500 ft. MSL an explosion occurred inside the pressurized compartment of the fuselage and weakened the aircraft structure to the extent that catastrophic failure of the aircraft followed immediately. All 21 aboard were killed. A memorial has been built at Walkersville Heritage Farm Park.

Excerpt from ARIA 328
Crash Report⁷⁰, Source: DoD

On May 6, 1981, EC-135N, Serial Number 61-0328, call sign AGAR 23, departed Wright-Patterson Air Force Base, Ohio, at 1005 Eastern Daylight Savings Time (EDT) on a routine training mission. Onboard the aircraft were 17 crewmembers and 4 authorized passengers. The flight proceeded uneventfully as planned for approximately 45 minutes. Then, in a few brief moments, a sequence of very rapid events resulted in a crash with the loss of all onboard.



Photo by William Fischer, Jr. of Fort Scott, Kansas

At 1049:48 EDT, the Federal Aviation Administration (FAA) lost radar contact with AGAR 23. The aircraft was cruising at Flight Level 290, at .78 Mach while performing a navigational training leg.

For undetermined reasons, the aircraft pitch trim moved to the full nose-down position. The aircraft then rapidly pitched over, most likely upon release of the auto-pilot, and induced sufficient negative "G" forces to cause the generators to trip off line, resulting in the loss of all, AC electrical power. The pitch trim could not then be moved electrically. This condition, while unusual, can be controlled if prompt corrective action is taken; however, if corrective action is delayed approximately 8 seconds, the aircraft pitch angle will be greater than 30 degrees nose-down and the airspeed in excess of 350 knots indicated airspeed. Under these conditions, the aircraft cannot be controlled until the pitch trim is moved toward neutral.

While it is evident that recovery was delayed, the reason for the delay is unknown. The aircraft became uncontrollable and entered a steep descent. During the rapid descent, an explosion occurred at approximately 1300 feet above ground level followed immediately by catastrophic failure, and complete break-up of the aircraft.

Injuries: All 21 aboard were killed

A/C: Capt Joseph Charles Emilio, 36, Long Beach, NY
(and his spouse, Peggy Ann Emilio, 24)
Pilot: Maj Edward Robertson, Wright Patterson pilot
Pilot: Capt Thomas E. Bayliss, 31, Chatham, VA
Pilot: Capt Walter T. Lusk, 34, Lawrence, KS
Nav: Lt Col Benjamin B. Frederick, 39, Pottstown, PA

Nav: Capt Donald Vincent Fonke, 32, Fayetteville, NC
(and his spouse, Linda Fonke, 30)
Bell & Howell technical rep: Michael W. Riley, 24,
Trotwood, OH
Capt Thomas E. Bayliss
SSgt Joseph T. Brundige, Jr.
SSgt Michael W. Darling

SSgt Douglas A. Diblet
Maj Joseph C. Emilio
Mrs. Peggy A. Emilio
Capt Donald V. Fonke
Mrs. Linda M. Fonke
Lt Col Benjamin B. Frederick
1Lt Charles E. Gratch
SSgt Timothy L. Harris
SSgt George M. Henninger

TSgt Gregory C. Hodge
2Lt Clayton F. Jones
Capt Walter T. Lusk
SMSgt Larry D. Middleton
A1C Randall C. Moffett
CMSgt Eddie W. Presley
SSgt Glenn S. Resides, Jr.
Mr. Michael W. Riley
TSgt Larry G. Wetzel

13 March 1982, 57-1489, Phoenix Guard at Luke, collision with AA1

The KC-135 was on an IFR flight plan and was returning to Luke AFB. The crew was carrying out a TACAN runway 3L approach. At the same time a Grumman-American AA-1 Yankee (N6160L) was in the area. The airplane had just departed from Phoenix-Sky Harbor Airport and was flying in a special traffic area where he was requested to be at or below 2000 feet. The AA-1 however, flew at 2500 feet skimming along the cloud base. The KC-135 descended through the cloud deck and collided with the AA-1. The empennage of the KC-135A separated. Control was lost and the airplane crashed inverted. The AA-1 crashed as well. All 4 in the tanker and the 2 occupants of the AA1 were killed.

See article at: <http://forums.jetcareers.com/threads/unaware-and-unafraid-in-the-undercast.184878/>

From: <http://arizonawrecks.com/visitthewrecks/kc135.html> (see more pics on this site)

We remember this crash well. 13 March 1982. It was a sad day for the Air National Guard at Sky Harbor. It collided with a civilian Grumman Yankee on which the California pilot was unfamiliar with the local flight patterns. The light plane struck the tail of the Stratotanker, the KC impacting in an inverted dive after the tail was severed. The giant plane crashed on the Perryville Prison grounds, which is now a big medium-security women's prison. We emailed the warden asking to see the crash site and were astonished when the warden set up an appointment for us to do so.

After a security screening and background check, we met a very helpful assistant warden who took us out on the perimeter road to the crash site in a guard truck. It is in a plowed field just off the perimeter fence near a prison maintenance yard. The field is not cultivated, just cleared for security.

We were not allowed to search the field or leave the perimeter road. With such a large plane a lot of wreckage probably remains in that field. The Grumman Yankee impacted across the road in what is now an annexed addition to the prison with a similar plowed field for security.

We talked to numerous employees of the prison when were there, but none of them had worked there long enough to remember the crash. See NTSB report here:

http://ntsb.gov/ntsb/brief.asp?ev_id=20020917X02154&key=2

Crew killed:

A/C: Lt Col James Floor, 53
Co: Maj Truman Young Jr., 48
Nav: Lt Col Ted Beam, 40
BO: TSgt Donald Plough, 47

Grumman Yankee – Fatalities:

James Breshears, 48, of Livermore, CA
Kenneth Gurtz, 36, Pleasanton, CA

19 March 1982, 58-0031, Chicago acft explosion in flight at Wonder Lake



Chicago Daily Herald
March 21, 1982

The airplane, a KC-135, call sign HAPPY 33, crashed following an on board explosion which occurred at FL137. A fuel pump was probably allowed to run dry, causing it to become overheated and ignite fuel vapors. The plane came down into the Greenwood area, Wonder Lake, IL, about 50 miles NW of Chicago. Some witnesses claimed they saw lightning strike and the explosion occur. It was later determined that the cause of the crash was due to 'an over-pressurization under the cargo floor,' which would have caused an explosion from the accumulation of combustibile vapors.



Photo from B3A

The passengers from the 928th Tactical Airlift Group, AF Reserves also from O'Hare, had been flying their C-130 and diverted into KI Sawyer for engine problems. HAPPY 33 dropped in the KI to give them a lift back home. The crew of the KC-135 have roads named after them at the old O'Hare Air National Guard facility.

All 27 on board killed. Crew:

A/C: Maj William S. Dixon, 35, Hoffman Estates, IL
Co: Cpt Robert Nicosia, 33, Algonquin, IL
Nav: Cpt Kenneth L. Herrick, 36, Urbana, IL
BO: MSgt Richard Crome, 39, Wilmette, IL

Members of the 928th Tactical Airlift Group at O'Hare AF Reserves. All of them are from Illinois except Capt Sunderman:

SRA Spyridon A Agriopoulos, 24, Chicago
MSgt James A. Alexander, Jr., 46, Evanston
Sgt Frank C, Badoni, Jr., Chicago
SrA Frank Barbeni, Elmwood Park
A1C Joe L. Branch, Chicago
SSgt Eugene W. Grygiel, 35, Chicago
SrA Haunani Ann Holt, Chicago, 27, Honolulu
TSgt Kenneth J. Jarecki, Chicago
A1C Orval D. Jones, Chicago
Amn Carlos R. Melendez, Chicago
Sgt Stephen J. Olezyk, Carol Stream
Capt Frank Jamison Campbell Patton, 33, Prospect Heights

A1C John A. Powell Jr., 22, Rockton
Sgt Augustine J. Salinas, Chicago
SSgt Jose Sandovalgarcia, Chicago
Maj Richard A. Stark, Winetka
Capt Richard W. Sunderman, St Ann, MO
SSgt James A. Vance III, Chicago
TSgt Allen R. Woodin, 33, Milledgeville
SSgt Ronald W. Walker, 36, Esmond
Amn Anita L. Walton, Chicago
MSgt Frederic C. Willhoit, Wood Dale
SSgt John Lee Woolridge, Orland Park

25 February 1985, 55-3121, Eielson crash in mountains

After departing Eielson AFB, a 6th SW crew flying the RC-135T was testing a new instrument approach. The aircraft struck a mountain in poor weather. The 3 on board were killed. The wreckage was quickly hidden by snowstorms and was not located until discovered by a T-33 crew on August 2, 1985.



Air-Britain Photographic Images Collection

© Robin A Walker

Photo from B3A

All 3 crew killed:

Maj Michael L. Manning, Cambridge, IL

Maj John R. Davis, Minden, LA

Capt Jonathan K. Seckman, Quincy, IL

Crew, aircraft missing, coastal search underway

Air Force search and rescue teams were still standing by in hopes of being able to search for a RC-135 trainer aircraft which has been missing since Monday afternoon. As of 4 p.m., Wednesday, bad weather in and around the Valdez Airport was not allowing search teams to reach the area.

The aircraft was assigned to the 6th Strategic Wing and had been making transition approaches while on a routine training mission when air traffic controllers lost radio and radar contact with it.

Three crew members were on board the aircraft. They are Maj. Michael L. Manning, Maj. John R. Davis, and Capt. Johnathan K. Seckman. All three crew members are assigned to the 24th Strategic Reconnaissance Squadron.

Air Force officials were hoping to be able to make a ground search of the area pinpointed by a SR-71's radar search as a possible location as soon as the weather allowed search and rescue aircraft and ground teams to reach the area.

*Goldpanner News, North Pole, AK,
1 Mar 85*

19 Mar 1985, VC-135A, 61-0316, ground refueling fire at Cairo

During ground refueling this VC-135A aircraft caught fire. The interior of the plane was burned out and the aircraft was written off as destroyed. There were no injuries reported. The plane was originally a Boeing KC-135A converted into the airborne command post for the Strike Commandviii Commander in Chief. It was stationed at MacDill until 1975, modified back to tanker configuration in 1979 (but maintained the VC-135 designation), and assigned to Barksdale Air Force Base in Louisiana for use by the 8th Air Force Commander. It burned on the ground during refueling in Cairo, Egypt on March 19, 1985. There were no reported injuries.

Although the aircraft was destroyed, the wing was reutilized in rebuilding a KC-135A, 58-0014, in the process of conversion to a Kansas ANG KC-135E. Years later, 0014 was sold to Chile.

27 Aug 1985, 59-1443, Castle 135 training, crash at Beale

During an approach, the instructor pilot allowed the co-pilot to land during an unstable approach. The #1 engine contacted the runway resulting in an engine fire. The crew continued the touch and go and began checklists for engine fire in flight. The instructor pilot failed to maintain control and the aircraft stalled, rolled to the left and crashed.

Santa Ana Orange County Register August 29, 1985

7 die as KC-135 crashes during touch-and-go landings

Associated Press

MARYSVILLE — An Air Force KC-135 air tanker crashed Tuesday during landing and takeoff training at Beale Air Force Base, killing all seven crew members, a spokesman said.

Capt. Joseph Saxon said the four-engine jet plane had a crew of seven men and there were no survivors.

There were no reports of injuries to persons on the ground, al-

■ **LONDON:** An aviation authority orders a check of jet engines. **F1**

■ **JAPAN:** An 'abnormal impact' is cited in the crash of a jetliner. **F1**

though the crash started a brush fire on the base, situated about 50 miles north of Sacramento near Marysville.

Saxon said the names of victims would not be released until relatives had been notified.

Based at Castle Air Force Base near Merced, the plane was practicing touch-and-go landings

when it crashed at about 12:30 p.m. two miles from the end of the runway near the edge of the base.

There were no immediate reports of eyewitnesses. Security officers sealed a large area around the crash site. Tech. Sgt. Daryl Green of the base public information office said he visited the site and saw an area about

1,600 yards long of burned grass.

"The aircraft itself was pretty much scattered," Green said. "I couldn't say how far it was scattered. It was pretty well broken up in a lot of little pieces. There was nothing I was able to identify as a particular part that I would recognize."

One resident of the area, who didn't witness the crash or give his name, said shortly after the crash that he could see nothing but tiny pieces of the plane scat-

tered over hundreds of yards of burned grass near grazing cattle.

"Apparently it just disintegrated when it crashed," he said. He added that he saw the crash site from several hundred yards away.

Photographs of the crash scene also indicated that the plane disintegrated on impact. The biggest single piece of the plane visible appeared to be a section of wing 4 to 5 feet across.

Crew killed:

IP: Maj George T. Nistico Jr
A/C: Student, Capt Susan O. Scott, 32
Co: 2Lt Robbin K. Armon
IN: Capt James B. Henry
Nav: 2Lt Kevin G. Bryan
IB: TSgt Claude F. Arden
BO Student: SSgt Desiree Loy,
Portsmouth, NH (Pease ANG)

Photo courtesy of B3A



xviii Strike Command was later renamed United States Readiness Command. In 1983, the new Rapid Deployment Joint Task Force (RDJTF) was activated, and in 1987 it became U.S. Central Command (CENTCOM).

17 June 1986, 63-7983, crash on landing at Howard AB, Panama

The Grissom KC-135A was TDY supporting the 305th AMW Det 1 (Tanker Task Force) at Howard AFB, Panama.

Chris,

The crew was a spare for the night mission. They were released after the primary tanker checked in with a green boom. Less than an hour later they were notified that the airborne primary tanker had a problem and they were to fly the mission.

The mission was uneventful, the copilot flew a PAR approach resulting in a very hard landing with subsequent loss of the #3 engine. They went around, with engine separated, hydraulic and power failures in the night. The aircraft avoided a military housing area and crashed into the jungle right wing down facing the airfield (~180 out).

The AC was Captain Thomas B McDerby who had only been assigned to Grissom for a few weeks. We were on the same CCTS crew (he was a copilot) and were roommates for almost a year at Wurtsmith. He upgraded as he departed Wurtsmith for Grissom.

Another of too many sad stories.

-Dan



Kokomo Tribune June 20, 1986

Crew killed:

A/C: Capt Thomas P. McDerby, 29, Toms River, NJ
Co: 1Lt John M. Bristow, 25, Benton, IL
Nav: 1Lt Wayne K.S. Ching, 25, Karmela HI
BO: SSgt Quinn L. Dewitt, 31, Detroit, MI

Photo, thanks to Dan Repp

1986 KC-135 \$17.3M each

13 February 1987, 60-0330. Altus ground fire upon landing

The Altus KC-135 caught fire during landing rollout and burned out. At the time of the explosion the copilot was making a radio transmission using the UHF radio. The UHF wire which runs near the aft wing root in the fuselage was melted due to an electrical fault. Fuel vapors in the area of the aft body tank were ignited by RAF radiation. There were severe burn injuries and other injuries sustained while exiting the burning aircraft while it was still rolling. The aircraft was destroyed.



from FB NKAWTG

Jet Tanker Fire Injures 7⁽⁷¹⁾

ALTUS Seven people were injured, two of them seriously, when fire broke out Friday aboard a U.S. Air Force KC-135 Stratotanker as it was landing at Altus Air Force Base, officials said.

The injured included the four crewmen on the aircraft and three firefighters. Most seriously injured were 1st Lt. David L. Hobin, 28, of Dallas, the navigator, and Airman 1st Class Steven R. Meloy, 20, of Coldwater, Mo., the boom operator. Both suffered smoke inhalation, according to base officials.

Don Johnson, public affairs officer at the base, said both men were to be transported to the burn unit at Fort Sam Houston, Texas, after being treated at Reynolds Army Hospital at Fort Sill.

Johnson said both the pilot, Capt. John R. McDonald, 32, of Mississippi, and co-pilot, 2nd Lt. Edward Trujillo, 23, of Abilene, Texas, were in good condition at the Altus Air Force Base hospital.

Military firefighters Sgt Graig Loeffler, 23, no town listed, and Airman Richard D. Riendeau, no age or town, were in good condition at the base hospital. Both were being treated for heat exhaustion.

Civilian firefighter Donald W. Hervey, who works at the base, was in good condition Friday night at the Jackson County Memorial Hospital.

"It'll be a total loss. It was burned to a crisp," , Johnson said.

Dana Coppock, a base spokesman, said the aircraft had been on a routine refueling mission before the accident. She said the fire broke out as the plane was landing at about 11:30 a.m. Airman John Brecka said the four crew members scrambled out of the burning plane on their own.

He said almost all of the aircraft burned in the two-hour fire. Only the tail section and the engines remained.

The plane was assigned to the 340th Air Refueling Wing at the base, located about 60 miles west of Lawton in southwestern Oklahoma.

Officials said they did not know immediately how much fuel was on board when the aircraft returned from its refueling operation. The plane, similar to a Boeing 707, has four engines and can hold up to 31,200 gallons of fuel in its lower deck, Air Force officials said.

Officials said the KC-135 has a maximum speed of 600 mph and a wing span of 130 feet, 10 inches. Its primary mission is to refuel bombers, fighters and planes in air rescue operations.

Tinker Air Force Base in Midwest City is among the facilities that maintain the KC-135.

The first KC-135 rolled out of the Boeing plant in Renton, Wash., on July 18, 1956. Its first flight was Aug. 31, 1956.

It was built as the first jet tanker designed to deliver fuel to the U.S. bomber fleet. It gave bomber pilots a tanker that could match their speed in level flight. Until this plane's production, jet bombers were able to take fuel from piston-engine powered tankers only while diving, so the old-style tankers could keep ahead of the speedier bombers.

The original Stratotanker was in Oklahoma City last August when it made a visit to Tinker.

Injuries: 7 injured including firefighters

A/C: Capt John R. McDonald, 32, of Mississippi
Co: 2Lt Edward Trujillo, 23, of Abilene, Texas
Nav: 1Lt David L. Hobin, 28, of Dallas, TX
BO: A1C Steven R. Meloy, 20, of Coldwater, MO

Honor turns to tragedy in KC-135 crash

Stars and Stripes,
16 Mar 87

13 March 1987, 60-0361, Fairchild 'Thunderhawks'

A U.S. Air Force KC-135 Stratotanker crashed at Fairchild Air Force Base while rehearsing maneuvers for an air show, killing six airmen and a spectator. The accident occurred just after takeoff when the large aircraft accidentally ran through the wake turbulence of the B-52 Stratofortress with which it was practicing. Upon encountering wake turbulence, the aircraft performed an uncommanded 80 degree roll to left, stalling engines 1 and 2. The crew recovered to a wings level attitude however they were too low to recover and the aircraft crash landed in open area next to base operations. She slid through a fence, continued through open field before impacting a weather radar tower which split open the fuselage at the wing root.

The tragic event marks the inauspicious introduction of a bomber-tanker demonstration team known briefly as the Thunderhawks; the Strategic Air Command's answer to the Air Force Thunderbirds and the Navy Blue Angels aerobatics teams.



To add to the tragedy, the spectator that was killed was a crewmember that was scheduled to be onboard, but was too ill to fly. He was driving home and stopped to watch the aircraft demo when the plane crashed through the fence, the aircraft tail broke off and struck his car.

This mishap occurred on Friday the 13th, the second consecutive Friday the 13th with a tanker loss. Even skeptics of superstitions took note of this.

U.S. Air Force KC-135 Stratotanker crashes at Fairchild Air Force Base, killing seven airmen, on March 13, 1987.

By Daryl C. McClary, December 20, 2008

HistoryLink.org Essay 887172

On March 13, 1987, a U.S. Air Force KC-135 Stratotanker crashes at Fairchild Air Force Base, Spokane County, while rehearsing maneuvers for an air show, killing six airmen and a spectator. The accident occurs just after takeoff when the large aircraft accidentally runs through the wake turbulence of the B-52 Stratofortress with which it was practicing, crashes into an open area near the runway, and bursts into flames.

At 1:20 p.m. on Friday, March 13, 1987, a B-52 and a KC-135 took off from Fairchild AFB to practice aerial maneuvers for a 15-minute air show scheduled on Sunday, May 17, Fairchild's annual Aerospace Day. The show was to be the debut of a new aerobatics team dubbed the Thunderhawks, the brainchild of General John T. Chain Jr., commander of SAC. Its purpose was to demonstrate the capabilities of SAC's large aircraft through a series of exciting routines that included a low-level refueling simulation, high-bank turns, and flybys down the runway. Colonel Thomas J. Harris, commander of the 92nd Bomb Wing at Fairchild had been assigned the responsibility for the Thunderhawks' creation and development in December 1986.

The KC-135A had three instructor pilots aboard the aircraft: Lieutenant Colonel Michael W. Cornett, Capt Christopher Chapman, and Capt Frank B. Johnson. But no one on the ground at Fairchild knew who was actually in command of the aircraft when it took off. Also on board plane were two navigators, Capt James W. Litzinger and 1Lt Mark L. Meyers, and boom operator, SSgt Rodney S. Erks.

The KC-135 had just taken off from runway 23, in tandem with the B-52, and was executing a steep left-hand turn when it suddenly rolled from an intended 45-degree bank to almost 90 degrees, stalling the two engines on the left wing. The crew managed to level the aircraft, but it was flying too low and slow to recover. The plane crashed landed in an open area north of the flightline, behind three large hangars, narrowly missing the base's bombing and refueling squadrons. It skidded through a security fence, across an access road, and killed SMSgt Paul W. Hamilton, a member of the Thunderhawks on his day-off from flying, who was sitting in his car watching. The aircraft traveled for another 200 yards, then hit an unmanned weather radar tower and burst into flames. During the journey, the tail section separated from the fuselage as well as the wings, engines, and wheels. One wing, ripped off by the collision with the radar tower, landed 50 yards beyond the burning wreckage.

Within minutes, Fairchild's crash teams were on scene, fighting the fire caused by spilled jet fuel. Spokane International Airport, four miles east of the base, dispatched a crash truck and the Spokane Fire Department mobilized an entire engine company to assist in battling the blaze. Because of the toxic fumes and dangerous flare-ups, reporters and photographers were not permitted near the scene. It took firefighters more than three hours to extinguish the flames and hot-spots from the crash. Searchers found the bodies of five crewmen in the forward section of the blackened fuselage. The body of the sixth crew member was finally found late Friday night, tangled inside the cockpit wreckage. It wasn't discovered immediately because the recovery teams were being careful to safeguard the crew compartment for the Air Force accident investigators.

Mourning and Investigating

On Saturday, March 14, Colonel James L. Holmes Jr., vice-wing commander, 6th Strategic Wing, Eielson AFB, Alaska, convened a 13-member investigations board at Fairchild and began a formal inquiry into the cause of the accident. The board included nine Air Force officers, two enlisted men, and one civilian from other SAC bases. A large portion of

their day was spent touring the crash site, still reeking of jet fuel, where twisted wreckage had been strewn over hundreds of square yards. The investigation included autopsies on the bodies of the airmen to screen for possible drug or alcohol use.

At 10:00 a.m. on Tuesday, March 17, 1987, a memorial service was held at Fairchild AFB to honor the seven airmen who died in the KC-135 accident. The service, held in the base chapel, was attended by more than 600 people. Those unable to crowd into the chapel watched it on closed circuit television in an adjacent building. Colonel Harris, Fairchild's commander, delivered the eulogy. The hour-long ceremony was concluded with a bugler playing taps, a 21-gun salute by an Air Force Honor Guard, and a Stratotanker executing a low pass over the chapel.

Questions Are Asked

Meanwhile, U.S. Representative Norman D. Dicks (D-Bremerton), a member of the House Defense Appropriations Subcommittee, was asking pointed questions about the fatal accident. He said he wasn't aware of the Thunderhawks' existence, which had been developing routines since early January, until reading a news story about the group shortly before the crash. In Dicks' view, the Thunderhawks program was directly responsible for causing the unnecessary deaths of seven highly trained and indispensable airmen and the destruction a \$19 million-dollar airplane. He wanted Congress to examine whether special aerobatics teams posed unacceptable risks to military fliers and expensive aircraft. U.S. Representative Thomas S. Foley (D. Spokane) joined Dicks in requesting a formal review of the air demonstration programs. (Congress normally doesn't micromanage military budgets and programs, however, subcommittee oversight sometimes occurs when specific problems arise.)

The Spokesman-Review, a Spokane daily newspaper, polled various military and civilian aviation experts on the capabilities of the KC-135A Stratotanker and published the results. The consensus was that large, heavy aircraft such as the KC-135 should not be used for aerobatics or low-altitude exercises. According to Om Chauhan, Air Force manufacturing supervisor at the Boeing Military Aviation Company in Wichita, Kansas, the tanker was designed for high-speed, high-altitude refueling, not for slow, low-level flying. "Large planes like the KC-135 require more time and thrust to recover from power loss or other problems, and flying close to the ground increases chances of a crash" (Corollo and Wagoner). John Galipault, president of the Aviation Safety Institute, stated: "It absolutely amazes me that they want to demonstrate the capabilities of air-to-air refueling so close to the ground. It's not in their mission. It's all showing off" (Corollo and Wagoner). And a spokesman for the Air Force Secretary's office claimed they weren't aware of the Thunderhawks program until the accident happened.

On Friday, June 12, 1987, the Air Force Accident Investigation Board released an official report concluding the crash of the KC-135, which happened just after takeoff, was caused by wake turbulence from the B-52 with which it was to practice aerial stunts. The tanker was behind and at a slight angle to the bomber's flight path, overshot its turning point and started a 45-degree roll to the left to get back on course. When the KC-135 inadvertently hit the B-52's wake, the plane suddenly rolled to nearly 90 degrees and was flying too low and too slow to enable a recovery. According to the flight plan, the KC-135, with refueling boom extended, was to execute a pass at approximately 500 feet, with the B-52 following at 200 feet. During the demonstration, the tanker was never intended to fly lower than 100 feet above the flight path of the bomber.

Aerial Circuses Reconsidered

As a result of the KC-135 crash at Fairchild AFB, the Air Force canceled all scheduled SAC aerial demonstration programs and the Thunderhawks team was officially disbanded. The Air Force Secretary, Edward C. Aldridge Jr. promised Congress it would not to use heavy aircraft, such as bombers and tankers, in risky maneuvers for air shows. The Air Combat Command (ACC) subsequently developed regulations which stated that heavy aircraft perform only straight, level passes over a fixed point during air shows, at minimum altitude of 500 feet above ground level, by no more than four aircraft, and not involving aerobatics. Any deviation from the regulations must be reviewed and authorized by the Air Combat Command.

The military formed "air demonstration teams," such as the Air Force Thunderbirds and Navy Blue Angels, which fly powerful jet-fighter aircraft to boost recruiting and morale

and give the public the opportunity to see the skill and professionalism of the pilots and crews. The programs, however, cost taxpayers millions of dollars annually and have been responsible for numerous fatalities as well as the destruction of expensive aircraft. But the Defense Department values the aerial circuses, as they raise the public's perception of the military, and currently has no plans to change its policy regarding air shows.

Crew killed:

IP: Capt Christopher L. Chapman, age 28; Tacoma, WA
IP: Lieutenant Colonel Michael W. Cornett, age 42, Cortez, CO
IP: Capt Frank B. Johnson, age 40, Spokane, WA
Nav: Capt James W. Litzinger, age 32, Verona, PA
Nav: 1Lt Mark L. Myers, age 24, Canal Fulton, OH
BO: SSgt Rodney Scott Erks, age 28, Lennox, SD

Spectator killed:

BO: SMSgt Paul W. Hamilton, age 41, Portsmouth, NH

17 September 1987, 82-0190, Barksdale KC-10 fire on ground

On 17 September 1987 a Barksdale AFB KC-10 landed at home station. The taxi in and post-flight check went without incident.

About one hour later, three ground crew members were on board; one in the cockpit, one in the left main gear wheel well and the other in the boom pod at the rear of the plane. An explosion occurred. The source of the explosion was somewhere in or near the center access compartment which is between the forward and center wing fuel tanks. The KC-10 had 63000lbs of fuel on board; 15000lb was in the forward tank. The center and aft fuel tanks were empty; the remaining 48000lb was in the wing tanks. The part of the aircraft, forward of the wings was burnt out completely.

Injuries: 1 killed, 2 escape, 16 injuries during the firefighting. All the injured were released the same day.

Killed: Sgt James M. Burgio Sr of the Acft Maintenance Squadron.



1987	KC-135	\$19M each
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11 October 1988, 60-0317, Wurtsmith crash on approach



Photo by SrA Matthew Ellis ⁷³

A Wurtsmith KC-135 with 17 occupants was returning from TDY to KI Sawyer. The 6 crewmembers were killed when it crashed on approach. A firefighting exercise had just completed, and the team was able to respond in minutes.

Injuries: All 6 crew killed, 10 injured



Photo courtesy of B3A

920th ARS crew killed:

A/C: Capt Jeffrey Giles, 27,
Co: Capt David B. Greene, 26
Nav: 2Lt Scott J. Szuter, 29
IN: Capt Gerald Earhart, 33
BO: A1C Robert L. Parham, 23

524th Bomb Squadron, Instructor
Radar Nav: Capt William Russell, 33

Injured:

Lt Col Joseph A. Pappé, Jr, OR
Capt Herbert T. Brown, FL
1Lt Joseph E. Gooté, CA
MSgt Allen M. Beardsley, WY
TSgt Brian M. Chamberlin, WI
TSgt Scott R. Ross, WI
SSgt Gerry D. Roadcap, VA
SSgt Christopher S. Colby, ME
Maj Fred E. Hadaway, OK
SSgt Deanna M. Wofford, AR



Investigators probe Wurtsmith crash

OSCODA, Mich. — A military investigation team Wednesday began trying to determine the cause of a fiery tanker plane crash at Wurtsmith Air Force Base that killed six Air Force crew members and injured 10 other people. Wurtsmith officials said nothing appeared amiss just before the KC-135 Stratotanker crashed and burned Tuesday afternoon while attempting to land at the base near Lake Huron in northeast lower Michigan.

*Chicago Daily Herald
October 13, 1988*

20 November 1988, Sighting window failure/crewmember killed

MSgt James L. Borland, a Reservist Boom Operator dies in-flight when the overhead sighting window breaks away from the aircraft. His was the only fatality, and the aircraft made an emergency landing without further incident. As a result of this tragedy the entire fleet of -135's was refitted with a sheet-metal replacement of the overhead sighting windows.

Oxnard Press Courier Oxnard California November 21, 1988

Man Dies in Depressurized Plane

MARCH AIR FORCE BASE (AP) — A air force reservist was killed when a window burst on a KC-135 tanker aircraft flying over the Atlantic Ocean, and the cabin depressurized, officials at the base here said.

The 10-inch by 8-inch window was used to view aircraft being refueled in the air. When it broke

Sunday, it depressurized the small compartment used by Master Sgt. James L. Borland, 47, of Moreno Valley, in the rear of the plane.

The accident was "one of those bizarre things, the odds are one in 2 billion. It's just ridiculous," said Lt. Col. Duncan Bridewell. "He was a guy who will really be missed."

31 January 1989, 63-7990, KI Sawyer crash at Dyess

See Chapter 5 for the details of this crash at Dyess.

20 September 1989, 57-1481, Eielson ground explosion



After landing at Eielson at approx. 3 p.m. on a routine training mission, the crew was shutting down the engines on an Alaska ANG KC-135E at Eielson AFB, an explosion occurred due to an overheated fuel pump. 2 of the 5 occupants were killed.

Author estimates the boom operators were accomplishing post-flight activity in the cargo compartment when the explosion occurred, killing both.

Crew:

A/C: Lt Col Robert E. Shepherd
 Co: Maj Marvel J. Gallentine
 Nav: Capt Thomas C. Hutchings

Passengers:

Navy Lt. Karl E. Glaeser
 Navy PO2 Andre R. Moser

Killed:

BO: MSgt Cheryl Helgerman
 BO: MSgt William J. Mallico

courtesy of Jack Waid

1989 KC-135 \$20.1M each

4 October 1989, 56-3592, Loring 135 inflight explosion over Canada

KC-135 crashed near Carlingford, NB (Canada) en-route to Loring AFB. A fuel pump ran dry and ignited fuel vapors after becoming overheated. The aircraft crashed.

Loring AFB officials honored the crew naming 4 of its streets after the 4 that perished.

Killed:

A/C: Lt Col William H. Northcutt
 Co: Capt Robert D. Weinman
 Nav: 2Lt Alfred H. Taft
 BO: A1C Jack D. Cupp



Kokomo Tribune October 4, 1989

Photo courtesy B3A

11 January 1990, 59-1494, Pease ground fire



Two technicians were doing maintenance work on the fuel cells inside the Pease AFB KC-135 tanker when a fire broke out. Both technicians escaped before the fire consumed the aircraft. No injuries.



Copyright Werner Fischdick

Photos, B3A

29 May 1992, 62-3584, EC-135 nose gear collapse on landing at Pope

The EC-135J landed long at Pope AFB and struck the nose gear too hard on the runway, causing the undercarriage to collapse. The fuselage broke in two and all 14 occupants escaped. The remains of the aircraft were moved to AMARC at Davis Monthan AFB, AZ.

Injuries: None, all 14 escape



*B3A and photographer
Frank Duarte, Jr.*

Copyright Frank C. Duarte Jr.

10 December 1993, 57-1470, Milwaukee, Mitchell ANGB fuel tank explosion on ground

The KC-135R had minor electrical and avionics system problems that were being repaired. While repairs were being conducted by ground crew members, an explosion occurred in the center wing fuel tank. The ensuing fire erupted, destroying the plane. It was determined that the explosion was caused by an electrical arc from a fuel pump. All 6 maintenance technicians on board were found dead in the forward end of the aircraft. This was the first major accident of the 'R' model KC-135. Because this was the 5th known occurrence of the fuel pump igniting, crews must now keep 3000 lbs of fuel in the tank to prevent overheating.

2 other KC-135s were parked less than a wing length away on either side of the burning aircraft. While others were assisting in fighting the fire, 1 crew chief jumped on an adjacent plane, started engines and taxied it away from the scene, and then ran to the other plane and again started and taxied the plane to safety. He was credited with saving both tankers.

Injuries: 6 maintenance personnel killed⁷⁴

MSgt Roy A. Starszak, 57, Milwaukee

MSgt James r. Schlicht, 41, West Allis

TSgt James G. Russell, 33, Oak Creek

TSgt Michael D. Heath, 32, Milwaukee

TSgt Russell H. Schurr, 35, Oak Creek

SSgt Patrick C. Foran, 31, Milwaukee



AP Leafdesk

Investigators and firefighters inspect the remains of a military tanker jet that caught fire and exploded on the tarmac Friday at Mitchell International Airport in Milwaukee.

Six Killed At Milwaukee Airport

By The Associated Press

MILWAUKEE — A military tanker jet being serviced for minor electrical problems exploded and burned Friday at Mitchell International Airport, killing six ground crew members.

The fire spread too fast to give anyone a chance to rescue the workers aboard the Air National Guard KC-135, said Col. Eugene Schmitz, commander of the 128th Refueling Group.

The cause of the fire was under investigation.

Pilots and other personnel scrambled to move three jet tankers away from the burning plane.

"The debris was flying around and there was smoke and fire," said Lt. Col. Chuck Hardesty, vice

commander of the unit, who helped start and move one of the planes.

Hardesty said there was an initial explosion about 7 a.m. followed a few minutes later by two more explosions.

The airport remained closed for about an hour.

The KC-135, a military version of the Boeing 707, is used for in-flight refueling of other planes.

It was being serviced at a section of the airport where the unit is based. It had only a fraction of its normal load of fuel at the time of the explosion, Schmitz said.

The plane had last flown Thursday, and had minor electrical and avionics system problems that were being repaired in preparation for another flight, Schmitz said.

The problems included a burned-out beacon light and a broken switch.

"All of a sudden we hear a boom and the house is shaking. Then I saw flames and a lot of black smoke, billowing black smoke," said Zona Ukasick, who lives across the street from the Air National Guard installation. "I thought it was a building with oil barrels that had exploded."

All that was left of the plane was the tail and a portion of the left wing. The rest was charred rubble.

The bodies were removed from the cockpit area. Witnesses said the fire appeared to have started near the center of the plane, Schmitz said.

*Aiken Standard, 11 Dec 1993,
Aiken SC, Madison Wisconsin
State Journal, 19 Dec 1993*

2 September 1997, 63-8053, EC-135 at Pope nose gear collapse on touchdown

The EC-135C was heavily damaged in landing; the nose wheel collapsed at Pope AFB. All 11 survived. Aircraft damaged beyond repair. There were no significant injuries, all 11 escaped.



AF Photo, provided by B3A

19 November 1997, Crewmember dies in-flight

Pittsburgh News article⁷⁵

Pennsylvania Air Guard Member Dies During Training Mission - Brig. Gen. William J. Boardley, commander of the Pittsburgh-based 171st Air Refueling Wing, released the name of the Pennsylvania Air National Guard crew member who died of apparent natural causes yesterday during a training mission.

"It is with great sadness we announce the death of Master Sgt Robert A. 'Tug' McGraw Jr.," Boardley said.

McGraw, 48, lost consciousness during a routine air refueling mission in Arizona. The Air Force will perform an autopsy to determine the exact cause of death.

"From service as a Marine in Vietnam to his work as a Pennsylvania Air Guard member, MSgt McGraw served with total devotion to state and nation," Gov. Tom Ridge said. "It is with the deepest sympathy that Michele and I send our respects to the McGraw family."

McGraw, from Wexford, Allegheny County, joined the Marines in 1966, served as a squad leader in Vietnam in 1967, and was discharged from active duty in Aug. 1968. He joined the Pennsylvania Air National Guard in 1979. He was assigned to the 171st Air Refueling Wing as a boom operator. Boom operators are responsible for transferring fuel from a tanker aircraft to a receiver aircraft via a refueling boom. During the time of the incident there was no danger to any aircraft.

"Tug served with distinction and devotion during his 20 years of service. He was a guy you could not help but like," said Maj. Gen. William B. Lynch, Pennsylvania Air National Guard commander.

13 January 1999, 59-1452, KC-135 crash at Geilenkirchen, Germany

Body of 4th airman is recovered from German crash site

★ Body was last of 4 recovered from crash, all members of Washington's Air National Guard.

The Associated Press

BERLIN — Rescue workers have recovered the body of the last of four airmen who were killed when a U.S. military refueling plane crashed and burned last Wednesday in northwestern Germany near the Dutch border, a military spokesman said Monday.

Capt. Kelley Thibodeau, spokesman for the NATO base where the plane was temporarily based, said the body was recovered Sunday.

The bodies of the four, all members of Washington state's Air National Guard, were due to arrive at Dover Air Force Base in Delaware on Tuesday.

The four belonged to the 141st Air Refueling Wing, based at Fairchild Air Force Base in Spokane, Wash. A mili-

tary plane from the 141st will return the remains to Fairchild the National Guard said.

The pilot was identified as Maj. David W. Fite, 41, of Bellevue, Wash. The co-pilot was Capt. Kenneth M. Thiele, 31, the navigator was Maj. Matthew F. Laiho, 40, and the fourth crew member was Sgt. Richard D. Visintainer, 48, all from Spokane.

A memorial service was to be held Monday at the base near the northwestern German town of Geilenkirchen.

The base resumed air traffic for the first time since the crash.

The KC-135 Stratotanker had been attempting to land after a refueling run when it crashed near the base runway.

A U.S. military investigation team is expected to take at least 30 days to determine the cause of the accident.

The plane had touched down, taken off again immediately and then crashed from a height of 660 feet.

A military team is expected to take 30 days to determine the cause of the accident.

A Washington Air National Guard KC-135E, call sign ESSO 77, had returned to Geilenkirchen Air Base, Germany, from an operational air refueling mission. Before reaching the runway the crew attempted a go-around. The plane pitched up to near vertical and subsequently stalled and crashed short of the runway, killing all 4 crew members on board. The aircraft was assigned to the 141st Air Refueling Wing, Fairchild AFB, Washington. The pitch up was the direct result of the horizontal stabilizer trim being in a 7.5 nose-up trim condition when the aircraft was given power to complete a go around prior to landing. The investigation was unable to determine how the stabilizer trim came to be in the 7.5 nose up trim condition.

Crew killed:

A/C: Maj David W. Fite, 41, Bellevue, WA
Co: Capt Kenneth M. Thiele, 31, Spokane
Nav: Maj Matthew F. Laiho, 40, Spokane
BO: TSgt Richard D. Visintainer, 48, Spokane

Stars and Stripes, 20 Jan 1999, Photo from B3A



7 April 1999, 57-1418, Tinker ground over-pressurization

A KC-135R of the 186 ARW, Meridian, Mississippi Air National Guard, is written off while undergoing maintenance at the Oklahoma ALC, Tinker AFB, Oklahoma, when the cabin is over-pressurized during a test and ruptures, tearing a 35 foot hole in the aft fuselage, allowing tail section to drop to the ground.



26 September 2006, 63-8886, Kyrgyzstan, ground collision with Tupolev 154

A USAF KC-135R assigned to Fairchild was operating out of Manas International Airport near Bishkek, Kyrgyzstan for the 376 Expeditionary Wing. It had just completed a combat support mission and returned to Manas.

This story from Aviation Safety Network⁷⁶

After landing, the KC-135R was parked at the intersection of the active runway and a taxiway while the crew awaited clarification on instructions from the air traffic control tower. Meanwhile, a Tupolev 154M of Alty Air had been cleared for takeoff on runway 08. The TU-154's right wing struck the fairing of the KC-135R's No. 1 engine. The force of the impact nearly severed the No. 1 engine from KC-135R and destroyed a portion of the aircraft's left wing. The TU-154 lost approximately six feet of its right wingtip, but was able to get airborne and return to the airport for an emergency landing. The KC-135 caught fire and sustained extensive damage. There were no injuries.

From Air Refueling Archives⁷⁷

Although the AIB determined the principal cause of the mishap was the Kyrgyz aeronavigation controller clearing the TU-154 for takeoff without verifying that KC-135R was clear of the runway, there was evidence the following factors also contributed to the mishap:

- The Kyrgyz air traffic controller's instruction to vacate at taxiway Golf after dark conflicted with a published Notice to Airmen (NOTAM) that limited that taxiway's use to daylight hours. The contractor safety liaison (LNO) employed by the U.S. Air Force to facilitate communication between its aircrews and Kyrgyz controllers did not clarify the apparent discrepancy.
- After questioning the Kyrgyz controller's instruction to vacate the runway at taxiway Golf, the LNO instructed the KC-135R crew to hold short of Alpha. The mishap KC-135R crew misperceived the LNO's instructions and responded "holding short of Golf." The LNO failed to catch the read-back error.
- The Kyrgyz controller failed to maintain awareness of the KC-135R's location.
- The LNO failed to maintain situational awareness and intervene when the controller's actions endangered the KC-135R and aircrew.

18 May 2011, Omega Air Crash

The commercially owned Omega Air Refueling Services operates 3 aircraft; a KC-707/TT (tanker transport), a KC-707/MPTT (multipoint tanker transport), and the Omega KDC-10/MPTT2. Two of these are modified 707-320s and 1 a modified DC-10-40. Each provide drogue type refueling and airlift by contract. They provide refueling to US and foreign military services. All 3 started life as airliners, the 2 707s a Pan-Am plane, and a Royal Saudi Air Force). The DC-10 was a Japan Airlines jet.

On 18 May 2011 one of their 707s was supporting a Navy fighter drag through the Pacific, but on departing Point Mugu the plane crashed. There were three crew members on board and all escaped without any serious injury.

Aviation Safety Network report:

The flight crew indicated that they delayed their takeoff due to high wind conditions. Once the winds were within limits, they reported that startup was normal. Prior to takeoff, they decided to add 5 knots to their rotation speed, and power up slowly and as smoothly as possible.

The captain was the flying pilot. The first officer called critical engine failure recognition speed (V1) reference speed at 141 knots, and rotation speed (Vr) at 150 knots. The captain rotated the airplane, and it then lifted off about 7,000 feet down the 11,000-foot runway. About 20 feet above ground level (agl), the number two engine (left inboard) throttle lever slammed back to the idle position. The airplane stopped climbing, and the captain adjusted the pitch slightly down to hold V2 speed.

Witnesses observed the airplane lift off, and something shiny go up and over the left wing. They also observed a fireball on the left side of the airplane.

The flight crew reported that the airplane began to drift to the left and descend. The captain lowered the pitch slightly and leveled the wings just prior to the airplane contacting the runway. He informed the other crew members that they were going to put it back down. He placed the throttle levers in the idle position, and activated the speed brakes. The airplane departed the left side of the runway surface; the crew reported a couple of impacts and then one final violent impact prior to the airplane coming to rest in a wetland marsh.

The flight crew had to force the cockpit door open due to debris that had piled up against it. They noted significant damage from the forward galley aft, and a large fire in the vicinity of the left wing. They opened the left main cabin door, and deployed the slide. They exited into the mud, and made it to dry land and away from the burning wreckage.



Investigators examined the wreckage at the accident site. The observed debris field extended 4,120 feet on a heading of 218 degrees. The first pieces of wreckage found along the debris path were fragments of the number two (left inboard) engine pylon; they were just past taxiway Alpha 2, about 7,500 feet from the beginning of runway 21. The number one engine (left outboard) nose cowl was about 450 feet further into the debris field and left of the runway surface in the grass infield.

The number two engine nose cowl was near the runway arresting gear on the left side of the runway at the 8,500 foot point. The number two engine was about 230 feet further, and on the left side of the runway surface.

The airplane departed the asphalt surface near taxiway Alpha 1, which was 9,500 feet from the departure end of the runway. Ground scars continued through the grass infield to taxiway Alpha at the end of the runway. The number one engine was in the grass infield near taxiway Alpha.

The main wreckage came to rest in a wetland marsh left of the runway overrun, and caught fire. Fire consumed the top of the cabin and the cockpit. The main wreckage consisted of the cockpit, cabin, right wing with the number three (right inboard) engine partially attached, empennage, and the inboard half of the left wing, which sustained thermal damage and was under water. Scattered debris aft of the main wreckage included the nose gear, remnants of the burned outboard left wing, right main landing gear truck, and number four (right outboard) engine.

A visual examination of a fracture surface on the number two engine pylon inboard mid-spar support fitting determined that it was flat and discolored with an arcing terminus.

You can learn more about this company on their website: <http://www.omegairrefueling.com/vms/>

3 May 2013, 63-8877, Aircraft loss over Kyrgyzstan

SHELL 77, a crew from Fairchild AFB, were flying a tanker assigned to McConnell AFB. Eight minutes after departure on a combat mission from Manas Air Base, Kyrgyzstan, the tanker exploded and fell to the ground near Chorgolu from about 20,000'.^{78, 79}

The tanker aircraft left Bishkek-Manas Airport at 1430L for a routine flight over Kyrgyzstan. While climbing to cruising altitude about 200 km west of Bishkek, aircraft became out of control and crashed in a mountainous area, near the village of Chorgolu, close to the border between Kyrgyzstan and Kazakhstan. All three occupants were killed.

A/C: Capt Mark Tyler Voss, 27, of Boerne, Texas

Co: Capt Victoria "Tori" Ann Pinckney, 27, of Colorado Springs

BO: TSgt Herman "Tre" Mackey III, 30, of Bakersfield, CA

Photo courtesy of B3A



Photo, aircraft tail, AKIPress (in English: AKIPress)

2013 KC-135 \$40M each

Chapter 4 - Additional significant events

The following is a sampling of incidents that occurred from 1957 to present. It is not all inclusive and the source data is suspect, but many of these are verified by various sources.

1957

- F101 exceeded the lower and inner limits before disconnecting. Severe damage was caused to the receivers receptacle supports and retraction actuator, minor damage to boom fairing.
- KC-135 lands with boom in trail

1958

- B-52 underran the tanker during contact, snapping the boom hoist cable. Minor damage to the boom ice shield. Crew forced to land with boom in trail.
- A/R boom fell off. Boom operator attempted to stow the boom, but it would not latch. Left the boom hoist lever up to hold the boom in place, and left the boom pod for the cockpit. 30 minutes later the aircraft began to move in the yaw axis violently. While attempting to still the boom movement and raise it, the boom suddenly separated from the aircraft. It remained attached by the boom hoist cable just long enough to cause more damage to strike the left elevator tab. The separation caused a sudden pitch down, putting the aircraft into a negative 1.2 G condition. The aircraft lost the right hydraulic system, but was recovered safely.
- A/R collision w/ B52. Closure rate was determined to be too fast; the bomber crew retarded the throttles and pushed the nose over, boom operator called a breakaway. Bomber struck the boom, sustaining an 8 inch tear in the skin. Ruddervator tip was torn, a hole opened in the lower fuselage where the pressure from impact caused boom shock absorber to fail. Damage to hoist mechanism. Bomber recovered uneventfully. Tanker crew forced to land with the boom in trail. The B-52 pilot reported that he felt the aircraft was being sucked into the tanker.
- Land with boom in trail. Receiver underran the tanker, snapping the boom hoist cable. Boom operator failed to call for a breakaway which may have prevented the incident. Forced to land with boom in trail.
- Collision, boom destroyed. B-52 closure rate was determined to be too fast, bomber crew pushed the nose over to separate. Bomber struck boom with radome, minor damage, forced tanker into a nose dive from which they recovered. Both aircraft landed safely.
- A/R boom fell off. After contacts with B-52, boom operator reported erratic motions in the A/R boom with no inputs, after a few minutes boom separated from the aircraft striking left and right elevator tabs before breaking free of the hoist cable. Aircraft landed successfully.
- Damage during A/R. B-52 exceeded limits. Bomber drove the boom down through the lower limit, snapped the boom hoist cable. Two additional contacts were made. Before landing lost right hydraulics. Damage to boom tail cone, cable, and hydraulic return line damage.

1960

- A/R boom destroyed. During contact with B-52, tanker crew sensed they were being overrun, applied full power to separate. Boom remained locked in the receptacle and tore away from the boom housing, leaving the boom protruding from the bomber
- A/R boom fell off. Boom would not latch. Indicating latched, ruddervators did not disengage. Within seconds boom made violent departure from the aircraft. Ruddervator made minor contact with control tab, boom hoist motor housing cracked, boom fork attach bolt failed, ruddervator control pulley assemblies damaged.
- Collision, boom damage. A/R at low level, approximately 1000-1500 feet AGL. Encountered turbulence, B-52 moved through upper limit, damage to ice shield and boom skin up and past the boom nozzle, Damage inner edges of ruddervators, cracked the hydraulic line for the fuel dump actuator. Nozzle stuck in receptacle, torque caused B-52 A/R manifold to rupture and fuel sprayed into B-52 cockpit. Tanker lost right hydraulics, had to extend flaps manually. Both aircraft landed safely.

- Fairchild 135 A/R mid-air with B-52. Both aircraft landed, sustaining skin and minor structural damage, A/R boom itself was destroyed.

1961

- 135 and B-58, nozzle loss. Boom nozzle of Bunker Hill tanker stuck/broke off in a Carswell B58 A/R receptacle during A/R. Caused by receiver overrun. Damaged ice shield.
- Mather collision with B-52. B-52 collided with KC-135A over Pacific. Both aircraft recovered into Mather. B-52 lost approximately 5 feet of vertical stabilizer and rudder, damage to right wing leading edge and outboard nacelle strut. Tanker landed and blew 2 tires on right landing gear.
- 30 Mar 1961, B-52 explodes in flight, wreckage falling near Denton, North Carolina. Eight crew, only two survive. Dead are Capt. William D. McMullen, 36, commander/pilot, Bad Axe, Michigan; Capt. William W. Farmer, 29, co-pilot, Wilson, North Carolina; Capt. Robert M. Morgenroth, 31, radar navigator, Christiana, Pennsylvania; Capt. George W. Beale, 34, competition observer, Bowling Green, Virginia; Sgt James H. Fults, 29, instructor gunner, Tracy City, Tennessee; and A1C Robert N. Gaskey, 28, Providence, Rhode Island. The survivors are Major Wilbur F. Minnich, 40, Des Plaines, Illinois; and 1st Lt. Glen C. Farnham, 25, electronics warfare officer, Loveland, Texas. The bomber was in "the observation position 100 to 200 feet behind and below the tanker just before the explosion, but never made contact."
- Collision with B-58. B-58 collided with Bunker Hill KC-135A over Pine Bluff, AR. Both aircraft recovered into Bunker Hill. Bomber suddenly accelerated and banked right, tearing off the nozzle. The boom pintle and pintle bolt failed, entire boom fell free.

1963

- A/R boom fell off. A/R boom fell off during controllability check. Fork assembly failed. Crew landed the aircraft without further damage.

1966

- Land with boom and drogue in trail. Observer on ground noticed boom with drogue attached, trailing during pattern work. Crew landed the aircraft and made emergency egress.

1969

- Crew bails out, one pilot stays and dead sticks the KC-135 to a successful landing. This is a superb example of poor communications and leadership; It is encouraged that you to read one crewmember's story at the 46th Air Refueling Squadron (SAC) Association website. Look for 'Night of the Gliding Pig' under the 46th Stories section: <http://46thars.tripod.com/index.html>.

1972

- Brute force, land with boom in trail. After brute force disconnect the outer tube of the boom failed, inner tube separated from aircraft, could not stow the boom, lost hydraulics, had to extend flaps manually, no nose gear steering on landing.

1973

- Brute force, land with boom in trail. After brute force disconnect with F-4, hoist motor failed, cable whipping, could not stow boom. Nozzle destroyed.

1975

- Basket lost, land with boom in trail. Basket broke partially free during A/R, hanging on by wires in the hose. Landed with boom in trail, basket recovered.
- A/R boom fell off. During air refueling with an F-4A/C boom was damaged. Fork system failed and boom departed aircraft. Damage sustained to the right elevator, small holes in fuselage. No damage to receiver.
- A/R boom fell off. A/R boom fell off as soon as it was unlatched for A/R. Fork assembly failed. Crew landed aircraft without further damage.

- Loss of boom control, land with boom in trail. After lowering boom, one of the ruddervators was locked, could not stow boom.

1978

- Collision with F-4E. During air refueling F-4E moved in too close to/under the tanker, after landing F-4 crew discovered about 10 inches of the upper tail was missing. The tanker crew found damage to pilot director lights. Neither crew were aware of the collision.

1982

- Loss of boom control, land with boom in trail. After lowering boom, ruddervators did not respond, could not stow boom.
- 17 September, over Saudi Arabia during Operation ELF ONE, an E-3A finished A/R and asked to fly on the tanker's right wing for a photo op. While the left seater in the AWACS should have been the one flying, he permitted his copilot to fly it (with less than optimum angle to watch the tanker), which really didn't matter because the right seater in the tanker wasn't flying or watching the AWACS either. Shortly they thereafter collided, the E-3 wing outside of the number one engine broke-off and much of it lodged into the tanker's skin, severing the throttle cables, rendering the 2 engines on the right side of the tanker inoperative, and causing a rapid decompression. Both were able to recover into Riyadh.

1983

- 24 Dec, a -135 arrived for a touch and go. The pilot, the crew in another aircraft waiting on the hammerhead, and the SOFxiX simultaneously notice a herd of deer darting across the runway. It was too late, the nose gear and right main took out a number of the deer before they could climb safely above them. The crew waited for a runway sweep and landed without further damage. The aircraft steering bled out on the landing and quit working, aircraft was stuck on runway until it could be towed. Damage: nose gear landing light destroyed, right hydraulic piston for nose gear steering bent and leaking. Killed: Vixen, Comet, and Cupid were killed, Prancer suffered an antler injury and survived, but never flew again. Rather than replace the individual propulsion system units and damaged rigging, the sleigh was upgraded to an R model.

1984

- Loss of boom control, land with boom in trail. After lowering boom, boom extended. Ruddervators stopped responding, boom would not retract, could not stow boom. Landed, nozzle broke off.
- RC-135 wing collision with KC-135. While attempting to position for photo op, RC wing contacted tanker engine and wing. Both landed safely.

1985

- Engine fire. During climbout engine caught on fire. Fire observed on engine strut. Crew declared In-flight emergency and began rapid descent. Main landing gear showed intermittent, left hydraulic system failed. Crew used hydraulic crossover to complete gear lowering and landed safely. Fuel continued to flow into aft body tank; aircraft tipped on its tail during firefighting.

1986

- Fuel escapes boom. Refueling with fighter, boom poppet valve stuck open after disconnect, fuel ingested into receiver engine, large flame burst from fighter engine. Both land uneventfully.

1987

- 3-engine flameout. In cruise phase on return to Kadena, copilot erroneously closed all the fuel to engine valves, turned off all pumps. Instructor pilot and instructor navigator in jump seat responded verbally but failed to observe

error. Engines operated normally until first level-off in descent at 3,000 feet. As the throttles were pushed up to level off, #4, followed by #3 both shut down. As #2 was beginning to fail IP opened all the valves, turned on all the pumps, executed an air-start on 2, 3, and 4. Aircraft continued to sink until #2 restarted and leveled the tanker off at 1,200 feet, about 2 miles from end of the runway over water

- Fuel system anomaly. During climb fuel flowed rapidly, uncommanded, from center wing tank to forward body tank. Moved fuel mains to aft body tank, and #3 main tank drained completely and caused #3 engine to flame out. Crew elected to land without restart, no further incident.
- Cart start explosion. When starting an engine with a starter cartridge on SAC alert, the #3 engine cartridge exploded violently, warping the engine cowling into a larger shape. It miraculously held together and the engine itself sustained minimal damage.
- Landing nose gear retracted at Edwards. During a training flight from Castle AFB, crew attempted to lower the gear; mains extended normally, nose gear doors opened, but the gear did not budge. Crew was forced to land with nose gear retracted.

- Major Mark Meyers was the instructor pilot with a crew of instructors and students (6 total). The crew had several conference calls with command post, Stan-Eval, and Boeing. To stay airborne while troubleshooting they had to take on 50,000 lbs of fuel from a B-52 by reverse A/R. Finally, after 9 hours the crew elected the main runway at Edwards, with no foam on runway to avoid unknown traction. After estimating optimum landing speed, he put the plane down gently on the mains, and eased the nose down



while he still had some lateral steering capability with the rudder. The plane ground the gear doors off and sustained minor structural damage, coming to rest still dead center on the runway centerline. The crew evacuated in 15 seconds with no injuries.⁸⁰

- The cause was determined to be the drag strut knuckle bearing failure. This aircraft was subsequently modified to an R model and was assigned to the Utah ANG.
- Hit by B-52H during air refueling. Tanker sustained surface damage to horizontal stabilizer and lower aft fuselage. Bomber had damage to radome.

1991

- 2 engines fall off. Desert Storm, 190th ARS crew (Topeka), 1701st Strategic Wing (provisional) Saudi Arabia.

Lt Col Kevin Sweeney (pilot)
Capt Jay Selanders (co-pilot)
Capt Greg Mermis (navigator)
SMSgt Steve Stucky (boom operator)

The crew was aboard a Grissom tanker, known as "Lucky 13" (aircraft 0013). Shortly after takeoff they encountered wake turbulence from another aircraft. This unexpectedly jerked them so violently laterally that somewhere in the process, both engines on the left side of the tanker were torn free, leaving the fully loaded tanker with very serious control problems. This was a unique problem that could not be duplicated in the simulator (2 engines inoperative, but not 2 engines 'gone'). No other crew survived the loss of 2 engines on the same side.



Just maintaining control of the tanker itself was a tremendous problem, putting maximum strain on the pilots, who had to physically manhandle the crippled tanker. The fuel had to be dumped, a course back to base plotted, and SMSgt Stucky had to manually lower the gear. The crew landed with no further damage. The crewmembers each received a well-earned Distinguished Flying Cross for their actions that day.

1995

- 25 Jul, near mid-air collision KC-135 and B-52.

1997

- Call sign: MAZDA 85. The right main landing gear only deployed about half-way down in the extension process. After hours of troubleshooting the pilot gracefully landed the aircraft, the touchdown shock was enough to break the gear extension assembly loose to transit the rest of the way down. For their outstanding airmanship the crew was awarded the Brig. Gen. Ross G. Hoyt trophy for that year.



2000

- During A/R with Tornado, wing pod hose had oscillation, hose broke, basket fell away. Crew unable to extend the hose fully so they could not chop it off. Landed with hose in trail.

• 2004

- 135 / C-17 collision. Collision during A/R, destroys A/R boom. Report is made that C-17 had contacted the 135 during A/R, both aircraft recovered without further incident.

• 2006

- Ruddervator lost. After refueling E6 at night, boom left-hand ruddervator departed the boom. Tanker and receiver recovered safely.

Summary of 'Additional Significant Events'



In this list, 7 booms fell off, 2 engines fell off, 10 times the aircraft landed with boom in trail, 15 collisions, and 8 other booms destroyed. Only a few of the many serious engine and landing gear incidents are mentioned.

This list of incidents does not provide measurable or reliable statistical information. It does, however, illustrate the possibility of a significant incident occurring on any flight.

What are the chances of such a serious event happening on a sortie today? If this were just 10% of such events it would still be remote. One pilot stated, "I flew the plane for several years and never had a single bad thing happen".

Fortunately, most crewmembers today can say the same.





63-7990, crash at Dyess AFB, KC-135A from K.I. Sawyer AFB.

Air base mourns victims of 3rd crash within year

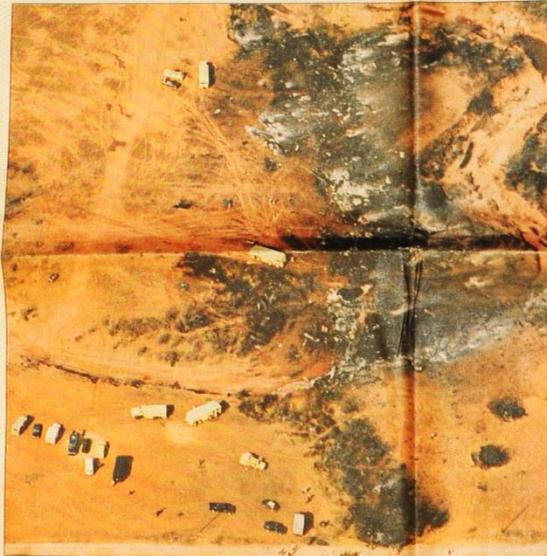
The water-injection system of this KC-135A failed during takeoff from Dyess AFB runway 16. The airplane barely got off the ground, a wing dipped scraping the ground condemning the possibility of lifting off. The 19 people on board included spouses of military members, retired military members and one child. They were on a Coronet^{xx} mission to Hawaii, refueling a flight of F-16's. The flight was to continue on from Hawaii to deliver the fighters to Anderson AFB, Guam.^{xxi} From there, the plane and crew were to stay six weeks at Anderson supporting the Pacific Tanker Task Force, and then return home.

^{xx} Coronet is the name used for tanker missions on over-water fighter delivery.

^{xxi} Two early articles can be found at: <http://www.nytimes.com/1989/02/01/us/19-are-killed-as-air-force-jet-crashes-on-takeoff-in-texas.html>, and: http://articles.latimes.com/1989-02-01/news/mn-1307_1_dyess-air-force-base

Worst air disaster in Abilene history

19 die when tanker crashes near Dyess



Aerial shot taken a few hours after Tuesday's crash of a KC-135 south of Dyess Air Force Base.

KC-135 from Michigan was en route to Hawaii

By ROY A. JONES II

Abilene recorded its worst aviation disaster ever Tuesday when an Air Force refueling jet bound for Hawaii crashed on takeoff from Dyess Air Force Base, killing all 19 persons aboard.

By 9 p.m., Air Force officials had confirmed that no one survived the fiery explosion, which an eyewitness said was "hotter than I could stand" from at least half a mile away.

No names of the victims had been released by midnight. But a spokesman said four of the victims were military dependents — or family members — and that one was a child.

The Air Force said the KC-135 Stratotanker — a four-engine jet refueling aircraft capable of carrying up to 30,000 gallons of volatile jet fuel — was on a "routine training flight" from K.I. Sawyer Air Force Base, Mich., to Hickam Air Force Base, Hawaii, and had stopped at Dyess to refuel.

2 boarded at Dyess

Taylor County Justice of the Peace Sam Matta called the fiery crash scene "10 times worse" than anything he's ever seen before. Many of the bodies, he said, were "charred beyond recognition." He was called to the scene to pronounce the victims dead.

The seven-man crew was from K.I. Sawyer, where the plane was assigned, and Master Sgt. Al Dostal of the 96th Bomb Wing at Dyess said the 12 passengers included four active duty personnel, four retirees, and four military dependents.

Later, Airman 1st Class Beverly Foster said two of the 12 passengers had boarded the plane at Dyess. "But that's not saying they belonged (were stationed) at Dyess," she added. "It's just saying they manifested (boarded) at Dyess."

Dyess officials said they could not confirm a report that an Abilene man was one of the two who got aboard here. According to friends who asked not to be named, the Abilene off-duty military personnel, retirees and dependents when the transportation does not interfere with the aircraft's mission — in an attempt to get to Guam to visit a son, also in the Air Force.

The crash occurred just off the south end of the Dyess runway at 12:10 p.m. Ironically, the largest piece of wreckage came to rest near the north bank of Little Elm Creek, the site of Dyess' first fatal crash nearly 52 years ago.

On July 17, 1937 — barely a year after the base opened — a Dyess B-47 bomber skidded more than 1,500 feet on takeoff and tipped over a bluff into the dry creek, killing all four men aboard.

'Nothing anybody could do'

As in the case of the Nov. 8 crash of a burning, Dyess B-1B bomber north of Dyess, there were many eye-witnesses to Tuesday's crash. All interviewed agreed nothing could have been done to save the victims.

Claudio Hester, who said he saw the fireball and was the first to reach the scene, said he saw three bodies burning "at least 100 yards from the main wreckage."

"I've seen bad fires in truck wrecks, but nothing like this," he said. "There was nothing anybody could do for any of them."

Kenneth Fowler, who witnessed the crash from his home on Farm-to-Market Road 707, just west of the south end of the runway, said he sensed disaster through his kitchen window as the airplane struggled to get airborne "before it ran off the end (of the runway)." He said he watched in horror through his kitchen window as the airplane struggled to get airborne "before it ran off the end (of the runway)." He said he watched in horror through his kitchen window as the airplane struggled to get airborne "before it ran off the end (of the runway)."

Please see CRASH, 10A

Witness saw 'great big old flame'

By PATRICK SHAUGHNESSY Staff writer

A Michigan-bound KC-135 tanker exploded in a huge fireball Tuesday, rattling nearby homes, scattering wreckage and sending one onlooker scurrying back into his house, witnesses said.

The plane, en route from K.I. Sawyer Air Force Base in Michigan to Hawaii via Dyess, was only a few dozen feet into the air before crashing in a field at the end of the runway, witnesses said.

Kenneth Fowler, who lives across Farm-to-Market Road 707 from the end of the runway, said he saw the plane "tip back and forth, going 45-degree angle," Fowler said.

More stories, photos Page 4A, 5A

One witness spotted the plane through his kitchen window. When he realized it wouldn't make it, he ran out onto his front porch, he said.

As it approached the end of the runway, the airplane was "tipping back and forth, going 45-degree angle," Fowler said.

"It just came off the runway and it never got started much," he said. "I'm gonna say it was 100 feet off the ground."

"There were two or three flips and the next thing I saw was a great big old flame coming up," Fowler said.

The crash occurred about a half-mile from Fowler's porch, but heat from the blast was so intense "I had to go back into the house," he said.

Fowler had lived across from the end of the Dyess runway for three years and he knows the sound a KC-135's engines make as the plane takes off.

Please see WITNESS, 10A

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Today: Partly cloudy, high around 80



Firefighters spray foam over the smoking wreckage of a refueling tanker that crashed moments after takeoff from Dyess Air Force Base Tuesday.

84 people called on the first day after base officials asked if there were any witnesses.

This was the 2d crash for KI Sawyer aircraft, the 3rd crash with KI Sawyer personnel in only 3 months. KI Sawyer is a remote site in the upper peninsula of Michigan. With such remoteness comes a camaraderie and a sense of family beyond any understanding of people who never served at such a place. "Our family is going through the process of mourning. We're caring for our people," stated the wing commander, Col Eldon Joersz. Frustrated and visibly distraught, the Colonel left the press meeting without answering their questions. He denied the press access to the base for 3 days while the population mourned and attempted to regroup.

Only a month earlier a B-52 exploded during touch and go's there, the crew escaped unharmed in what was described as a miracle. It was only 3 months prior that 10 KI Sawyer people were injured but escaped from an exploding KC-135 crash at Wurtsmith AFB, six others were killed in that accident.

xxii MG Joersz' bio can be seen at: <http://www.af.mil/AboutUs/Biographies/Display/tabid/225/Article/106639/major-general-eldon-w-joersz.aspx>

Killed in this tragedy

The aircrew

A/C: Capt Robert M. 'Dusty' Llewellyn III, 32, Cumberland, MD

Co: 1Lt Kenneth A. Brackney, 25, Ridge Farm, IL

Nav: Capt Joseph A. Nellis, 28, Granger, IN

BO: SSGT David Alan Vickers, 34, Whitmore Lake, MI

Other crew from 410th OMS

Sgt Andrew W Neher, 21, Fort Wayne, IN

SrA Richard D Smith, 21, Big Creek, WV

A1C Jay M Galioneau, 30, Menominee, MI

Passengers from Michigan

Amn Noel R David, 29, Alexandria, VA, 410th CES

SrA Leopoldo L Conge Jr, 29, San Pablo, CA, 410th Svcs Sq

MSgt (Ret) Berlin B "Woody" Wooldridge, 50. Gwinn, MI, his wife Margaret J., 51, and grandson Jordan, age 4

Donald M Clark, USN Ret, Minoqua, WI, and his wife June L.

Robert W 'Bob' Curtis, LtCol Ret, 65, Sault Saint Marie, MI

Passengers boarding at Dyess

MSgt Douglas E Juneau, Anderson AB

TSgt Ret James A Phillips, 58, Abilene, TX

Two casualties' names were not released per family request.



Photo taken by author, monument (in snow at the time) at the National Museum of the Air Force, Dayton, OH

Family, Friends, and Neighbors Lost



1Lt Ken Brackney, born 4 Jun 1963. Pictured here while at Columbus AFB for UPT in 1985.

Ken Brackney grew up in Illinois, attended Southern Illinois University and joined the ROTC program there.

“We met in Paris, Illinois when Ken was a Junior at SIU. I was the secretary at the Edgar County Airport where Ken flew the CEO’s for Illinois Cereal Mill in and out during his summer vacations. He had his pilot’s license at age 16. He LOVED TO FLY. For us, it was love at first sight and the rest is history”...

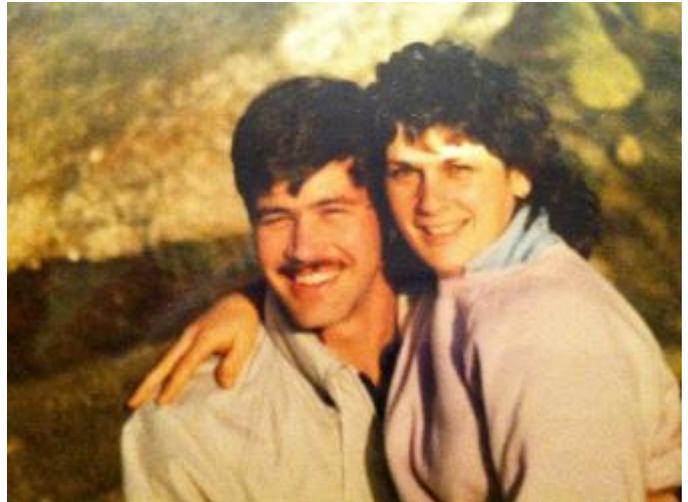
Ken was the son of James (US Army) and Nona Brackney. He married his wife, Bethann, May 25, 1985, they had 2 children when he died: Luke, age 2 and Sarah, 10 months old. They lived 20 miles from the base on a 25 acre wooded lot they purchased just 6 months earlier.

“People say that when you lose a spouse, you lose half of yourself. I say you lose everything. You have to reinvent yourself totally and I had no earthly idea where to begin. It was a frightening time.”

“The reality was reckoned with a long time ago but the hole that it left remains.”

–Bethann Brackney

Dusty Llewelin was born 25 Apr 1956 in Cumberland, MD. He graduated from Fort Hill High School in 1974, and attended Frostburg State College. On 21 Oct 1976 he enlisted with the Air Force in the mechanical career field, and was sent to Castle AFB for training to become a KC-135 boom operator, graduating in July of 1977. His first assignment was to Wurtsmith AFB, MI. In 1983 he graduated from Saginaw Valley State College and received a commission from the Air Force on 9 Sep 1983. After undergraduate pilot training he found himself back in the KC-135 as a co-pilot in the 307th Air Refueling Squadron at KI Sawyer AFB. He was married to Julie (Rometti) from Stambaugh, MI.





Joe Nellis was married, born 6 Sep 1960, son of Army Lt Col Norman R and Anna May (Kuhn) Nellis. His father served in WWII and Korea, and then in Vietnam while Joe was a child. Joe entered the military at age 23 on 16 Dec 1983. Pictured here is the Capt's gravestone at Notre Dame Cemetery, in his hometown of Granger, Indiana.

Dave Vickers born 26 Dec 1954 to Charles R and Mary (Kaufman) Vickers. He was married to Andrea Vickers, they had a daughter, Holly, and a second (step-daughter). He was buried in Rogers City, Presque Isle County, MI.

"Woody" Wooldridge, a retired AF MSgt was born Berlin Bordeaux Wooldridge, 15 Feb 1938 in Kaiser, Arkansas. He and his wife **Margaret Wooldridge** are buried at Little Rock National Cemetery. They were survived by his daughter Kristina, 22 (Jordan's mother), and a son, Daniel, an Air Force Officer stationed in Okinawa.

4-year-old crash victim traveled frequently

By ROY A. JONES II
Military Editor

Jordan Wooldridge wasn't but 4 years old, but the Michigan youngster was one of the most experienced fliers aboard the military tanker which crashed Tuesday as it took off from Dyess Air Force Base.

Accompanied by his grandparents, Jordan was making his second "military hop" to Hawaii aboard a KC-135 within the past year, and had flown in the aircraft on several other occasions.

"He knew the plane inside and out," said his 27-year-old uncle, Bruce Wooldridge, a college student in Marquette, Mich. "He

'Last week he was running around wearing his little Hawaiian shirt...and saying he wanted to see the whales again.'
— Bruce Wooldridge, uncle of 4-year-old crash victim Jordan Wooldridge

couldn't wait to fly in it again."
But Jordan couldn't have matched log-books with Robert W. Curtis of Sault Ste. Marie, Mich.

AB RPTR NEWS 2
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4-year-old Jordan Wooldridge, had spent the previous week wearing his Hawaiian shirt and flip-flops anticipating an exciting trip to Hawaii with his grand-parents, and said he wanted to see the whales again. This time they were planning on spending six weeks in Hawaii, and returning on the same plane as it was scheduled to fly through Hickam on its way back from Guam. He had taken several hops with them already.

Jordan, and his grandparents who he died with, are buried at the same cemetery.

Lt Col Bob Curtis retired from the Air Force, and became an engineering professor at Lake Superior State University. After retiring from that position in 1986 he took several hops on AF aircraft. On one of his 2-month jaunts he visited 30 countries around the world. On this trip he was attempting to work his way to Indonesia. Mr Curtis is the namesake of the Robert Curtis American Society for Metals Scholarship, awarded to a Canadian citizen who has graduated from an Ontario high school from the top one-half of their graduating class.



Douglas E Juneau, an Air Force Master Sergeant stationed at Anderson, was returning to his unit after a temporary duty in the States. He arrived late and barely made the flight.

Jim Phillips, 58, a Dyess retired Tech Sergeant from Dallas was making his first space-A trip 16 years after retirement, to visit his son, John, in Guam.

At his funeral were his wife Norma and sons Rick and John.

Donald M Clark, 75, was a retired Navy Lieutenant Commander, and his wife **June L Clark**, 66, lived in Minoqua, Wisconsin.

A widow's story

24 years later

12:20, the aircraft crashes at Dyess.

Notification

I was notified at 1:20 pm by the Squadron Commander, an OPs officer and a Chaplain. They drove the 20 miles to our new place in the country to tell me. I had just put the kids to bed for a nap when I looked out and saw a Senior Officer vehicle in my drive. I am a little foggy on some things but I just remember them not waiting for me to open the door but walking in and telling me there had been a crash. What they were saying did not make sense, it had to be a (bad) joke, but not a hint of humor showed in their faces. My mind raced for some other possible explanation, struggling to ignore the possibility that this was real, so I asked them if this was the only other thing it could be, "Is this an exercise???" Like a knife rending me in two, they proceeded to tell me all of what little they knew. They waited with me until friends arrived to stay with the kids, and drove me to the Base Chapel where we met with the others. We gathered, prayed and waited. Waited for what seemed an eternity. The dreaded news arrived at 10 pm; "no survivors". I was surrounded by people, but never felt more alone in my life...

The only comfort to going home after that was to be with my children again. KI Sawyer really was a remote location, but we chose to live far off in an even more remote location; a small house on 25 acres

of wood... we loved the tranquility, and having each other was all we really needed. Now, with Ken gone I felt we may as well be stranded on the Moon.

The house was quaint with a lovely little pond, graced almost daily with huge geese. Our woods was home to black bear and gargantuan raccoons that gave the squirrels and beautiful birds a run for their money at the feeders! We had woodstove heat that required several treks through the snow for wood and an old Ford truck for plowing the 1/4 mile drive. Having grown up on a farm I was prepared for and really at home with this lifestyle. Again, all the beauty of this place seemed to have slipped away knowing Ken would never be here again.

Support

I feel that I received about all the help the base could offer, given the fact that the whole base was in shock, and the base mental health professionals were overwhelmed. Even some of the pilots were stricken with desire to hang up their wings. As far as all of the legalities and papers etc., everything was done very quickly and professionally.

The greatest comfort was from friends Paul and Carol Pulse. Only a week prior we all spent the weekend together, ice skating on our pond, had a bonfire and snowball fights... From the first hour after the accident, and for I don't know how long, they stuck right by me. Even at times when I wanted to be alone, they could see I didn't know what's good for me and continued to help all they could. The same day of the accident they were informed by their doctor that they would have a child – it had to be an emotional rollercoaster for them but they stayed focused on me. I knew they were great people, but learned they were also a monumental blessing, and I will love them forever for what they are willing to do for me. I only hope all the others had this kind of support.

The worst surprise was that it took 10 days for (Ken's body) to arrive back in Indiana. In the meantime, I had been to 6 memorial services for him prior to the actual funeral. There is a whole lot of fuzziness here due to the fact that my emotions, my lack of sleep, lack of eating, and newly prescribed medicine was wreaking havoc on me. I barely remember the funeral. It was Paul that escorted him home, he advised me against viewing Ken's remains... not much closure.

Reactions

I found myself in a strange and very uncomfortable new social setting. At first I thought I was the only one not prepared for this, but I soon found that nobody else was either. Sometimes just the sight of us (widows/families) would cause grown men to cry. At the time it seemed supremely awkward and I had no idea what to do, I still don't, but as time passed I was starting to see how much the loss of Ken and the others meant to everyone. It just seemed strange that these men could be so overwhelmed with sympathy that they could not contain it. It got to where I think folks actually avoided us because they just didn't know what to say or do. This only made me feel a little more disconnected.

The main thing that surprised me more than anything was the enormous outpouring of cards and letters from all over the world. Men and women who I had not met but had worked with Ken wrote to and called me to talk about Ken. I even had a pilot from another crew who called and just came to visit, and even took the kids and me for ice cream once. Such gestures were a refreshing relief from the awkward responses, and as they came from the heart, meant such a great deal.

The transition

One can be a school graduate, a spouse, or maybe a doctor. Just about anything we can label ourselves with takes planning, work, preparation, and can take many years. Being a widow takes a fraction of a second, it is never planned for, and we can never really be prepared for it.

A new normal had to be established. That took a while as I didn't even know where to start. It was probably 5 years or so before I was fairly comfortable with a new routine. The crash brought a shock that took so many years to shed, but I can tell you that to this day every time I learn of another crash, I feel as if I'm back to square one. That sinking, heavy, sick feeling in the pit of my stomach and an anguish taking over my heart, these are feelings I've come to know well over the years.

The stories

The rumor mill was alive and well. Ken had called me the night before when they landed at Dyess. He told me then that they were having some issues with the plane, I know that he and Dusty were concerned they would be late for their rendezvous with the F-16's. I have become very good friends with Richard Warner, he was one of the first to respond to the scene of Ken's crash. He told me that they had already done one "run up" and aborted for a problem. Then, he said he saw them taxi and roll for takeoff. Shortly after leaving the ground (about 80 feet or so), black smoke rolled out of #2 and a wing dipped and got dragged off on the fence. They rolled a good distance across a rough terrain and then nosed into a ravine. I have the actual raw footage (several hours) taken by a news crew from Abilene. The 2nd tape consisted of people walking around, stopping to place a flag and then moving to the next piece of whatever. The footage of the refrigerator trucks emerging from the crash site was the hardest to watch, knowing that my husband's body was in one of those trucks.

Two years ago on the anniversary I was surfing the net typing KC-135 and such, when I came across a blog post about Ken's crash. One guy commented that it was such a shame and could have been avoided if that young airman hadn't "pencil whipped" those repairs. I got physically sick when I read this.

AF addresses the spouses

The AF was as forthcoming as possible but until the official crash report came out (11 months after the fact, in a book 6 inches thick), everything was pretty much speculation. But then, with the release of the report came a renewed anger and upset... two words weighed more than the whole 6 inch stack of pages: Pilot Error. Something as simple as those two little words can be considered harsh and pointed, they could make anyone angry. Being the wife of the copilot, those two little words were the single greatest stabbing in my life. It was impossible to imagine that Ken, who flew planes since he was 16, could possibly be the cause of an accident. That fury has never subsided, and while the report claims to be conclusive, it never answered, "Why"?

One surprise response came from the top brass at KI. After a few days they offered Julie Llewellyn and myself a ride on a local air refueling mission. I'm guessing it was something they did not have permission from SAC to do, but felt it was necessary. I still can't believe they did that! But it was a therapeutic 6 hours and I'm grateful to have experienced a little of what gave Ken such joy in his work. The view from the boom pod is amazing!

Talking to the children

The only thing I could tell the children was that their Daddy sure loved them, and I was compelled to tell them daily. That seemed to be enough when they were so little. Even at such a young age they were firmly bonded to him and missed him. I believe in my heart that God controls our understanding of the events around us to the degree that we can handle them, so the children fared well through the loss. They grew up hearing the stories about their Dad, they knew there had been a crash when they were very little, and there were always photos of him all about the house. It was only a few years ago that they asked for any details. We were very close to Ken's family and remain so today.

Moving on

The accident had an impact on every aspect of my life. I was forced to reinvent myself and find some kind of center. I truly feel that I finally settled in about 4 years ago. Ken was my knight and hero, kind, gentle and loving. He was extremely smart and even more humble. Handsome but didn't know it. Life was amazing and exciting. When the rug is pulled out from under you like that, the memory of Ken goes for decades unchanged, frozen in a relationship of such joy, but just beyond reach. This is something nearly unbearable for a superhuman, and I'm just not one of those. Every time I hear of another military crash (or civilian for that matter) it takes my breath and makes my heart hurt. Some days are harder than others...anniversaries, etc. Yes, it definitely changed me.



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BOEING 707 and 720



Alice in today's wonderland ... the jet 707

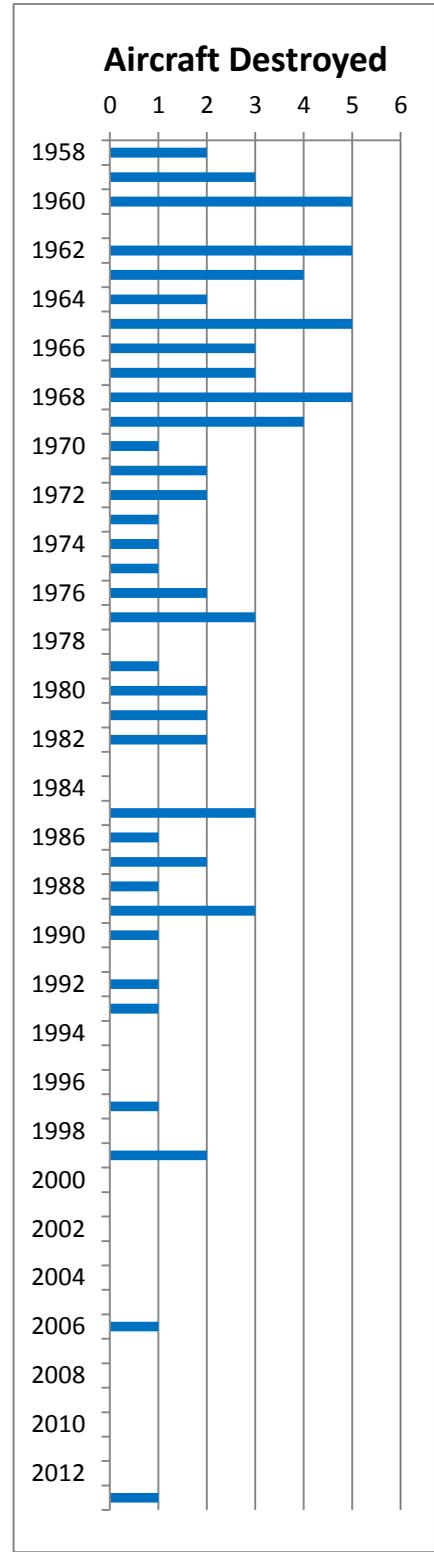
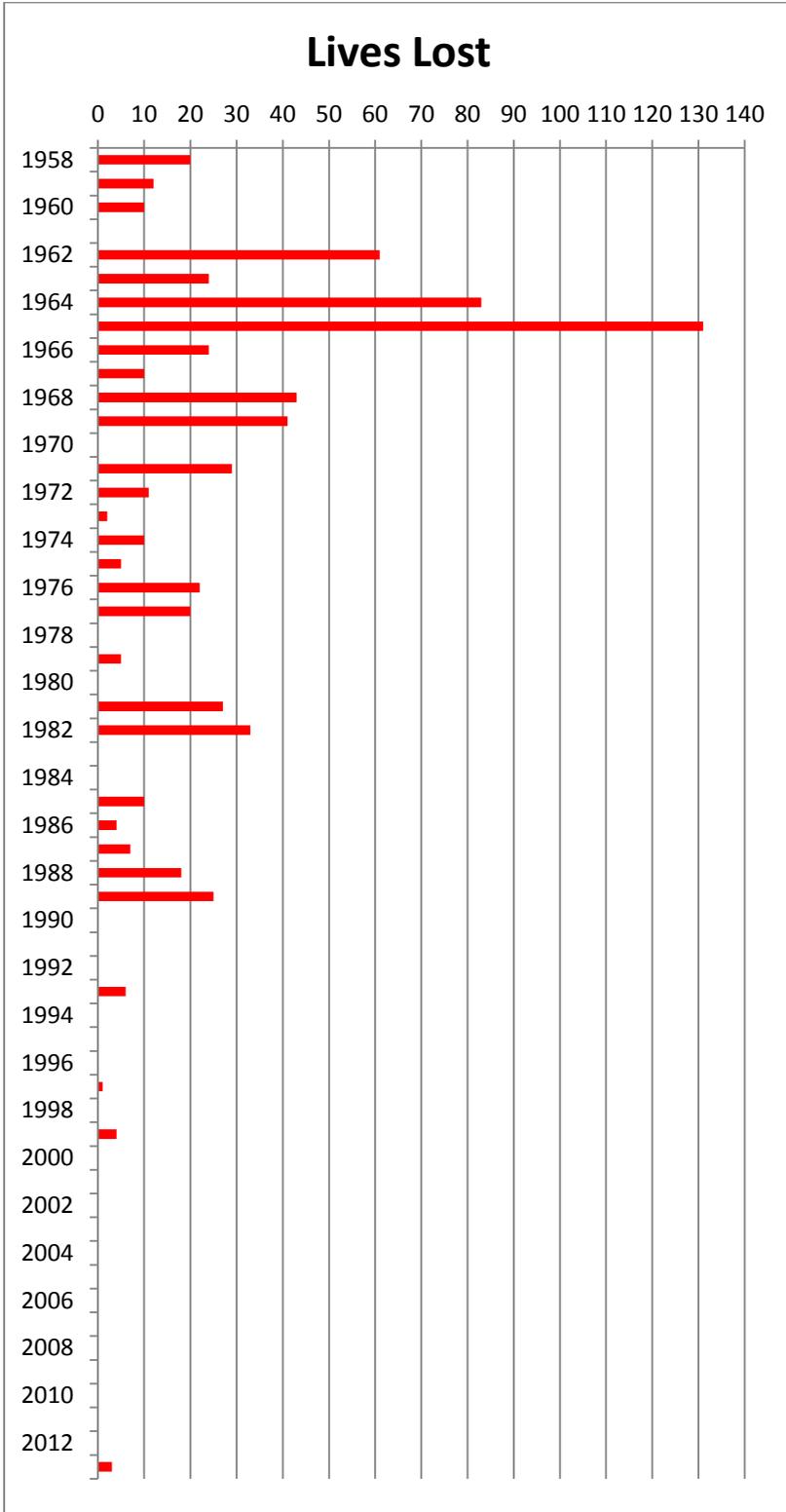
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BOEING 707 and 720

707 and 720 advertisements, 1957 - 1959



"It is not our mistakes that define who we are; it is how we recover from those mistakes."

-Bo Bennett
(Ralph Nader)

We could divide the KC-135 accident history in many ways, for further discussion we divide it into 3 major eras based on the frequency of crash history:

1. The early years: 1957 to 1970
2. Risk Maintenance: 1970-1990
3. Full performance: 1990-present

In this chapter we'll look at the accident causes during these years, and make some analysis.

LEADING CAUSES

A reminder here that the data collected is based on open source documentation, and not from the official Accident Investigation Board results. The purpose is to establish general categories of causes and their frequency in relation to each other. These statistics may differ significantly from those based on official accident reports.

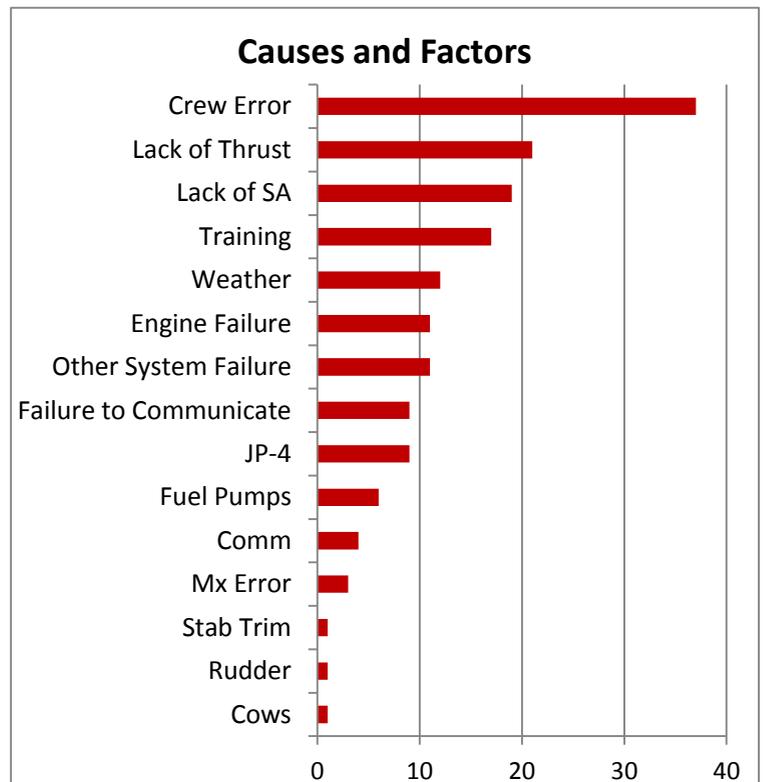
Notes on the statistics:

- Many of these are a personal estimate based on the authors' experience, especially Crew Error.
- These categories are all a combination of direct and indirect causes, and may include lesser contributing factors.
- Cows could be categorized as 'obstruction on runway', but given there were no (human) injuries the author offers it as a little light humor.

Causes explained

For decades, the aviation community has recognized that human factors threats are closely associated with mishaps. With a closer eye on human factors, the Air Force has identified that human factors are attributed to 73% of Class A aviation mishaps in the last 10 years. Military human factors professionals have discussed, taught, trained and briefed the deadly effects of channelized attention and other human factor threats. Most aviation professionals can define or identify a mishap where human factors were present; however, is there anything we can do to mitigate these human performance threats?⁸¹

Having this in mind, the category 'crew error' is not an indictment on anyone, it includes any errors on the crew's part but may have roots in training shortfalls, lack of situational awareness, lack of experience, misreading indications, being misdirected, illness or incapacitation, etc. It does not imply that any error was made intentionally and



the author would dispute any such claim made against the crews. In most publications the category is called 'pilot error', but in this book crew error is synonymous with human factors in general.

It is, in fact, crew error that overshadows all the other causes. Often it's a response to some external issue. Example:

A crew had an engine problem and the immediate response was to cut the throttle for it, and pull the fire switch. The crew responded precisely as the emergency procedure calls for, but it was the wrong engine they shut down, and the offending engine was not on fire. The investigation revealed several human factors leading to the incident: lack of attention, lack of focus, over-reacting, hearing but not listening – all human errors. Due to lack of attention on the fuel panel the engine starved, the first avoidable mechanical problem. As the engine began to spool down, the navigator hollered out 'we lost engine #3', simultaneously the pilot asked 'is it a fire?', the copilot only heard the word 'fire', glanced down at the instruments and seeing #4 instruments looked different from #3 he executed the engine fire procedure on #4 (the good engine, rendering it unusable for the rest of that flight), the pilot failed to take charge and assess before allowing the copilot to take action. After a restart of #3 the crew recovered the plane safely. What went wrong? The final report said 'pilot error', referring to the copilot.

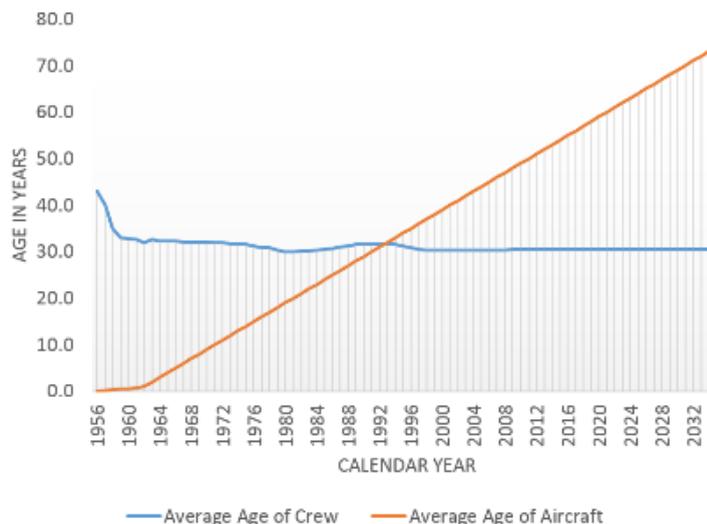
Crew communications breakdown was little more than a footnote. Not mentioned in the report was that the pilot in command was flying just hours after an argument with his wife, threatening a divorce. Only years later when the copilot was recalling the event, he mentioned for the first time that he was asleep when the engine shut down. This was a case, like many others, where human factors were clouding situational awareness. Accident reports are meant to determine cause, but seem to look for blame sometimes.

Lack of situational awareness is probably the most volatile fuel that fans the flames of error, not just in aircraft, but we also see it as the problem in all types of transportation and industrial accidents. This has been addressed in many ways from training to automation.

Insufficient thrust is the first and foremost physical cause of KC-135 accidents (loss of water, loss of engine(s), bad t.o. data, or inability to clear an obstacle), but you will see a marked change in the accident rate after the re-engine program. Another way to look at this particular problem is 'insufficient altitude to compensate for insufficient thrust', as in most cases when they went hand-in-hand. Taking it one step further, one could say insufficient thrust or altitude to compensate for exceeding operational limits, as in banking too far in the traffic pattern and unable to recover (when more thrust, or altitude, may have saved the day). It is an important lesson that although we have more thrust on the KC-135 today, it does not preclude aircraft from crashing in these situations. The clearest example is the C-17, an aircraft of formidable power, which crashed in Alaska in July of 2010 from an excessive bank angle.

Age, Wear, Corrosion

Aircrew and Aircraft Age



Is age a factor in accidents? There are hundreds of aircraft flying today that were constructed in WWII, and constructed in a hurry. The reason they fly is because they were carefully restored, or carefully maintained and continue to be. It is the same for the KC-135.

Engines are an excellent example of this. The life on a car engine is measured in miles, and most people would never buy a car with over a couple hundred thousand miles on the motor. An aircraft engine life is measured in hours of operation. Re-builds and inspections at certain levels of scrutiny will actually zero out the hours and we basically have a new engine. The effects of age can be any number of other things; corrosion, dry rot, parts wear, fraying, but age itself will not cause failure.

The industry and everyone in it is concerned about age, wear, and corrosion. The public concern is about the threat to safety. While the military thinks the same way, the larger concern is cost and time to repair. Not diminishing safety by any means, it's just that we simply don't fly planes where corrosion or cracks will compromise the integrity of the aircraft. When discovered, the cost of repair could be a much longer stay in depot, and a lot of money. The damage is carefully evaluated for the extent, risk to structure, and possibility of similar problems in the rest of the fleet. It is not uncommon to call for a fleet-wide inspection.

As time goes by, the effects of age can reach parts that are extremely costly to identify or replace. Cost and trouble to repair could push an aircraft towards being scrapped, but safety will not be compromised. It is therefore a great concern, because we will have to make sacrifices in available aircraft, with a fleet that cannot be replaced. Another valuable protective measure taken is the rotation of aircraft between bases. The AF periodically cycles planes out of assigned locations that present more corrosion than other locations, such as the salty air conditions at Kadena.

There is a joke repeated often that 'the crews keep getting younger'. While it's factually incorrect, one reason for the illusion is that compared to the tanker itself, they ARE getting younger. At the end of this decade, the aircraft will be more than twice the age of the pilot driving it.

Fuel pumps

We find 6 accidents here that have been associated with, or possibly linked to the fuel pumps. This is a design dilemma; do you design a pump that the crew has to monitor and shut off manually, or one that can turn itself off when it runs dry? There are many ways to think of that. One risk being that the pump will turn itself off inadvertently leaving trapped fuel. With the technology of the 135 era, the manual option was safer technically, and complex fuel management was routine in those days. Many models were delivered with simpler fuel systems like the C-135B, which had no A/R receptacle, no body tanks, no offload system, but countering logic the Air Force added a flight engineer to those crews. Among other duties, the FE would help manage the 'cumbersome' fuel system. It was not until the 1980s that any production aircraft included a fully automated fuel system.

No solution comes without cost. The Air Force answer to this high risk is to keep the pumps deeply submerged in that cooling fuel, much of which we could have used. This prevents fires/explosions, but also presents 2 significant problems; when to turn off the pumps is just as reliant on crew intervention as it was before, and we carry extra fuel at a cost per pound carried. The latter problem completely counters today's exhaustive efforts to save fuel/money.

The direct cause of fuel pump related accidents must be shared between faulty systems, faulty design, and crew or maintenance error.

Type Mission

From what can be gathered from public information, the following is a breakdown of the activity when these planes were lost:

- Cold War (recon support, airborne command post, and airborne nuclear alert support): 14
- Direct support of the war in Vietnam: 8
- In Maintenance: 8
- Tests: 5
- Adventure (Airshow or World Record): 2
- Global War on Terror: 2
- The blockade of Cuba: 1
- Depot input: 1

The remainder (and majority) were routine training, or airlift/air refueling support for customers on routine missions. These were all accidents; not a single tanker has ever been destroyed by enemy forces. The only certainty is that any category can be dangerous. Although most accidents happened during training activity, it is also the largest category of missions. The tanker has normally been utilized beyond the outer threat rings in battle, so statistically, engaging in a war has been no more dangerous than routine training. Therefore, it can be said that the category of mission has no bearing on the cause for accidents. One theory to support this; Operational missions always have a fully qualified crew (even though there may be some training activity taking place, the operation itself is the priority, those carrying it out are highly mission focused; more so in combat.

In the following chapter we will look at how the Air Force responded to the many accidents and how the responses address these many causes.

On the occasion of every accident that befalls you,
remember to turn to yourself and inquire what power you
have for turning it to use.

— Epictetus, The Enchiridion, c. 125

CHANGES TO AIRCRAFT

Water injection system

The water injection system plumbing originally divided the water between the left and right engines. It seems unfathomable that it would ever be designed that way. After the U-Tapao crash it was changed to inboard and outboard. While this system provided a large and measurable boost in power, it increased the complexity of getting thrust. We put increased risk and reliance into an already complex system to safely get us off the ground (adding water weight to help solve the fact we are too heavy to take-off without water injection). Part of the complexity was the logistics of acquiring and keeping de-mineralized water, with a low tolerance for foreign particles per million. One other drawback of the system is that injecting water reduces the flame in the combustion chambers. This leads to unburned fuel out the exhaust and a characteristic trail of black smoke. Often mistaken as dirty steam, it is actually that fuel burned beyond the burner stage in the exhaust cone.

Relatively speaking, the J-57 turbo-jet engines on the C-135s and RC-135s had an overall higher safety record than the tankers and their J-57PW, and before the 50s closed out, Pratt and Whitney was producing JT-3 engines with 16,000 lbs thrust. Hindsight tells us we should have made the engine swap early on with the -135 program. Thankfully, hindsight *has* kept us from accepting such risky (stupid) designs since then.

Re-engine

Early on, Strategic Air Command saw the writing on the wall; some could foresee the end of the Cold War, leaving the tanker fleet vulnerable for the boneyard. Too many crashes were associated with the lack of thrust on the -135. Other factors led to the decision; the J-57 engine was grossly outdated, under-powered, and expensive to maintain. A large number of TF-33 engines were available from the airlines at excellent prices, and the demand for air refueling and airlift was only growing greater. The aircraft needed greater performance and capability to remain a viable asset in the future.

There were 2 KC-135 re-engine programs. The first, replacing the J-57 engines with the airline surplus TF-33 engines for 157 Guard and Reserve aircraft, and the RC-135 fleet. With this modification the tankers were re-designated to KC-135E. This refitting occurred in the early 1980s. The E model delivered 14% better fuel efficiency, allowing for up to 20% greater offload capacity on longer sorties. The E model engines also added about 11,000 pounds gross weight to the aircraft, but no increase on max t.o. weight, therefore on shorter flights the offload capacity was no better than the A model.

The second program was to replace the remaining tanker engines with General Electric CFM56 engines. This program ran from (first delivery) 27 Jun 1985 to 9 Jun 2005. In the process, the RC-135 fleet was modified again, and some of the KC-135Es. At the end of the contract, it was decided not to retrofit the remaining E models. In 2007 the decision was made to phase out the E model, and while the last one was being delivered to AMARC in 2009, a slight shuffle was occurring with the R model distribution between Active and ARC forces.

TCTO's and Write-ups

There have been thousands of Time Compliance Technical Orders, and the list is added to almost daily. These can be compared to car recalls, where a problem is identified and the company responds with a maintenance fix. TCTOs will address any number of issues, including scheduled maintenance, minor discoveries, or crew write-ups. Some of the more significant TCTOs were in response to major hull structural weaknesses and so we have the visible banding on the fuselage aft of the wings, wing strengthening bands, and a modified vertical stabilizer. Many are in response to disaster, such as the replacement of the sighting windows in the cockpit. How do crews influence these life-saving TCTOs? It starts with the 781A (Mx Records).

Most TCTO's are proactive maintenance. The only weakness in the TCTO process is that all too often it's responsive, only after a costly problem emerges. There have been countless cases where a system didn't perform properly for one of more flights, and failed disastrously on a subsequent flight. Sometimes the problem seems too minor to write-up, and in some cases the wording of the write-up fails to drive the right inspection or test (we don't want to make mx work harder than they need to...). Another weakness is 'cannot duplicate' (CND). Naturally the maintainers cannot replicate flying conditions, so it is imperative that the write-up be thorough. The 781As are where the crew has the greatest responsibility to those that fly the jet after them. How can we make better write-ups? It starts with good English. Evidence supports that some formal guidance would yield better write-ups.

The KC-135 Air Logistics Center reports that crews submitted design change requests for the KC-135 nose gear pin over 450 times. Finally, a resourceful boom operator managed to get an engineer on a flight and have him attempt to pin the gear, and insert the cotter pin. For several minutes the engineer struggled, and was unsuccessful. This boom operator explained to him that naturally we would not know the gear needs to be pinned until final approach, and that we may not have enough gas to fiddle with the pin that long. A design change was approved within days, and all the pins were replaced as quickly as they could be manufactured. We should not have to take such drastic measures to get the point across.

Here we will take Karl E. Wiegers' guidance for writing requirements⁸², and apply them to write-ups:

Characteristics of Quality Write-ups

Correct. Each write-up must accurately describe the functionality to be delivered. The reference for correctness is the source of the write-up, such as dash one or a higher-level system specification. A write-up that conflicts with a corresponding system is not correct (of course, the system specification could itself be incorrect).

Only the crewmember with the problem can determine the correctness of a write-up, but we don't normally have the benefit of being included in inspections of the write-ups. Write-up inspections that do not involve users can lead to Mx saying, "That doesn't make sense. This is probably what they meant." This is also known as "guessing."

Feasible. It must be possible to implement each write-up within the known capabilities and limitations of the system and its environment. To avoid infeasible write-ups, use all available resources and expertise. This means you may not be able to complete the write-up until you meet with Mx. This can provide a reality check on what can and cannot be done technically, and what can be done only at excessive cost or with other tradeoffs.

Necessary. Each write-up should document something that is required for conformance to an external requirement, an external interface, or a performance standard. Another way to think of "necessary" is that each write-up originated from a source you recognize as having the authority to specify standards. Trace each write-up back to its origin, such as a system requirement, regulation, or some other input. If you cannot identify the origin, perhaps the write-up is an example of "gold plating" and is not really necessary.

Prioritized. Tracing any write-up back to the technical source is usually sufficient to identify a priority, but if there is any ambiguity it would help to clarify a write-up is 'mission essential', 'safety of flight', or just 'will not require repair before returning to home station'. This provides the urgency and drives an appropriate Mx response. When there are multiple write-ups while on the road, give them a priority, such as 'crew recommends fixing this before the 3 previous write-ups'. Mx will at least know your priority and be afforded to appease you or argue for a better plan of action. If all the write-ups are regarded as equally important, the Mx team is less able to react to new write-ups added during a mission or changes to the mission. Priority needs to be a function of the value provided to the mission, not the comfort of the crew.

Unambiguous. The reader of a write-up should be able to draw only one interpretation of it. Also, multiple readers of a write-up should arrive at the same interpretation. Natural language is highly prone to ambiguity. Avoid subjective words

like user-friendly, easy, simple, rapid, efficient, several, state-of-the-art, improved, maximize, and minimize. Words that are clear to the crewmember may not be clear to Mx. Write each write-up in succinct, simple, straightforward language of the system manual you are referring to, not in crew Mx slang. Effective ways to combat ambiguity include using specifications, writing a user scenario that illustrates the expected behavior of the system that failed.

Verifiable. Look back at your write-up and see whether you can test it or use other verification approaches, to determine whether each write-up will be properly responded to. If a write-up is not verifiable, the correct response is a matter of opinion. Write-ups that are not consistent, feasible, or unambiguous also are not verifiable. Any write-up that says the system shall "support" something is not verifiable. If it says 'how' it will support something it will be more verifiable.

Complete. No information should be missing. It is hard to spot missing material when it's not there.

Succinct. Just as valuable as completeness, it is important not to be too wordy. Capture the problem, do not interject opinion (unless stating so), and do not make 3 problems a single write-up. For instance, if you have an instrument problem, some adverse movement to a control input, and something smells funny, make 3 write-ups. For clarity you can reference the other write-ups as a 'possible link' to each other. Let Mx determine if the problems are linked or not, otherwise they may address the problem you say it is and neglect to look for another.

Traceable. You should be able to link each write-up to its source, which could be a higher-level system requirement, a Flight or Mx Manual, or AFI. Traceable write-ups are uniquely labeled and are written in a structured, fine-grained way, as opposed to large, narrative paragraphs or bullet lists.

What it boils down to: Communications. Good write-ups lead to good maintenance and TCTOs that save lives.

"Your best teacher is your last mistake."

-Ralph Nader

CHANGES TO PRACTICE/POLICY

Communications

Any time clarity is important it is simple courtesy to repeat what someone says, in your own words, to be sure you understand each other. A great example of this is the advertising business – customers provide an idea, the ad agency produces thumbnail previews of the ad for the customer's approval. This is refined until a comprehensive layout is provided before going to print.

After a series of aircraft disasters in the 1980s, the FAA mandated that pilots would repeat the directions given by controllers. Nobody can say how many lives this has saved, but in many of the mishaps since, a common denominator is that the pilot didn't repeat the instructions, or between the pilot and controller there was a lack of understanding that went unchecked.

Good communications has always been important in the flying business, such as having a common language (i.e. the phonetic alphabet), repeating instructions, standard procedures on radios, etc. The last few decades have added to this, especially through training in Cockpit Resource Management (CRM), where tapping into the talents of the crew, listening, and 'speaking up' is not only allowed but highly encouraged. This is another practice that the benefit cannot be measured, but it is certain it saves many lives today.

Bad Apples

During the investigation of one particular -135 accident it was discovered the pilot had an 'incident' (not stated specifically) 13 years earlier. He had a re-exam and resumed flying. In the -135 he made a landing that destroyed the aircraft. Mercifully no one was injured in the incident. 7 years after this, no longer in the Air Force, he veered off a runway during a takeoff, sustained substantial damage, and passed a reexamination. Another 3 years passed, attempting a night instrument landing in a commercial transport aircraft he struck a building and was seriously injured. A fellow AF pilot described his abilities, "In a crunch, or when overwhelmed he had a tendency to lose overall situational awareness, and lacked the ability to multi-task."⁸³

In the 1970s and 80s the airline industry was flourishing, and could fill its ranks with prior Air Force pilots. In fact, many pilots knew the date and remaining number of days until their commitment to the AF was up. Although the hiring process in the airlines was rather scrupulous, it was not hard for Joe Bagadonuts^{xxiii} to get recommendations, even if he was not a good pilot. The practice was called passing the buck, and it happened *within* the Air Force even more often.

In one such case, a particular copilot that everyone dreaded flying with had been passed from one crew to another. Some described him as 'a self-made man, who worshipped his maker'. He was well known for ignoring input from the others on the crew. This behavior led to a number of serious incidents. Rather than remove him from flying, he was given an assignment, with upgrade training to A/C on the way.

We do not hear of this happening very often anymore. It is something, like many other things in the Air Force that is no longer tolerated. A problem pilot (or other crewmember) is dealt with in a systematic fashion with counseling and training, failing this they find themselves re-assigned to a ground duty. This does not mean passing the buck cannot happen, and it is each and every crewmember's responsibility (not just the Commander) to prevent it from happening.

Stan-Eval

Standardization and Evaluation (Stan Eval) was once called Standardization Board (Standboard). Standboard was feared, in fact the logo found outside many Standboard offices was a vulture, with the humorous moniker "Harsh, but Unfair"! These were the cream of the crop with flying skills, they were the crew selected when the wing commander needed to update his currency. They were not questioned by anyone, but then, they were not easily approachable due to this elevated status. They gave checkrides, administered tests, and feared no one... except CEVG, SAC's Central Evaluator Group. CEVG was the only level in the active flying career structure higher than Stan-Eval.

A positive result of fewer flying hours - crews rarely fly alone anymore, too many need the flying for currency. This includes Stan Eval, which has experienced a culture change from the more frequent contact/sharing of flying hours.

Traditionally the evaluator stayed out of the way, but close enough to monitor their every move, verify 100% compliance with checklist items, and evaluating responses to those events that were not planned or anticipated. Today more than ever, they are putting to practice that first part of the name; standardization. The evaluator will often talk with the evaluatee to find out how they accomplish a new procedure, not just to see if the person can do it, but also to see if it's being taught right. They will occasionally provide some instruction on what they see, on a no-threat basis, rather than wait until debrief. Questions along the way in a check-ride are more common, where in the past it was an indication you just did something wrong. In short, StanEval has retained their elite status, but they have proven to be more valuable as an approachable entity, rather than feared. Although more approachable, safety remains the highest priority in Stan/Eval, and breeching a safety margin will be the fastest way to bring back that vulture in them. According to one boom operator in AMC Stan/Eval, the young booms today are walking into the StanEval office with challenging questions, and the evaluators have enjoyed the change.

Airshows and Adventure

^{xxiii} Joe Bagadonuts is any old Joe, a term normally meaning 'anyone', but sometimes, 'idiot'.

"Flying is not dangerous; crashing is dangerous." -unknown

From the beginning the airplane has drawn out the adventurer in us. Some aeronautical feats are done for science, and some for personal thrill or the gazing crowd. On the 7th of August 1955, 'Tex' Johnston, the lead test pilot for Boeing took the dash eighty prototype through a barrel roll shortly after take-off. After, he explained to his boss it was a safe maneuver. He was given a stern warning and he promised not to do it again. But he also inspired a crowd of potential airline buyers, and sales for the 707 rocketed up.

When a crash occurs at an airshow, it is more than an isolated disaster of great cost/loss of life, it is also a disaster to air force public relations. At Ramstein, in 1988 the Italian aerial demonstration team had a collision and one of the aircraft crashed into the crowd. Even though it was a foreign team that made a mistake as plain as the sun was up, the world turned its eyes on the US as the sponsor, and event coordinator. How did 70 people die, and 367 spectators suffer serious injuries?

Following the crash of 13 Mar 1987, "Air Force Secretary, Edward C. Aldridge Jr. promised Congress it would not use heavy aircraft, such as bombers and tankers, in risky maneuvers for air shows". Later, ACC regulations instituted strict limitations on aircraft maneuvers for airshows.

It seems impossible to imagine an airshow without an aerial demonstration, even the heavy aircraft are expected to make some kind of impressive fly-by. They are also used (occasionally) to pay tribute at an event, flying over an opening ceremony or memorial service. Even the memorial service for the crew that died practicing the 'Thunderhawks' show was given a KC-135 low altitude flyover above the base chapel. The truth is, ALL flying in close proximity to the ground is risky. Adding any kind of maneuvering increases the risk. Almost every accident at airshows or practicing for them could have recovered from their condition had they more altitude. There have been countless 'saves' after losing 1000 to 5000 feet of altitude (as the author has experienced) recovering from higher altitude stalls, turbulence, and even unexpected inverted flight.

Still, on June 24, 1994, a KC-135 and a B-52 were practicing maneuvers for an airshow at Fairchild AFB, the B-52 crew attempted what would be an impressive hairpin turn, but stalled and crashed, killing all aboard. 21 July 2008, A U.S. Air Force Boeing B-52H Stratofortress "Louisiana Fire", crashed into the Pacific Ocean approximately 25 nautical miles (46 km) northwest of Apra Harbor, Guam, after taking off from Andersen Air Force Base. The aircraft was about to participate in a flyover for the Liberation Day parade in Agaña when it crashed at 9:45 AM (2345 UTC), 15 minutes before the parade was scheduled to start. There were no survivors. Wednesday, 28 July 2010, a United States Air Force military transport plane crashed at Elmendorf Air Force Base in Alaska resulting in the death of all four crew members. The aircraft involved was a Boeing C-17 Globemaster III and the crash is the first fatal accident involving a C-17. The crew were practicing for Elmendorf's Arctic Thunder Air Show, which went ahead three days later as a tribute.

General Curtis Lemay was one of the greatest proponents of using the airplane as a political stage, and broke several flying records personally during his trips to Europe, Hawaii, and South America. In the latter case, it was an opportunity to showcase American air power at a time when the Soviets had taken a lead in the space race. Some say he also had a penchant for getting the press to help out, either to further national interests or to appease an enormous ego. It was immediately after retirement that he engaged with political leaders and 3 years later was selected as the vice-presidential running mate with George Wallace in 1968. Regardless of his ambitions, he was a highly effective leader whose part in winning the Cold War is usually understated, along with the Cold War itself.

The aircraft had a number of other records it could have pursued but very few were sought intentionally after the Lemay era, until the early 1980s. After delivery of the KC-135R, one flight from McConnell AFB broke 17 records. The large fans restrict the maximum speed, but vastly improve lift and climb capabilities.

When a pilot calls out "Ride 'em Cowboy!" at the moment before the aircraft slides off the runway and into a ditch, knowing it may be his last words, there is no doubt that crews are willing to accept risks. It is that same nature that makes them willingly fly through a 'wall of fire' in order to meet a receiver in need. Clearly, airshows, possible hazards, or the pursuit of a record are not the cause of any accident, but a significant and widely accepted factor is our continued spirit of adventure and thrill, and our willingness to take risk for the mission at hand and for recruiting the support of the public.

Training

The formula for aircrew training is simple and unchanged since the 1940s; a commissioning route, Academy, OTS, etc., or Basic Training for enlisted positions, meet test standards, and a flight physical. Flight training starts with classroom academics, basic flight rules, principles, and aircraft systems and operation, and simulator training before supervised flying training. A series of flights, each with a predetermined list of skills to master, will wrap up with the student getting an independent evaluation. But training has evolved in certain ways. First, the quantity and quality of training has gone up dramatically. In the 1950s a pilot could be trained in 6 months.

Today's UPT starts with an elaborate Flight Screening, 25 hours of flying training and 58 hours of ground training. Academic Classes and Pre-Flight Training, then a full year and about 200 hours of flying. All this before the pilot steps into the cockpit of their operational aircraft for 3 months to a year of more training.

Academics now include Cockpit Resource Management (CRM), Operational Risk Management (ORM), crew communications (more on these in this chapter). As a result of accidents, policy has added a requirement for aircraft egress training before stepping foot on the jet.

Over the last 40 years training has also benefitted from advances in professionalism. At one time an instructor trained a line crewmember, who would in turn gain some experience and become an instructor with no further training. Since the late 60s the instructors were hand selected, and underwent formal training for instructors. This course has grown and intertwined academically with the AF Academic Instructor School (AIS), providing instructor candidates far better prepared to instruct. Another leap forward is the Enlisted Aviation Undergraduate School (EAUS) created in 1981 by Strategic Air Command, as a way to indoctrinate enlisted aircrew students; an academic program designed to introduce flight principles, AF flight rules, etc., but also to provide a first level of screening the students, to observe their aptitude for a stressful aviation career. The course evolved into Enlisted Aircrew Undergraduate Course (EAUC), administered by AETC, and is now called Aircrew Fundamentals, a 3 week course at Lackland AFB. It continues to screen out students who can't apply themselves to a rigorous schedule and academics.

The problem child or the bad apple may reveal themselves as such during training, but this is a time of focused stress on the student. They will be concentrating on the task, and have little time for personal expression. It is when they get to their first flying unit assignment that the personality starts to show, especially as they are attempting to acclimate. If such a personality enhances crew interaction and communications, this is good. Most of the time they are still under supervision until they complete local training requirements or 'mission qualification'. This is an opportune time for instructors to help them learn safety habits and social boundaries. We don't normally think of it that way, but it would probably help.

Training devices

Since the revolution of the microchip in the 1970s, the simulators have taken advantage of the possibilities it could provide, and these changes came along as fast as the military or the airlines could invest in them. Some aircraft were invested in way ahead of others. As recently as the early 1990s our FB-111s were using a fixed seat simulator (no motion) that provided a black and white image on CRT driven displays, in conjunction with a moving camera over an ultra-complex map. Air refueling simulators were similar, using model aircraft, and the simulator 'boxes' were usually made by a separate vendor that didn't concern themselves with detailed realism. In most cases the simulator was called a task trainer (some still are).

Using modern equipment built to the aircraft manufacturer's specs (or even actual aircraft parts), full motion hydraulics, extreme high resolution screens, and vastly improved realism in communications, sounds, etc., the crews can log proficiency training for most of their training needs. It is not uncommon for a crewmember to forget they are in a simulator, especially flying in night conditions. The next step, linking simulators together to fly formations, and linking tanker front end, boom pod, and receiver to practice A/R, even when the players are physically 1,000 miles from each other.

This level of realism comes with a high price. The more we plan on using the simulator for proficiency, the more real it needs to be... the more expensive it is to create and maintain. The cost per hour could easily push itself above the cost of actual flying. In the balance is fuel saved, money saved, quality of training. This 'triad' is an unstable position when the budget is so tight.

Cockpit Resource Management (CRM)

In the mid-1980s, after the Airlines had adopted CRM, many of the AF Reservists that were receiving the training from their company job brought it to the attention of the Air Force. The basic underlying premises of CRM is that a team can, and should, perform better than two (or more) individuals in the cockpit. The aim of CRM is to ensure that $1+1>2$, as opposed to $1+1\leq 2$ (in a two pilot cockpit), and that team performance takes precedence over individual performance.

A UK based study of 249 first officers in incidents reported that nearly 40% of them had on several occasions failed to communicate to the captain their proper doubts about the operation of the aircraft. The most common reason being the desire to avoid conflict and deference to the experience and authority of the captain. This is one area of focus in CRM training.

CRM looks at 6 areas of crew interaction;

1. *Information processing*; the process of receiving information through the senses, analyzing and making it meaningful.
2. *Human Error, Reliability and Error Management* is addressed in two ways: reducing errors in the first place, and controlling errors such that they, or their immediate effects, are detected early enough to allow remedial action. CRM addresses both, but concentrates particularly on error detection, especially in multi-crew situations. CRM examines the conditions under which humans are more likely to make errors (e.g. during circadian lows, when stressed, when overloaded, etc).
3. *Fatigue and Workload Management* deals with 'readiness to cope' in some sense, in terms of an individual's physical and mental ability to cope with work demands, and how they manage work demands.
4. The aim of *Situation Awareness (SA)* training is to ensure that all flight crew members have good SA and a common (and correct) perception of the state of the aircraft and environment. This can be achieved by good team working and communication. Breakdown of SA is the root cause of so many aircraft incidents that eliminating it would dramatically reduce the accident rate.
5. *Communication, Teamwork, Leadership, Decision Making and Managerial Skills*. One of the basic underlying premises of CRM is that a team can, and should, perform better than two (or three) individuals in the cockpit, and that team performance takes precedence over individual performance. In order to be effective, team members must be able to talk to each other, listen to each other, share information and be assertive when required. Commanders should take particular responsibility for ensuring that the crew functions effectively as a team.
6. One of the goals of *automation* is to improve the pilot's situational awareness. A related goal is to decrease the workload required to maintain a given level of awareness. Pilots have various reactions to automation. They may find it superfluous, helpful, or confusing. CRM in highly automated aircraft presents special challenges, in particular in terms of situation awareness of the status of the aircraft.

To generalize CRM, one could say that the crews that had been carefully trained in the *physiological* effects of aviation, were now getting additional lessons on how *psychology* affects team-work. By 1990 all multi-place aircrew were required to complete the basic CRM course, and policy changed requiring a refresher in CRM annually. In 1992 CRM started migrating into the maintenance and fire-fighting teams in the Air Force, as well as to the single-seat arena as they deal with their wingmen, the support teams, and Air Traffic teams.

Unfortunately we cannot measure the effect CRM has on safety, but every crewmember will likely have a tale or two about how they communicate better. The art and science of CRM is one of many ways the AF is increasing its focus on human factors. The timing of this change taking effect, 1990, happens to coincide with the overall accident rate in the KC-135 dropping into a new and safer era.

Operational Risk Management (ORM)

Risk management is a more realistic term than safety. It implies that hazards are ever-present, that they must be identified, analyzed, evaluated and controlled or rationally accepted.

— Jerome Lederer, director of the Flight Safety Foundation

Operational Risk Management (ORM), codified for the DoD is OPNAV Instruction 3500.39B: "On duty or off-duty everything we do has some degree of risk which, if not properly managed, may result in injury or fatality. Commands that have embraced the philosophy of operational risk management and applied its management tools throughout the chain of command have demonstrated successful reduction of mishaps and injuries."

The Air Force details its ORM program in AFI 90-901, Operational Risk Management, and in AFPAM 90-902, Operational Risk Management Guidelines and Tools. Air Mobility Command Instruction 90-903 describes how the Command has implemented a standardized aviation ORM process. The ORM process "assists, highlights and shares responsibility between planners, leadership, supervisors and aircrew for safe and successful mission accomplishment." (AMCI 90-903, Aviation Operational Risk Management (ORM) Program, 5 Nov 2007). It is a formalized method of balancing the risks of a mission against the benefits to be gained in a situation and then choosing the most effective course of action. The 'method' is a decision making tool (automated web-based worksheet); a user inputs mission detail and parameters, and the tool methodically arrives at a risk level. The goal is not just risk identification, rather it is "to bring high/critical mission risk attention to planning/execution, indicate what is causing mission risk, and enable decision makers to mitigate and eventually predict risk"(ibid). The more this is used, the better we will be in avoiding higher risk missions instinctively.

This worksheet has evolved into a new project called Aviation Operational Risk Management (Av-ORM). This project application automates the existing manual process, tapping into the mission details in GDSS and generating a complete 'risk profile' for the mission, from departing home station to landing back home, with detailed levels of risk throughout the itinerary. The tool incorporates Fatigue Avoidance Scheduling Tool (FAST) modeling information into appropriate risk factor scores in both the Mission planning and execution stages. Some of these risk factors include: user/customer, type mission, timeline, environment, crew/aircraft, and human factors (including health and stress risks, and circadian rhythm/fatigue risks).

In a classic movie line it was said, "the first step in avoiding a trap is knowing of its existence".^{xxiv} The same applies to identifying high risk. Sometimes mission needs supersede the ability to avoid high risk, but the acute awareness of when you are peaking into high risk activity will give you a level of caution that will lower the risk.

Planners and crews have always considered risk to some degree, but before the late 1980s the planner and the commander/director of flight operations determined the acceptable level of risk. The important evolution in risk management is that, as noted above, "planners, leadership, supervisors and aircrew" all share in risk decision-making, and this includes maintenance personnel. Incorporating tools and their outcome into policy has certainly been valuable in combating risk. Such practices may have prevented the events of 7 Dec 1975 in Alaska, when policy was preventing the use of heaters to keep the aircraft warm. This alone would be a factor multiplier, and the score would be compounded by the long delay. Instead, the decision to go was made in operations, and (evidence shows) the crew departed impaired with hypothermia

USAF Safety Programs

The AF Safety Programs can trace their origins back as far as we can trace man using tools. Until recent history the aviation program was little different than ground safety or any other; largely centered on measuring the number of mishaps per a given time period, and inspections. There was always training on safety equipment, safety

^{xxiv} Frank Herbert's *Dune*, 1984.

tips and tolerances, and safety meetings to discuss what happened in a particular incident. The average crewmember could see the value in it, but also saw it was a stagnant process, sometimes time wasted.

The last 20 years has seen a huge transformation in the flying safety programs. Some are re-brands of older programs, but perhaps the biggest change is an Office of the Secretary of Defense policy memo, dated 11 Oct 2005, stated that data generated from safety processes shall not be used for monitoring aircrew performance to initiate punitive or adverse action, except for cases of suspected willful disregard of regulations and procedures. This is now reinforced in Air Force Policy Directive 90-13, Military Flight Operations Quality Assurance. The AF Safety Center's Proactive Aviation Safety (ProSEF) is the umbrella under which many new programs operate. It's mission: Use correlating data streams for hazard identification and risk mitigation to prevent mishaps and more safely accomplish the mission. The following are some of the major flight safety programs, this information was taken from the website for the Air Force Safety Center.⁸⁴

Military Flight Operations Quality Assurance (MFOQA) program records flight data for aggregate analysis to determine hidden or unquantified hazards. It's a military version of the civilian Flight Operational Quality Assurance and Flight Data Management programs. The paradigm of managing safety by measuring the rates of mishaps is shifted to types, rates, and causes of close calls. Managing safety just using mishap metrics is like driving a car solely by looking in the rearview mirror. MFOQA collects close call data, which we know occur in far greater numbers than actual mishaps, and this data can be self-reported with non-retribution as noted above. With the data from the "almost mishaps," we can measure our drift toward failure instead of just the history of actual failures. This program is especially interested in finding unsafe latent conditions, such as routinely failing to follow procedures because they are poorly designed.



The Aviation Safety Action Program (ASAP) empowers crewmembers with a quick web-based means for voluntarily submitting reports of safety threats and crew errors. It allows individuals to document their "there I was ..." story and provides near-instant, high-level visibility of hazards. ASAP reports are critical to identifying environmental threats and aircrew errors that may otherwise remain unknown. It's designed to provide a non-punitive environment for the open reporting of information, both critical for resolving mishap precursors and valuable for sharing across aviation communities. As of June 2012, in less than 3 years the office has received 300 voluntary report ASAP reports. The frequency of report submission continues to increase, up to several reports a day, and across commands.

Line Oriented Safety Audits (LOSA) use highly-trained observers to collect data on situational factors and flight crew behavior on "normal" flights. It represents "fly on the wall" data. During flights that are being audited, observers record and code potential threats to safety, how the threats are addressed, the errors such threats generate, how flight crews manage these errors and specific behaviors that have been known to be associated with mishaps and incidents. It, like MFOQA and ASAP, is also non-punitive and features aircrew identity protection.

In general, the aim of today's AF safety program is to foster a culture of mishap prevention by inculcating the value of evidence-based proactive safety throughout, by providing operators and maintainers with guidance and encouragement for implementing safety action programs and contributing valuable data.

Safety Investigation Board

The process of carrying out an accident investigation includes having all involved sworn to keep the findings confidential. There are often details that could be considered extremely embarrassing or indelicate towards the survivors, or families of the deceased, and nothing is served by making those things public. Most important, and what makes an aircraft investigation different than a criminal investigation, is that the sole purpose is to find out exactly what happened, for the benefit of preventing it again. The report can be the basis for changes in design, policy, or procedures, but is not used for prosecution unless gross neglect is a factor.

Traditionally, safety investigation boards (SIBs) have revealed those small events that link together to create disproportionate and disastrous effects. Proactive safety (ProSEF) is taking corrective action based on leading safety indicators that fall outside of traditional historical metrics of incident and accident reporting.

Accident investigation science and technology continues to grow. There is no doubt that one day we will be able to salvage from the wreckage all the clues needed to replicate the disaster to the most minute detail. The closer we get to identifying what happened, the closer we get to why it happened, but there will never be a scientific solution that will *always* answer the why.

Ultimately, we still investigate trailing indicators as revealed through SIBs, but leading indicators, or mishap precursors, are often detectable prior to mishaps. This is the goal – to prevent the need for an SIB report. If it prevents one accident, it has paid for itself. It is the great misfortune of any industry centered on prevention that it is difficult to measure success. Never-the-less, as the most pro-active approach to safety in AF history, this program must endure with support from all.

Nuclear Mishaps

Carrying nukes was never believed to be a factor in the *cause* of an aircraft accident, but with them the *outcome* of an accident can be made a thousand fold more disastrous. On 15 Oct 1959, a KC-135 and a B-52 carrying nukes collided. This was 22 days after another bomber crashed out of Abilene with nukes on board. Afterwards, the Air Force announced that in Jan of 1958 another aircraft had crashed carrying a nuclear weapon, but details were withheld. Again, 17 January 1966, another collision took place destroying a B-52, a KC-135, and this time nukes dropped on Spanish territory, near Palomares. The hunt for the one missing bomb created heightened tensions between the Soviets and the US, and could have escalated into far more disastrous outcomes.^{xxv}

As a result of the Palomares incident, the Spanish government forbid any further air refueling with nuclear weapons on board. It was not a request, and they did not mean just over Spanish territory. Although the latter part of the demand was beyond their authority, the US responded by terminating the Chrome Dome mission. From that point on the nuclear alert force would maintain their responsiveness from the ground.

The mid-air collisions involving nuclear bombs on board were careless mistakes; given the circumstances the crews should have taken extreme caution and gathered precise relative positions, speeds, and verify separate altitudes; utilizing radar, radio, and any other means available, until they are visual with them. This is true with any rendezvous, but with nukes, there is no room for error.

Conducting a rendezvous today *should* be far safer, given the use of on-board TACAN, station keeping equipment, better radar, and precision GPS. This does not preclude the need to stay fully aware of the “relative positions, speeds, and altitudes” of all the aircraft on the A/R track. Safety still starts in scheduling tracks and anchors carefully, and proper frequency management.

In 2008, then-Defense Secretary Robert Gates fired the Air Force's top general and civilian leader after a series of nuclear gaffes occurred on their watch, including an incident in which a B-52 bomber crew flew across the country without realizing that six cruise missiles on board had been loaded with nuclear warheads. Later, on 10 Oct 2013 the Navy fired a Vice Admiral in nuclear forces for gambling related activity, 2 days later the AF fired the

^{xxv} Recovery of the 4th bomb in the water erupted into a tense international hunt for it. Partially based on this incident, the movie ‘Men of Honor’ was made in 2000.

commander of 20th Air Force (responsible for operating intercontinental ballistic missiles) “due to a loss of trust and confidence in his leadership and judgment,” over his personal behavior.

When looking at how things have changed, we see that the people that handle nuclear weapons still make mistakes. Those in the ranks that are handling them always have, and continue to be held responsible and will easily be fired. The major change is that our leadership, all the way to the top, is held accountable *more than ever*. This is the way it needs to be where we are handling the most dangerous weapons known to mankind and the public has to trust us.

JP-4, JP-7

JP-4 (fuel) was in wide use from when it was developed in 1951 through part of the 1980's. Some of the by-products and additives included benzene, toluene, hexane, xylene and lead, identified in an Agency for Toxic Substances and Disease Registry (ATSDR) Publication Toxicological Profile for JP-4 and JP-7, June 1995. On Page 3, Paragraph 2 of the report the scientist states, "When they enter the environment as part of jet fuel they may behave the same way as when they are released alone."⁸⁵ This study ties such exposure to higher risk of leukemia, dangerous tissue reactions, and damage to central nervous system. This is only part of the reason that JP-4 is no longer in use.

JP-4 was prone to building up static electricity when flowing. It had a relatively low flash point, so static discharge could cause a fire. Flow rates must be controlled, and all the equipment used must be electrically interconnected and well grounded. JP-7 has a higher flash point but many similar adverse properties. In the mid-1980s, at the same time the US started replacing JP-4, an antistatic agent was added to decrease the risk of fires. With a safer flash point and lower toxicity, the US government mandated the use of JP-8 in 1990. By 1996 JP-8 completely replaced all JP-4 use in the Air Force.

It is impossible to prove that the change of fuel type contributed to a lower incident record, but experts agree that it probably has. Unfortunately JP-8 has not prevented fuel tank explosions when fuel pumps overheat or arc.

Accident Reports

We have learned how important an aircraft accident report is, and that the design behind that process is a proven way to 1) maintain integrity, 2) capture problems to be corrected, and 3) protect the innocent, when those involved do their part to preserve it. We also learned the adverse impact of what is declared to be ‘the’ cause of an accident; a cold and final declaration that points a finger at someone’s family member, or at some company that produced a faulty part, no room for discussion. Maybe we can change course in how accident reports are written, adding an element that further protects the victims, opens better discussion on safety, while preserving these 3 objectives.

1. Unless a pilot is proven negligent without a doubt, can we narrow down the cause of any accident to 'pilot error' alone? Such a declaration (unintentionally) implies it was deliberate, and masks a great many other possibilities. Nearly every accident is a result of, or caused by, a sequence of events that feed each other and end in disaster. If a pilot strikes a mountain because he failed to follow a published approach, pilot error is a critical factor, but doesn't begin to answer 'why'. Could we re-define cause to include the 'why'? Discard the one-line cause? Cause in one case was: “pilot error”, but could have been:

“In the weather, while dealing with a system problem, it is estimated by the accident investigation board that these two factors distracted the pilot from following the published altitude guidance on the approach. Additionally, this approach had changed shortly prior to the accident, but after the pilot flew the previous route and altitude several times. The evidence is inconclusive, but in simulations of the accident in similar conditions, similar errors were made during the emergency phase where the pilot misinterpreted cues because of an overload of activity. Details of this accident will be used to develop safety briefings focused on recognizing and dealing with distractions and crew procedures during critical phases of flight.”

2. We should report in frequent stages, rather than let rumors build and grow exponentially. An explanation for the crash that occurred in May of 2013 was finally briefed to the aircrew community in September, in a strictly controlled release. The public speculated with grossly incorrect information on social media. One went as far as saying

he saw the report, and blurted out the cause (inaccurately) without clarifying it was his opinion. What happens next can range from nothing, to a full blown call for an explanation to a Congressional committee. Naturally it is important to withhold most details during an investigation, but a carefully crafted and frequent release of investigation progress could help deter the growth of rumors. Of course if we make a habit of addressing rumors, people will create more to get answers.

3. Reports have traditionally been the end all, be all 'this is what happened'. What gets out needs to be known for being 'this is what we believe happened.' The board objective is to be as accurate as possible and establish the actual cause, we take it to the point that the finding is gospel, unimpeachable, and the finished report is something to be proud of. Instead, it needs to be clear that although accident investigation techniques are a disciplined science, and getting more accurate as time goes by, there is an art to it that is subject to human error, and will always allow some bias and prejudice into the final analysis. If we don't accept that, accident reports will punish the innocent their whole lives, and punish the memory of the dead forever, accurate or not.

Drugs and Alcohol

It would be a mistake to address aviation safety without talking about drugs and alcohol. Being a generally sensitive topic, the history of how it relates to accidents is tucked away in formal accident reports, not in public material. One thing is certain, whether it's related or not: As the tolerance for drinking and drugs went down, the accident rate went down.

One story as told to the author: In the late 60s in Okinawa, during Operation YOUNG TIGER (tanker support to Vietnam) the enlisted crews lived in building 136, the "party dorm". Tanker crews were 'hard crews' (flew together all the time) but on more than one occasion the pilots and navigator would find themselves at base ops without a boomer, or gunner. The next step was to go to 136 and 'shop' for a sober crewmember. He adds, this did not mean the officers were entirely sober.

That was a drastic example, but highlights the fact the rules were loosely followed. Describing the 60s is the topic of many books and debates, but it's something that cannot be captured so easily. A long series of historical events hurled the US into a period of social rebellion. Without going into the philosophical details, we can say it led to a massive problem with 'isms'. While part of the population was struggling to end racism, it reached an all-time high for the 20th century in the 60s. The same was true for sexism and alcoholism, each to varying degrees. The tanker business was not immune to these problems. There were many 'functional alcoholics' among the crews, as well as racists and sexists; a black eye on our history, but true. The worst of the 60s spilled over into the 70s before the 'isms' started to get addressed, such as the elimination of the Women's Air Force (WAF). The slow but certain societal changes that have occurred since then leave many wondering if the 60s were possible.

Most people think the rules have always been there, '12-hours bottle to show time'. This is not true. At one time it was only 8 hours bottle to throttle (takeoff time), which changed to 12 hours bottle to throttle. In the early 80s it changed again to 12 hours bottle to show time. These rules didn't change because we learned about the lingering effects of alcohol, they changed because we already knew, but finally accepted that a hangover is a genuine impairment, not just a socially acceptable inconvenience (and not that funny anymore). The only thing that changed is

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how we think, our culture. At the same time, flight medicine gained a massive boost from the space program. Until then, not a lot of thought went into drug interactions; unless it caused an obvious impairment, prescribed drugs would not ground you. As time went by, research advanced our understanding of chemistry and their effects, and the AF moved further to the side of caution.

Until the late 70s there was not a single desk in the AF without an ash tray on it, and many of those had a bottle of booze in one of the drawers. This was not an AF thing, it was nationwide in the corporate world as well. The effect of smoking and alcohol on O2 saturation in the blood had been known for years, but smoking did not slow down, even after we were bombarded with warnings and new discoveries of the carcinogens in cigarettes. Again it was our culture that changed; smoking subsided all the way down to a very small minority, alcohol was deglamorized to the point that the O and E 'clubs' had to make huge changes. Many would argue that they still haven't successfully adapted. The widespread use of marijuana and cocaine continued into the early 80s. Among the tanker force a handful of incidents led to dozens of arrests, in one case wiping out 25% of the crews at one base. AFPC had to re-route several people to that location. While drug related incidents in the military get a lot of visibility, drug issues are relatively uncommon compared to the civilian sector.

Medically, drugs and alcohol have not been the biggest obstacle to crews being sharp, ready to go, and focused. Mental well-being has always been a suppressed issue. Addressing health issues comes at moderate but steady pace, but mental health has always trailed behind. The stigma associated with it has not worn off as it has with physical issues. It was not long ago that many physical diseases would be the source of scandal.

Generally speaking, military policy addresses societal issues early. Whether they have or not in the past, it would be surprising if drugs or alcohol had anything to do with an aircraft accident today.

One widow from the 1988 Ramstein airshow crash, stated 20 years later: *"Life does move on, but you never stop loving them because they died. They're still as real as they were."*

Operate safely or get the mission done? When it comes to safety there is no balance to strike. When a crew cannot achieve both at the same time then training or replacement is needed. We can operate safely and accept different levels of risk, but safety is paramount.

After examining all the evidence, it is clear that all involved in the 135s; from the Pentagon to the MAJCOMs and Air Logistics Centers, to the maintenance operations and the -135 crews, we are headed in the right direction on flying the aircraft safely into the future. We are not just reactive to tragic events, but more proactive than ever in defending against mishaps. Today, in light of huge budget cuts crews are being forced to increase training in simulators and on operational missions, and not enough time 'around the flag pole'. As simulators get better and more integrated it will still only compensate for part of the experience loss, and that also depends on how much is invested in simulator upgrades.

Embedding safety, crew communications, and emphasizing situational awareness in training is critical for continued success. The steady growth of research in CRM and the improvements in methods and systems that aid situational awareness must continue to trickle into the tanker world.

Our existing level of risk must never be compromised by budget. When corrosion, cracks, or any major damage becomes dangerous the current policy is to fix or discard the aircraft, this policy must stay in place without lowering the tolerances. In 2008 AMC met a threshold on the cost of maintaining the E-models, and the Commander elected to put them in AMARC storage. This was necessary to avoid further risks that emerge with budget cuts, and such a difficult decision will emerge again as the R model ages on. To keep them flying at *increased* risk would yield tragedy in equal measure.

The most critical part of an aircraft in operation is the crew, and the average age is somewhat fixed. Consider the old adage; with age comes wisdom; unfortunately that does not apply to the aircraft itself. A curious logic, but given that the average crew age won't change, the crew will simply have to be smarter and more careful with the old bird. There is a great deal of wisdom in the history of the aircraft and those that flew it in the past. Here again, it is important to know that history to benefit from their wisdom.

Write-ups, we learned, are extremely important. It may be of great value to include some formalized training in making quality write-ups, at least during initial weapon system training.

Today's explosive age of social media has its benefits, but has a dark side with accidents. First, it provides a wide ranging broadcast medium to anyone that wants to share with the world what they witness, be it fact or emotional reactions. Second, it does not discriminate its audience like a face to face visit does. Combined, those 2 factors can cause a horrible panic in families and squadrons. The medium itself does not discriminate against lies or stupidity; long after the fact, even decades later a BLOG can allow anyone to make declarations, truth or otherwise, which can reopen old wounds. We should not have to teach good manners to adults, but moving forward we have to raise awareness, and lower our tolerance of insensitive postings – and those that cry freedom of speech must be reminded of the cost of that freedom.

We have learned how important an aircraft accident report is, and that the unique design behind that process was carefully crafted and highly successful, but maybe can be improved to reduce the suffering and improve the primary goals.

Another irrefutable fact, however obvious it may be, was reinforced in this research and that is the overwhelming power of caring for people. Heroes are revealed when caring for the suffering. If people cared about each other when they are alive as much as we grieve for them later, we will find there are real heroes all around us.

Author's final word

2014 KC-135 \$ irreplaceable

Scattered throughout this history I have listed the official estimated replacement cost of the airplane. After Boeing finished building the -135s and the airline 720s, the production floor was cleared for an ongoing demand for 707s, and the new 727s, 737s. The tooling was disassembled to the point it could not be restored.

There are very few remaining -135s in the boneyard that could be restored into an operational R model for a reasonable cost, in a reasonable amount of time, and worth the effort. Special projects like the recent purchase of 3 135s by the United Kingdom (for reconnaissance platforms) are reasonable exceptions. In simpler terms, we can't really replace the old bird with the old frames available. They are now priceless, as they cannot be replaced, and they provide such a giant service.

It has always been this way for the *people* associated with the jet. It's time we stop thinking of them in terms of the cost of training, the time to train, and start thinking of them as Priceless, irreplaceable

Are we ready for another crash? We never have been, we never will be; it is the human spirit to have faith that our machines will sustain us, the weather will not surprise us, our skills will overcome what *does* surprise us, and having each other will guarantee our success. It is that spirit that sometimes suffers a betrayal and undesired results, but is critical to progress and preserving freedom.

We went through 3 distinct eras in accident history. There is no clear cut evidence that explains why we transitioned from a high frequency of accidents in the first era, to a long period of occasional accidents, and then a long stretch of rare accidents. I am convinced it is not any one of the technical or administrative changes we made, nor is it the combination of them all. In the Introduction I said it was probably the lessons learned that brought about an improved safety record. While this holds true, the real reason for our excellent record today is our changes in culture. Having largely tackled the many cultural shortfalls of the 60s to 80s we turned our focus on things that had been neglected; professionalism, discipline and real values. There is an old saying, "take care of your people and the mission will take care of itself". In the paradigm shift that has occurred we would re-phrase that: "Take care of yourself and each other, with respect, and the mission will succeed". Our success will continue to parallel how we embrace discipline and values; we still have room for growth.

Blood ennobled by birth and caste is lost in the light of that ennobled by service and sacrifice. Such nobility is borne by those who go out there every day, don their boots, bend the wrenches or slip the surly bonds in a pursuit to serve, not for glory. The -135 force is a bastion of such noble warriors; the unsung heroes of the Cold War, and the on-going quiet heroes of the wars on tyranny, drugs, suffering, and terror. You carry on the arms, you uphold the highest traditions and honor. I salute you, carry on Toads, NKAWTG!



Bendix radar beacons enable B-58 (left), world's first supersonic bomber, to rendezvous day or night with KC-135 jet tanker. This aerial refueling makes it possible for the B-58 to reach any target in the world and return.

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The Bendix radar beacons permit the B-58 "Hustler" to rendezvous with its jet tanker day or night . . . giving the "Hustler" a virtually unlimited range. Combined with a record-breaking speed of better than 1300 miles per hour, this added range makes the B-58 unmatched by any bomber in the world.

Developed under contracts to Convair Division of General Dynamics and Boeing, the Bendix-Pacific radar beacons are installed in the B-68 and

in the KC-135 jet tanker. By receiving appropriate radar signals and transmitting a proper reply, the beacons enable the two planes to pinpoint each other's position in the outer reaches of the sky.

These coded replies provide range and bearing information to the plane commanders when displayed on the radar screens. The pilots then set their courses to the refueling rendezvous. Thus pilots can overcome the problems posed by "space myopia"—the difficulty of judging distance with the eyes at high altitudes, where there is only space on which to focus.

The operational speed and altitude of the B-58 require the use of special aids for automatic control. Providing such aid is a revolutionary Bendix control system, which literally thinks ahead of the pilot, preventing him from any maneuver that—at the B-58's fantastic speed—could instantly destroy it.

This automatic control system, developed by the Eclipse-Pioneer Division of Bendix, includes the hydraulic control system supplied by our Bendix-Pacific Division.



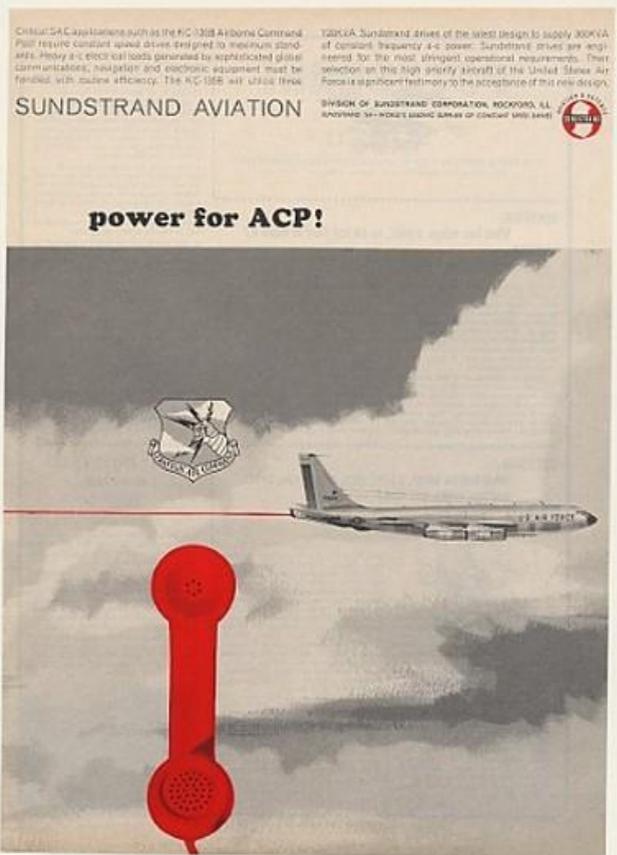
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Strategic Air Command bases

Below is a list of SAC bases,⁸⁶ giving the original, intermediate and present name, as well as the location. (T) = SAC was tenant, (H) = SAC was host.

United States

- Kinross AFB, Kincheloe AFB, Kinross, MI (H). CLOSED
- Mile 26, Eielson AFB, Fairbanks, AK 20 Jul 1957 (T)
- Sedalia AFB, Whiteman AFB, Sedalia, MO (H).
- Abilene AFB, Dyess AFB, TX (H)
- Altus AFB, Altus, OK (H)
- Amarillo AFB, Amarillo, TX (H) CLOSED
- Andrews AFB, Camp Spring, MD (T)
- Barksdale AFB, Bossier City, LA (H)
- Beale AFB, Marysville, CA (H)



- Bergstrom AFB, Austin, TX (H) CLOSED
- Biggs AFB, El Paso, TX (H) CLOSED
- Blytheville AFB, Eaker AFB, Blytheville, AR (H)
- Bolling AFB, Washington, DC (T)
- Buckley Field, Aurora, CO (T)
- Bunker Hill AFB, Grissom AFB, Peru, IN (H) Now an ANG base
- Camp Carson, Colorado Springs, CO (T) CLOSED
- Campbell AFB, KY (T), Campbell Army Airfield, at Fort Campbell, Hopkinton, KY
- Castle AFB, Merced County, CA (H) CLOSED
- Chatham AFB, Savannah, GA (H). CLOSED
- Clinton County AFB, Wilmington, OH (T). CLOSED
- Clinton–Sherman AFB, Clinton, OK (H). CLOSED
- Columbus AFB, Columbus, MS (H). Now a pilot training base
- Cooke AFB, Vandenberg AFB, Lompoc, CA (T)
- Davis–Monthan AFB, Tucson, AZ (H).
- Dow AFB, Bangor, ME (H). Now Bangor International Airport, with ANG unit.
- Eglin AFB, Ft. Walton Beach, FL (T).
- Elmendorf AFB, Anchorage, AK (T).
- Ent AFB, Colorado Springs, CO (T).
- Fairfield–Suisun AFB, Travis AFB, Fairfield, CA (H).
- Fort Worth AFB, Carswell AFB, Fort Worth, TX (H). Now a Joint Guard, Reserve, Navy and AF installation.
- Francis E. Warren AFB, Cheyenne, WY (H).
- Geiger Field, WA.
- General Billy Mitch ANGB, WI.
- Glasgow AFB, Glasgow, MT (H). CLOSED

- Grand Forks AFB, Grand Forks, ND (H).
- Grand Island AFB, Grand Island, NE. CLOSED
- Great Falls AFB (Malmstrom AFB, Great Falls, MT (H). CLOSED
- Grenier AFB, Manchester, NH (T). CLOSED
- Griffiss AFB, Rome, NY (H). CLOSED
- Hill AFB, Ogden, UT (T).
- Homestead AFB, Homestead, FL (H). CLOSED
- Hunter AFB, Savannah, GA (H). CLOSED
- K. I. Sawyer AFB, Marquette, MI (H). CLOSED
- Kearney AFB, Kearney, NE. CLOSED

- Key Field ANGB, Meridian, MS. Now an ANG base.
- Ladd Field, AK T. CLOSED
- Lake Charles AFB Chennault AFB, 14 Nov 1958, Lake Charles, LA (H). CLOSED
- Larson AFB, Moses Lake, WA (H). CLOSED
- Laughlin AFB, Del Rio, TX (H). Now a pilot training base.
- Lincoln AFB, Lincoln, NE (H). Now an ANG base.
- Little Rock AFB, Jacksonville, AR (H).
- Lockbourne AFB Rickenbacker AFB, Columbus, OH (H).
- Loring AFB, Limestone, ME. CLOSED
- Lowry AFB, Denver, CO (H). CLOSED
- MacDill AFB, Tampa, FL (H).
- March AFB, Riverside, CA (H). Now a Joint AFRES/ANG base.
- Mather AFB, Sacramento, CA (T). CLOSED
- McConnell AFB, Wichita, KS (H).
- McGhee Tyson ANGB, Knoxville, TN. Now an ANG base.
- McGuire AFB, Wrightstown, NJ (T).
- Merced County Airport, Merced CA (H). CLOSED
- Miami International Airport, Miami FL (T). CLOSED
- Minot AFB, Minot, ND (H).
- Moody AFB, Valdosta, GA (T).
- Mountain Home AFB, Mountain Home, ID (H).
- Naval Air Station, Dallas TX CLOSED
- Orchard Place Airport/Douglas Field, Chicago Orchard Field, National Guard facility at O'Hare International; Chicago, IL (T) went to Guard, then the unit was moved to Scott AFB.
- Offutt AFB, Bellevue, NE (H)
- Peterson AFB CO. (T).
- Phoenix Skyharbor IAP, Phoenix, AZ. Now an ANG base.
- Pinecastle AFB McCoy AFB, Orlando, FL (H). CLOSED
- Pittsburgh IAP, Pittsburgh, PA. Now an ANG base.
- Plattsburgh AFB, Plattsburgh, NY (H). CLOSED
- Portsmouth AFB, Pease AFB, Portsmouth, NH (H). Now Pease International Tradeport, and ANG base.
- Presque Isle AFB, Presque Isle, ME (T). CLOSED
- Randolph AFB, San Antonio, TX (T).
- Rapid City AFB Ellsworth AFB, Rapid City, SD (H). CLOSED
- Robins AFB, Warner Robins, GA (H).
- Roswell AFB Walker AFB, Roswell, NM (H). CLOSED
- Salt Lake City IAP, Salt Lake City, UT. Now an ANG base.
- Savannah AFB, Savannah, GA (H). CLOSED
- Selfridge AFB, Mt. Clemens, MI (H).
- Seymour Johnson AFB, Goldsboro, NC (H).
- Sheppard AFB, Wichita Falls, TX (H).
- Smoky Hill AFB Schilling AFB, Salina, KS (H). CLOSED
- Spokane AFB Fairchild AFB, Spokane, WA (H).
- Stead AFB, Reno, NV (T). CLOSED
- Tinker AFB, Oklahoma City, OK (T).
- Topeka AFB Forbes AFB, Topeka, KS (H). Now an ANG base.
- Turner AFB, Albany, GA (H). CLOSED
- Westover AFB, Chicopee, MA (H). Now an ANG base.
- Wright-Patterson AFB, Dayton, OH (T).
- Wurtsmith AFB, Oscoda, MI (H). CLOSED

October 1, 1957

BULLETIN FROM BOEING



BOEING KC-135 JET TRANSPORT-TANKER—now being delivered to military in the Air Force. The KC-135 gives the nation's jet bombers and fighters virtually unlimited range—and helps refueling up to jet-age standards of efficiency, speed and altitude.



INTERCONTINENTAL NUCLEAR WEAPONS CARRIER, the Boeing B-52 jet bomber, holds record for world non-stop record: 43 hours, 53 minutes. Fastest, most advanced bomber now in service, the Boeing B-52 operates New York Air Command's long-range tactical Air Force force.



AMERICA'S FIRST JETLINER, the 707—by Boeing, world's most experienced builder of commercial, multi-engine jets. The Boeing 707, already ordered by 43 foreign airlines, has flown coast-to-coast in 3 hours, 42 minutes.



UNDERWATER IN A GIANT TANK—Boeing jet received heavy challenges from simulating some types of powered flight that any airplane has ever flown. Results of such advanced research will be given when Boeing 707 goes into regular passenger service early in 1958.



BOEING BOMARD (B-52)—a major new defense missile that can seek out and destroy approaching enemy aircraft long before they reach U.S. borders. Range is greater than that of any defense missile in use. Bomard B-52 is now in production for Air Defense Command.

BOEING

U.S. Overseas

Andersen AFB, Agana, Guam.
Hickam AFB, Honolulu, HI (T).
Ramey AFB, Aguadilla, PR.

Foreign Bases

Canada

Ernest Harmon AB, Newfoundland
Goose Bay AB, Labrador

United Kingdom

Diego Garcia, Indian Ocean
RAF Alconbury
RAF Bassingbourn, Royston
RAF Burtonwood, Warrington
RAF Brize Norton
RAF Fairford
RAF Greenham Common
RAF High Wycombe
RAF Lakenheath
RAF Manston
RAF Marham
RAF Mildenhall
RAF Scampton
RAF Sculthorpe
RAF South Ruislip
RAF Upper Heyford
RAF Waddington
RAF Wyton

Egypt

Cairo

French Morocco

Nouasseur AB
Rabat
Sidi Slimane AB
Ben Guerir AB

Greece

Hellinikon AB

Denmark

Thule AFB, Thule, Greenland

Japan

Kadena AB, Okinawa
Misawa AB, Misawa
Yokota AB, Tokyo

Oman

Seeb

Portugal

Lajes/Terceira Island

Saudi Arabia

King Khalid IAP
King Abdulaziz International Airport, Jeddah
Riyadh

Spain

Madrid
Moron AB, Seville
Torrejon AB, Madrid
Zaragoza AB, Zaragoza

Thailand

U-Tapao AF, Bangkok

Turkey

Incirlik

United Arab Emirates

Abu Dhabi
Dubai

West Germany

Ramstein AB, Kaiserslautern

Recommended books

Boeing KC-135 Stratotanker, by Robert F. Dorr, 112 pages, published by Ian Allen LTD (UK), 1987. Robert Dorr is a well-known and admired author of Air Force Times columns for decades. A genuine friend of Airmen. This is a smaller book, but a really good guide on all things -135.

Boeing 707 KC-135, and their Derivatives, Legends of the Sky Series, by Dominique Breffort, 240 pages, published by Histoire & Collections, Oct 2008. Originally written in French, this book gives a great international view of the 135's alongside their 707 sister jets and the many variations of both.

Mayday over Wichita, by D. W. Carter, 158 pages, published by The History Press, Charleston SC, 2013. This recent book is an excellent account of one of the worst air disasters in AF history, and truly captures the state of mind of those that survived the deadly crash into their neighborhood.

Boeing KC-135 Stratotanker, More than Just a Tanker, by Robert S. Hopkins III, 224 pages, published by Midland Publishing LTD (UK), 1997. This is the most comprehensive KC-135 book I have run across. Well researched, and the author shares an extensive personal insight.

Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety, by Eric Schlosser, 2013. I am not endorsing this author by any means. His previous book, *Fast Food Nation*, was an exposé on America's poor food choices. His investigations do not really make him the expert he would have you believe he is. Leaping into a topic he is even less qualified in, this book is designed to scare the public with how close we have been to having a nuclear accident in the U.S., and how often. After reading some of his work, and seeing him on the talk show circuit it is painfully clear he employs a great deal of exaggeration and sensationalism, but unfortunately there is some truth to his warnings.

Seventy-Five Years of Inflight Refueling, by Richard K. Smith, 90 pages, printed by the US Government Printing Office, 1998. Written for the Air Force History and Museums Program. Outstanding and thorough history of the KC-135 and its air refueling missions. I am not certain there are still any around, but it's worth hunting for. ISBN 0-16-049779-5.



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Acronyms, Definitions

1LT / 2LT: First / Second Lieutenant
A/C: Aircraft Commander
A/R: Air Refueling
A1C: Airman First Class (as follows: A2C, A3C)
ACC: Air Combat Command
ADC: Adjutant Chief (French AF NCO)
ADVON: Advance Operations Node
AF: Air Force
AFB: Air Force Base
AFFOR: Air Force Forces
AFSC: Air Force Specialty Code (your job)
AGL: Above ground level
AMARC: Aircraft Maintenance and Regeneration Center
AMC: Air Mobility Command
ANG: Air National Guard
ARIA: Advanced Range Instrumented Aircraft
ARS or AREFS
ARW: Air Refueling Wing
ATC: Air Traffic Control
AWACS: Airborne Warning and Control System
BO: Boom Operator
C3: Command, Control, and Communications
C4: Command, Control, Communications and Computers
CAPT: Captain
CCK: Ching Chuan Kang Air Base, Taiwan
CIA: Central Intelligence Agency
CINC: Commander-in-Chief
CMSGT: Chief Master Sergeant
CO, or CP: Copilot
COL: Colonel
CONUS: Continental United States
CSAF: Chief of Staff of the Air Force
DoD: Department of Defense
EDS: Eastern Daylight Savings time
EPR: Engine Pressure Ration
EST: Eastern Standard Time
FAA: Federal Aviation Administration
GCA: Ground Control Approach
GEN: General
GMT: Greenwich Mean Time
GPS: Global Positioning System
IB: Instructor Boom Operator
IFR: Instrument Flight Rules
ILS: Instrument Landing System
IN: Instructor Navigator
IP: Instructor Pilot
JSTARS: Joint
KIAS: Knots, Indicated Airspeed
KTAS: Knots, True Airspeed
LNO: (Safety) Liaison Officer
Lt Col: Lieutenant Colonel
MAJ: Major
MARSA: Military Authority Assumes Responsibility for Safe Separation of Aircraft (also found as MARSSA)
MATS: Military Air Transport Service
MCAS: Marine Corps Air Station
MDS: Mission, Design, Series
MSGT: Master Sergeant
NAV: Navigator
NOTAM: Notice to Airmen
PACAF: Pacific Air Forces
PFC: Private First Class
PO2: Petty Officer 2nd Class
RAF: Royal Air Force
RAPCON: Radar Approach Control
SAC: Strategic Air Command
SMSGT: Senior Master Sergeant
SSGT: Staff Sergeant
SOF: Supervisor of Flying
SW (when precluded by a number): Strategic Wing
TAC: Tactical Air Command
TACAMO: Take Charge and Move Out
TACC: Tanker/Airlift Control Center
TCTO: Time Compliance Technical Order
TDY: Temporary Duty
TSGT: Technical Sergeant
TTF: Tanker Task Force
UTC: Universal Time Central
VIP: Very Important Personnel
Y1C: Yeoman First Class
Z or ZULU: Same as GMT

About the Author

Mr Hoctor hails from New England, and began a career with the Air Force as a Boom Operator, his primary vocation for 20 years on Active Duty. He amassed 5,000 hours flying time as a KC-135A, and then KC-10A Boom/Instructor Boom Operator. Mr Hoctor flew several combat support missions for several campaigns from 1988 to 2000. He also worked in mission planning, mission scheduling, crew scheduling, and flight chief assignments. In 1997 he was assigned to Air Mobility Command's Tanker/Airlift Control Center (TACC) at Scott AFB, IL, and his final assignment on Active Duty was in AMC/XP (now A5) as the Superintendent of Tanker Systems Requirements. He retired as a Master Sergeant on 1 Sep 2002.

Mr Hoctor's post-military career continued in mobility operations and then transitioned to command, control, and communications systems program management and acquisition positions, supporting PACAF and then AMC. Today he continues to serve as a staff officer and defense analyst for AMC, and USTRANSCOM's 'Air Force Forces' (AFFOR) Staff. Mr Hoctor has published numerous AMC Instructions and supplements to Air Force Instructions, and contributed to dozens of defense doctrine and Department of the AF guidance documents. He is also a short story writer, a Wiki writer, a recreational shooter, fiddles with a ukulele, and has a passion for sailing and scuba diving. His undergraduate degree is in Aeronautics from Embry Riddle Aeronautical University, and he received a Master's degree through Air University.

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KC-135 crashes at Fairchild

Six die, one

44 On Board Killed By Tanker Crash

SPOKANE, Wash. (UPI) — All were combat crew and maintenance personnel from the 28th

Civilian Tanker Plane Crashes; All Aboard Killed

WICHITA, Kan. Civilian victims of the

Jet Tanker Crash I

Rites Set for GI Killed in SAC Crash

An Air Force noncommissioned officer from Darby, one of 11 U.S. airmen killed in the crash of a Strategic Air Command (SAC) KC-135 Stratotanker at Wake Island Sept. 24 will be



Jet Crash Kills Six Men Aboard

Air Force Probes Tanker Crash

5 Crewmen Die As Jet Crashes

McConnell KC135 Crash Kills One

7 Crewmen Okay In Tanker Crash

Tanker Plane Crashes; All Aboard Killed

Six Die As Jet Burns In Maine

One killed in jet tanker crash at SAC base, Omaha

Jet Crash At Carswell Claims Five

Crews' Heroism Cited In KC-135 Crash

off crashed into a field

Clark Crash Toll Rises to 78

TWO SURVIVE TANKER CRASH

Jet Explodes After Landing; 10 Escape

Air base mourns victims of 3rd crash within year

Blast Wrecks Plane

ROME — An explosion of unknown Squadron, was treated at the base

Where 15 Men Were Killed in Westover Tanker Crash