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AIRCRAFT ACCIDENT INVESTIGATION REPORT

OFFICE OF THE SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

I. AUTHORITY AND PURPOSE

A. Authority

Under the provisions of Air Force Instruction (AFI) 51-503, *Aircraft, Missile, Nuclear, and Space Accident Investigations*, on 25 September, 30 September, and 1 October 1998, the Eighth Air Force Commander, Lieutenant General Ronald C. Marcotte, appointed the following individuals to conduct an aircraft accident investigation:

- Colonel Danny R. Ohnesorge, Investigating Officer
- Major Timothy M. Domek, Legal Advisor
- Captain Kent D. McDonald, Technical Advisor (Medical)
- Captain Joseph A. Vasta, Technical Advisor (Pilot)
- First Lieutenant Jason M. Juliana, Technical Advisor (Maintenance)
- Staff Sergeant Edward R. Richthammer, Technical Advisor (Life Support)

B. Purpose

An aircraft accident investigation is convened under AFI 51-503. The investigation is intended to gather and preserve evidence for claims, litigation, disciplinary actions, adverse administrative proceedings and all other purposes other than safety. In addition to setting forth factual information concerning the accident, the investigating officer (IO) is also required to state his opinion concerning the cause or causes of the accident (if there is clear and convincing evidence to support that opinion) or to describe those factors, if any, that in the opinion of the IO substantially contributed to the accident. This investigation is separate and apart from the safety investigation conducted under AFI 91-204. This report is available for public dissemination under the Freedom of Information Act (5 U.S.C. 522) and AFI 37-131.

II. SUMMARY OF FACTS

A. History of Flight

On 1 Sep 98, Major Kevin R. Frisbie, the mishap pilot (MP), was piloting the first of four aircraft in a formation, call sign Argos, on a 2 V 2 tactical intercept flight lead upgrade (FLUG) sortie. The wingmen for this mission were Argos 2, Captain Douglas Miller, the Mishap Instructor Pilot (MIP), Argos 3 was Lieutenant Colonel David J. Lewis, and Argos 4 was Captain Richard D. Lubey. The Mishap Flight (MF) was a fight-tank-fight scenario in the PECOS Military Operating Area (MOA), west of Cannon AFB with a scheduled takeoff time of 0730L. The Mishap Aircraft (MA) was an F-16C configured with a centerline tank, one AIM-9 Captive Air Training Missile (CATM), one Accelerated Monitoring Assembly (AMA), and two MAU-12's. During taxi out the MP experienced a flight control malfunction that would not clear. He taxied back, shut down,

NUCLEAR REGULATORY COMMISSION

Docket No. \_\_\_\_\_ Official Exh No. 206  
In the matter of PFS  
Staff \_\_\_\_\_ IDENTIFIED   
Applicant  RECEIVED   
Licensee \_\_\_\_\_ REJECTED \_\_\_\_\_  
Contractor \_\_\_\_\_ DATE 7/1/02  
Other \_\_\_\_\_ Witness \_\_\_\_\_  
Reporter gma

and moved to a spare aircraft. Argos flight finally departed at 0758L uneventfully to the MOA (G-13). During the initial G-awareness exercise, the MP determined his G suit was not operating normally. He discussed this with the MIP and elected to continue the mission. Three engagements were flown during the first portion of the mission, and they refueled uneventfully in AR-602 with a KC-135. The flight then returned to the PECOS MOA to continue the mission. During the second post-tanker intercept, the MP flew to a high aspect merge and executed an aggressive high-to-low conversion on Argos 3. The MP apparently experienced a G-induced Loss of Consciousness (GLOC) at an altitude of approximately 19,000 feet MSL, in an inverted, approximately 70 degrees nose-low attitude. The MP recovered enough to attempt a nose-low/high-speed dive recovery and initiate an ejection. The mishap aircraft impacted the ground at 0915L and was destroyed. Terrain elevation in the area where the aircraft impacted is 4,100 feet MSL. Argos 2 commenced search and rescue procedures after failing to contact the MP on the radio and visually acquiring an explosion on the ground (A-2). The MP received life-threatening injuries as a result of flail during the ejection and his impact with the ground. The first medical help reached the MP ninety minutes later. He was transported from the mishap scene at approximately 1130L by military helicopter and brought to the University of New Mexico hospital in Albuquerque, New Mexico. The 27<sup>th</sup> Fighter Wing (Air Combat Command) Public Affairs office published an initial news release on 1 Sep 98 and several more news releases in the following days to the news media.

## **B. Mission**

The mission was briefed and flown as a 2v2 tactical intercept FLUG sortie. Tactical Intercept (T/I) missions are designed to detect, target, sort unknown air threats, and to arrive at the merge at a position of advantage in order to employ ordnance. The scenario briefed for the first three engagements was a "heater" bogey threat that would require the attacking pilots to visually identify the opposing aircraft and employ ordnance as quickly as possible. After receiving fuel from the tanker, the flight would return to the MOA and continue T/I with an upgraded radar missile threat. These missions are often characterized as low G with benign maneuvering until the merge. After a merge, there are possible scenarios that would require high G (greater than 5 G's) maneuvering. The general intent of T/I is to practice radar work, intercept geometry, and weapons employment pre-merge. On this mission, post merge maneuvering was considered beyond the desired learning objectives (V-6). MP and MIP (Argos 1 and 2) were considered blue fighters and Argos 3 and Argos 4 were the red fighters. The red fighters were training aids that gave various "pictures" that simulated threat aircraft tactics (V-4 through V-6, V-40 through V-47).

## **C. Briefing and Preflight**

On 31 Aug 98, the day prior to the mishap, the MP attended pilot academics and a pilot meeting until approximately 1720L. After academics, he attended the promotion ceremony for the Operation Officer, Lieutenant Colonel Thomas, in the squadron lounge. He arrived home at 1900L and after family time and some mission planning he retired at approximately 2130L. The MP reported that he had restless sleep and at approximately

0200L took a Tylenol. He awoke at approximately 0330L, ate breakfast, and went to the squadron. The MP testified he arrived at the squadron between 0415-0420L based on a 0700L takeoff time. In fact, the scheduled takeoff was 0730L so the MP's arrival time may have been between 0445-0450L based on his normal routine of arriving at the squadron approximately 2 hrs 45 minutes prior to scheduled takeoff time. (V-4).

The MP did not receive adequate crew rest IAW AFI 202 Volume 3. We have conflicting testimony as to the exact time that official duties ended at the squadron the day before the mishap. However, best case scenario is that official duties ended at 1715 the day previous and that he arrived at the squadron NLT 0445L the morning of the mishap and therefore did not have 12 hours of crew rest. Additionally, the MP had no more than 6 hours of uninterrupted rest. The MP elected to continue with the mission based upon his feeling that he was prepared and rested (V-112).

The mass briefing began at 0520L followed by the flight briefing. The MP presented a good briefing covering all required items. He initially briefed not to wear the Combat Edge, but changed his decision based upon the possibility of an alternate BFM mission (V-43). The flight stepped without tapes and data transfer cartridges (DTC's) but returned to gather them prior to driving to the aircraft. The MP stepped late since he had to fill out a flight plan on a DD-175 (V-78).

Argos 2, 3, and 4 started and taxied on time. Due to his late step, the MP started about 5 minutes late. After start, the MP discovered a flight control malfunction that would not clear. After consultation with Top 3, the MP ground aborted his aircraft (86-0313). Top 3 decided to recall another aircraft (86-0324) that had taxied and have the MP use it as a spare for his flight. The MP did a face to face handoff with the other pilot and proceeded with the normal start sequence. The MP stated he connected his Combat Edge G-vest hose during his pre-start checks, but did not recall performing the before takeoff "Harness, leads and anti-g suit system" check (V-30, V-31). The rest of the ground operations and preflight were uneventful.

#### **D. Flight**

The flight profile included a formation takeoff, element trail departure, and systems checks. The mission was planned in the PECOS MOA located in an area between 30 and 120 miles west of Cannon AFB. After element split-up, each element performed tactical warm-up exercises including the G warm-up. Argos 1 and 2 started the intercepts in the northwest with Argos 3 and 4 in the southeast. Argos 1 and 2 maintained the blue role throughout while Argos 3 and 4 stayed as red players. After 3 tactical intercepts the flight rejoined and went to AR-602 for refueling operations with a KC-135. After tanker operations, the flight reentered the PECOS MOA and executed 2 more intercepts (V-42).

When the flight initially entered the MOA, the MP called for a 90-degree turn followed by a 180-degree turn for the G warm-up exercise. After the second G warm-up turn, the MP notified the MIP that his pressurization system for the G suit was not

working properly. After discussion, the MP elected to continue with the intercepts, limiting his G's to a maximum of 5. The MIP concurred and they proceeded (N-2, N-3).

The first three engagements went as planned although the MIP noted a few tactical errors for post flight debriefing. The MP did not recall having any G problems or flying any high G turns (greater than 5 G's) (V-32). Tanker operations were normal for Argos 1, 2, and 3. Argos 4 experienced repeated pressure disconnects from the tanker and was unable to get a full offload. The MP decided to head back to the MOA and planned on returning the flight home when Argos 4 reached bingo fuel (V-6). While returning to the MOA, the MP notified Argos 3 and 4 that his G-suit was not working properly and reminded them that there would be no post merge maneuvering (V-6).

The fourth intercept went as planned (except for some post merge maneuvering greater than 180 degrees between Argos 2 and 4). The fifth intercept (mishap intercept) started out normal. The red air presentation was a six-mile range split with proper targeting and sorting by the MP. After tracking the red aircraft (Argos 3) on his radar, he visually acquired the aircraft underneath his position and started a conversion turn. At 19,000 feet, the MP called the visual identification "ID hostile, ID hostile" and continued to convert in a slicing high to low maneuver on the red aircraft. Argos 3 later testified that he thought the vertical turning room was about 2000 feet (V-52). The MP stated that he had no horizontal turning room, but that felt he had vertical turning room to make the conversion (V-16). The MIP called tally with the red player and began to maneuver in relation to the red aircraft (Argos 3). During his maneuvering, the MIP lost sight of the MP while defending against the red aircraft (Argos 3). After hearing commencement of the emergency locator beacon and receiving no response from the MP, he made repeated calls to contact the MP. The MIP saw a fireball and called for a knock-it-off. The MIP (Argos 2) and Argos 3 then began search and rescue procedures.

After the merge between the MP and Argos 3 (the trailer red aircraft), the MP made his "ID hostile, ID hostile" radio call (N-5). Three and one-half seconds prior to his radio call, the flight data recorder showed the aircraft initiated a turn with G forces increasing from 1 to 6.4 G's. After the radio call, the mishap aircraft recorded a max of 6.8 G's and then a rapid decrease to 1 G that lasted for the next 14 seconds. Additionally, the flight data recorder indicated no stick inputs during this 14 second period. During this time, the MP most probably experienced a GLOC. The mishap aircraft attitude went to 70 degrees nose-low and accelerated through 550 knots. When the MP regained awareness, the aircraft was about 5000 feet above the ground, 70 degrees nose low, 32 degrees of left bank, and 575 knots. The MP initiated a nose low recovery and pulled 8.6 G's in an attempt to avoid the ground. The MP initiated an out of envelope ejection at 300 feet above the ground. At ejection, the airspeed was 532 knots, with a 13,000-foot per minute sink rate, and 8 degrees nose low (O-15, J-14).

The objectives of the mission as stated earlier were detection, targeting, sorting and arriving at the merge at a position of advantage (V-6, V-52). The MP further clarified while returning to the MOA after refueling, that (due to his G-suit malfunction) there would not be any post merge maneuvering (V-6). Despite this statement, Argos 1 and 2

did maneuver beyond the merge. The MIP testified that the MP made the comment "I let that go a little bit farther" (meaning the maneuvering after the merge) between the mishap intercept and the one immediately prior to it (V-47, Argos 2's HUD tape). On the mishap intercept, the MP and MIP allowed the intercept to go beyond those stated objectives. The MP passed high aspect and started a conversion turn even before his "ID Hostile, ID Hostile" call. IAW stated objectives, the MP should have terminated the intercept at this point. By allowing the intercepts to go beyond the stated objectives, both the MP and the MIP did not exercise adequate inflight supervision, which was a contributing factor in the mishap sequence.

#### **E. Impact**

The MA impacted the ground on 1 Sep 98 at 0915L, about 1 hour and 17 minutes into the flight (J-17). The MA crashed heading in a westerly direction in grazing land at 34°04.6" North and 104°24.5" West and was destroyed upon impact (B-2). Examination of the impact site and information from the Crash Survivable Flight Data Recorder (CSFDR) revealed the aircraft impacted in 8-degrees nose low attitude, 42-degrees left bank, 11 degrees angle of attack and 532 knots (J-14). The approximate burn area covered 12.3 acres and the total area of debris covered 124.6 acres (R-3). Soil, air and water samples were collected from the impact site to assess environmental impact. Preliminary results on the ground and water samples were within acceptable limits. Final results from the air samples were also within acceptable limits. Follow up testing by the bioenvironmental engineers at the 27<sup>th</sup> Aerospace Medical Squadron at Cannon AFB will be conducted as appropriate (V-119, AA-17).

#### **F. Egress System**

MP initiated an out-of-the-envelope ejection episode (J-9). All indications are that the system functioned as designed during the ejection episode and sequence until interrupted by the pilot's parachute landing fall (PLF) (J-9). The ejection sequence was interrupted after seat-pilot separation, and prior to complete parachute disreef and prior to functioning of the cord cutter four (4) seconds after seat pilot separation (J-9).

#### **G. Personal and Survival Equipment**

All aircraft and aircrew life support equipment inspection records were current at the time of the mishap (U-2). The survival kit functioned properly, but was interrupted by the pilots parachute landing fall (PLF) (J-9). All life support equipment was found in normal equipment assembly profile, with no definite indications of prior mishap damage (J-25, J-26, and J-27). The MBU-20/P oxygen mask, modified HGU-55/P flying helmet, and CSU-13 B/P G suit revealed evidence of being donned and secured normally at time of mishap (J-27, J-28). The CSU-13 B/P G suit was examined in great detail. No evidence was found to indicate that the suit had been unserviceable at the time of mishap (J-28).

One particular anomaly was noted to the G-vest lower hose attachment on the

CSU-17/P assembly. The lower section of the hose had been torn free along with the attached lower hose valve assembly. Accordingly, the hose valve assembly was not retained within the relief valve housing section of the CRU-94/P integrated terminal block, which led to further study (J-27). Microscopic analysis of the internal bore section of the CRU-94/P relief valve housing disclosed clear evidence of ground terrain matter. This strongly supports our conclusion that during terrain contact of the crewmember, when most ground terrain debris/matter was probably deposited on to the MP's equipment, the vest's lower hose assembly was not secured in place (J-27). Therefore we believe that the MP had either not connected the hose or the MP had only partially connected his G-vest hose to the CRU-94 in the mishap aircraft.

MP could not turn the Emergency Locator Transmitter (ELT) beacon off and make use of his PRC-90 survival radio due to injuries sustained from the ejection (O-4). No specific equipment failures were observed which might have caused the crewmembers injuries (J-30).

## H. Rescue

The time of the crash was 0915L. Argos 2 first noticed the fireball immediately after impact (N-5). He made the first rescue call at 0916L to the Supervisor of Flying (SOF) notifying him of a possible downed aircraft (AA-4, AA-6). During this time, Argos 2 marked the site with GPS coordinates and continued the Rescue Combat Air Patrol (RESCAP). The first unit on the scene, an Army-Air OH-58 from Holloman AFB, arrived at 1045L (O-4) and located the MP approximately 100 meters from the impact site adjacent to a farm road (R-2). Major Richard Baker was the Flight Surgeon on board and the first to respond to the MP. Sheriff S. W. Edwards from the DeBaca County Sheriff's office arrived at approximately the same time (O-4). He identified himself as an EMT-intermediate and assisted with the initial assessment (O-2). No other injured people or livestock were identified and no other vehicles, aircraft or structures were damaged at the crash site.

## I. Crash Response

The 27<sup>th</sup> Fighter Wing SOF received the first rescue call at 0916L and initiated crash response by an announcement over the crash net at 0917L (AA-6). Army Air received notification from the Holloman AFB SOF at 0930L and redirected NIKE 45, an OH-58 to respond. NIKE 45 was already airborne for a check ride and had a flight surgeon as a crewmember (O-4). Additionally, the Holloman AFB tower notified the 48<sup>th</sup> Rescue Squadron at 0934L of the downed aircraft and launched Jolly 06, an HH-60G at 1038L. Delays occurred in launching Jolly 06 because a crew had to be assembled and no Pararescue Jumpers were available for the mission. Jolly 06 departed with a Holloman AFB Flight Surgeon and two Aeromedical Technicians (AA-3). The 717<sup>th</sup> of the New Mexico Army National Guard in Santa Fe sent Med-Evac 43, an HH-60G, after hearing of the crash over the Army Crash Net. Cannon AFB sent an ambulance as part of the five vehicle Fire/Crash/Rescue effort with a local Flight Surgeon, Captain Shawn Zarr, at 0931L after notification on the Crash Net (AA-8). Civilian rescue efforts involved an

ambulance from Ft. Sumner which was notified by the Crash Net. Local law enforcement dispatched Sheriff Edwards from the DeBaca County Sheriff's Department at 0941L after receiving notification from New Mexico State Police, Tucumcari (O-2). The weather was clear and the daytime sunlight facilitated visual identification and location of the MP. Helicopters used GPS coordinates to locate the crash site without difficulty. However, the remoteness of the site from the bases combined with spin-up time prevented quick response. NIKE 45 arrived first at 1045L (O-4). Sheriff Edwards arrived shortly thereafter. Sheriff Edwards reached the MP later than expected because the feed roads would not bring him close enough to the crash site (O-2). At 1100L the ambulance from Ft. Sumner arrived and participated in the stabilization of the MP. The ambulance from Cannon AFB, after traveling 80 miles, arrived shortly after 1100L along with the Fire/Crash/Rescue and Med-Evac 43. The Med-Evac 43 crew loaded the MP onboard accompanied by Major Baker. They left at 1130L and arrived at the University of New Mexico hospital at Albuquerque at 1230L (O-4). Jolly 06 arrived on scene at 1130L just as the MP was being transported (AA-3). Other aircraft and vehicles responding to the scene were (AA-5):

<u>Name</u>		<u>Base</u>
Utah 52	KC-135	Utah ANG
Chafee 1	2F-16C's	524 FS, Cannon AFB
Gamer 1	2F-16C's	524 FS, Cannon AFB
Melrose Range	Truck	Melrose Range Complex

#### **J. Maintenance Documentation**

We conducted a complete review of all Air Force Technical Order (AFTO) Form 781A records from 3 May 98 through the day of the accident, 1 Sep 98. Within that time period, no maintenance actions were conducted on any systems that appear to be related to the mishap. The aircraft had accumulated 2416.9 hours prior to the mishap sortie. The last major scheduled inspection was a Phase 2 (200-hour) inspection completed on 10 Mar 97. All inspection items were in compliance with Air Force directives at the time of the mishap. The review further identified no overdue aircraft or engine inspections, time-change components, or time compliance technical orders (TCTOs) (H-3). The aircraft servicing, as well as combined basic post-flight / pre-flight and aircrew preflight inspections were completed on the morning of 1 Sep 98 with no abnormalities noted (V-129).

#### **K. Maintenance Personnel and Supervision**

A review of all available maintenance documentation and maintenance operations revealed no factors contributing to this mishap. Training records indicated all personnel were properly trained and qualified for the maintenance performed.



## **L. Engine, Fuel, Hydraulic, and Oil Inspection Analysis**

The last engine inspection was a hot section overhaul/3000 TAC inspection accomplished on 14 Oct 97. No abnormalities or problems were noted (H-5).

Fluid samples were obtained from the LOX cart, oil cart, and hydraulic cart that last serviced the aircraft. In addition, samples were taken from base fuels and the KC-135 that refueled the MA on the accident sortie. All samples were found to be within limits on all tests (U-2 through U-17). Samples of fuel and LOX were also recovered from the MA and found to be within limits and useable (U-18 through U-23).

## **M. Airframe and Aircraft Systems**

The Crash Survivable Flight Data Recorder (CSFDR) was recovered and submitted to the Air Force Safety Center and forwarded to Lockheed Martin Tactical Aircraft Systems (LMTAS) for analysis (O-10 through O-15).

The cabin pressure regulator was also recovered and submitted to LMTAS for analysis. The regulator received moderate damage during impact, but analysis by LMTAS indicates that it did not exhibit any potential signs of malfunction prior to the mishap (U-32).

The anti-G suit valve was not recovered from the crash site. Testimony from the pilot that flew the aircraft on 31 Aug 98 and the MP, and referencing T.O. 1F-16C-2-21FI-00-1 indicate that the valve was most likely defective prior to mishap flight (V-5, V-6, V-65). Although the pilot who flew the mishap aircraft on 31 Aug 98 suspected a problem with the anti-G suit valve, he did not feel that it warranted a write-up in the aircraft Form 781A. Instead, the pilot entered the information in the informal "Unusual Occurrence Log", kept in Operations (V-65). The MP was unaware of this suspected problem because he ground aborted his originally assigned aircraft (tail number 86-0313) and moved to the mishap aircraft (tail number 86-0324) without returning to the squadron (V-9, V-10).

## **N. Operations Personnel and Supervision**

Lt Col Thomas, 523<sup>rd</sup> Fighter Squadron Operations Officer authorized the mission. He provided the mass briefing and all required briefings prior for the first morning flights. The MP briefed his flight using his personal briefing guide augmented by the line-up card. This guide used AFI 11F-16 as a reference and covered all aspects and applicable areas for the flight (V-9).

Although the 523<sup>rd</sup> FS flight leads, instructor pilots, and supervisors emphasize G awareness during flight briefs and debriefings, it appears that they are not following the formal G awareness continuation program IAW AFI 11-2F-16 Volume 1. Specifically,

supervisors and flight surgeons are not reviewing and documenting the review of every pilot's air to air tapes for correct AGSM at least once during each training cycle (AA-2). Additionally, the annual requirement to view the video "Anti-G Strain Technique Reinforcement and Assessment" is not being followed (V-63, V-84, V-90, V-100, V-115, V-117, V-127).

#### O. Pilot Qualifications

The MP was current and qualified to perform the scheduled mission (T-3). The MP is an experienced pilot with 2681 total hours and 953 hours in the F-16C. He was current in all training events.

##### 30/60/90 Day Flying Summary (G-2)

30 Day 11 sorties/13.5 hours

60 Day 18 sorties/21.3 hours

90 Day 24 sorties/32.7 hours

#### P. Medical

Maj Frisbie was medically qualified for the mission. He completed his last physical on 31 July 98. Currently he has a waiver for seasonal allergic rhinitis controlled with Beclamethasone that expires 31 July 00.

Toxicological examination of blood and urine reveal a positive Opiate screen on the urine sample. These samples were drawn after Opiate drugs were administered to Maj Frisbie so they cannot be used to determine drug use prior to the accident.

Post accident medical records show multiple fractures/dislocations to the lower extremities and an anterior dislocation of the right shoulder. No abdominal or thoracic injuries were noted. No head injuries occurred and the spine was without fractures. These findings are consistent with deceleration/impact injuries and flail injuries experienced with high-speed ejection and impact with the ground. The MP stated after the accident that he had no memory of the events after the merge with Argos 3. The MP also said he had a surreal feeling after gaining awareness. The CSFDR data and this testimony supports GLOC (V-24).

Physiological factors present that can contribute to GLOC include; sleep of poor quality and duration the night before the mishap (V-23), channelized attention to Argos 3, slow G suit inflation (V-6), a non secure G vest hose (J-27), and talking while executing an anti G-strain maneuver (AGSM) (N-5). Radio communication or talking at 6.4 to 6.8 G's results in the loss of chest pressure. Loss of chest pressure can result in immediate GLOC without the typical warning signs of gray out or tunnel vision as outlined in MCH 11-F16 Vol 5, 10 May 96 page 237.

#### Q. Nav aids and Facilities

There were no Notice to Airmen (NOTAMS) affecting Argos flight operations (K-5).

**R. Weather**

Forecast weather for Cannon AFB for takeoff and landing was a few clouds at 12,000 feet, scattered clouds at 25,000 feet and visibility at 7 miles with winds variable at 6 knots. The PECOS MOA weather forecast was for a few clouds at 12,000 to 18,000 feet and scattered clouds from 25,000 to 30,000 feet. The winds were variable at altitudes out of the northeast at 10 to 15 knots (K-4). Actual weather was clear at Cannon AFB and in the MOA. Weather was not a factor in Argos' mission or the mishap.

**S. Governing Directives and Publications**

**AIR FORCE INSTRUCTION**

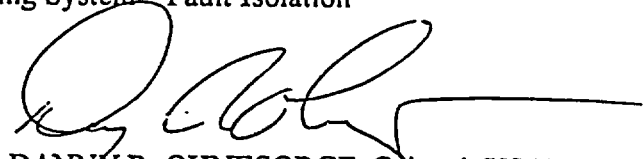
11-202V3	Crew Rest and Duty Limitations
11-206	General Flight Rules
11-401	Flight Management
11-2F16 V1	F-16 Aircrew Training

**MULTI-COMMAND INSTRUCTION**

11-F16 V3	Pilot Operational Procedures—F-16
11-F16 V5	F-16 Combat Aircraft Fundamentals

**F-16C TECHNICAL ORDERS (TO)**

1F-16C-1C	Flight Crew Checklist (Change 7, 2 Mar 98)
1F-16C-1	Flight Manual (Change 7, 2 Mar 98)
1F-16C-4-21	Air Conditioning System - Illustrated Parts Breakdown
1F-16C-2-21FI-00-1	Air Conditioning System - Fault Isolation



DANNY R. OHNESORGE, Colonel, USAF  
Accident Investigation Officer

### III. STATEMENT OF OPINION

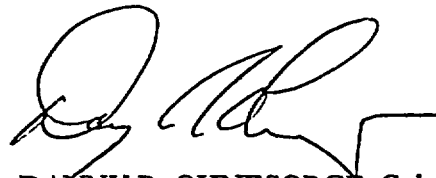
**UNDER 10 UNITED STATES CODE, SECTION 2254(D), ANY OPINION OF THE ACCIDENT INVESTIGATORS AS TO THE CAUSE OR CAUSES OF, OR THE FACTORS CONTRIBUTING TO, THE ACCIDENT SET FORTH IN THE ACCIDENT INVESTIGATION REPORT MAY NOT BE CONSIDERED AS EVIDENCE IN ANY CIVIL OR CRIMINAL PROCEEDING ARISING FROM AN AIRCRAFT ACCIDENT, NOR MAY SUCH INFORMATION BE CONSIDERED AN ADMISSION OF LIABILITY BY THE UNITED STATES OR BY ANY PERSON REFERRED TO IN THOSE CONCLUSIONS OR STATEMENTS.**

There is clear and convincing evidence to show that this accident was caused by a G-induced loss of consciousness (GLOC).

The primary cause of the GLOC was the mishap pilot's failure to execute a proper AGSM while initiating the conversion turn during the mishap intercept. The pilot relied on his G-suit to inflate upon initiation of G forces and provide him the "clue" to begin the AGSM. Since the G-suit was malfunctioning, he was slow to start the straining maneuver as he pulled to 6.4 Gs. He then made the radio call "ID hostile, ID Hostile", which allowed air to flow freely from his glottis that weakened his AGSM and resulted in an almost immediate GLOC. (As a matter of interest, the mishap pilot was able to pull 8.6 Gs while attempting to recover the aircraft just prior to ejection and did not GLOC a second time).

Additional factors that may have contributed to the GLOC include insufficient rest the previous night, fatigue, a disconnected G-vest hose, exceeding his stated objectives and exceeding his planned "5" G maximum self imposed limitation.

The mishap pilot was unconscious for about 10 seconds and "woke up" in a 70-degree nose low altitude at 575 knots and approximately 5000'AGL. He quickly recognized that he had GLOC'ed (from a GLOC experience that he had in the centrifuge). That immediate recognition of "euphoria" (from testimony) helped him to quickly realize his situation. He reacted almost immediately by pulling hard on the stick and very shortly thereafter initiating ejection. His quick recognition of the "euphoria" sensation from the GLOC that he had experienced in the centrifuge probably saved his life.



DANNY R. OHNESORGE, Colonel, USAF  
Accident Investigation Officer