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REPORT OF INVESTIGATING OFFICER

OFFICE OF THE SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

1. AUTHORITY AND PURPOSE.

a. Pursuant to Sixteenth Air Force Letter of Appointment, dated 22 Mar 1989 (Tab Y-1), Colonel John H. Cain, 39th Tactical Group, was appointed to conduct an investigation into the facts and circumstances surrounding the crash of two F-16C aircraft, serial numbers 86-0311 and 86-0312, near Bichon (Barchin del Hoyo), Spain on 14 Mar 1989. The aircraft were assigned to the 401st Tactical Fighter Wing, Torrejon AB, Spain. Pursuant to Sixteenth Air Force Letter of Appointment, dated 22 Mar 89 (Tab Y-2), Captain Wayne D. Loosbrock, Office of the Staff Judge Advocate, 401st Tactical Fighter Wing, Torrejon AB, Spain, was detailed as legal advisor for the investigation.

b. Colonel Cain conducted the investigation in accordance with Air Force Regulation 110-14, Investigation of Aircraft and Missile Accidents, and was guided by the provisions of Air Force Regulation 120-4, Procedural Guide for Administrative Inquiries and Investigations. The objective of the investigation was to obtain and preserve all available relevant facts and evidence pertaining to the accident, and to investigate circumstances leading to the accident and subsequent damage for use in claims, litigation, disciplinary actions, adverse administrative proceedings, or any other purpose deemed appropriate by competent authority.

2. SUMMARY OF FACTS

a. History of Flight.

(1) On Tuesday, 14 Mar 1989, two F-16C aircraft assigned to the 612th Tactical Fighter Squadron (TFS), 401st Tactical Fighter Wing (TFW), Torrejon AB, Spain, were scheduled for a local flight lead upgrade training mission involving basic fighter maneuvers (BFM). The flight call sign was Whiskey. Pilots were scheduled as follows: Whiskey one, First Lieutenant (1Lt) Daniel R. Johnson; Whiskey two, Captain (Capt) Stephen S. Kempf (Tab AA-1).

(2) The flight was scheduled to depart Torrejon AB at 1430 hours Central European Standard Time (CEST) on the Mostoles Standard Instrument Departure, then proceed to the LED 33 training area via the Castejon navigation facility for basic fighter maneuvering and flight lead upgrade training (Tab K-1). Return to Torrejon was to be via reverse routing with an expected land time of 1545.

NOTE: All times in this report will be Central European Standard Time (CEST).

(3) Whiskey flight was cleared for takeoff at 1423 hours (Tab AA-2) and flew the planned routing to the LED 33 training area (Tab AA-4). By

CLEAR REGULATORY COMMISSION

Decret No. _____ Official Exh. No. 107
In the matter of PPS
Staff _____ IDENTIFIED
Applicant RECEIVED
Intervenor _____ REJECTED _____
Other _____ WITHDRAWN _____
DATE 7/1/02 Witness _____
Clerk [Signature] _____

prior arrangement and face-to-face briefing, Whiskey flight was to share LED 33 with Boston flight (Tab V-4). Boston flight consisted of two F-16C aircraft also from the 612 TFS piloted by Captain Butters and Major Ball (Tab AA-1). Pegaso Control, a ground control intercept (GCI) facility, assisted Whiskey and Boston flights in maintaining separation within LED 33 (Tab AA-3). Whiskey flight entered LED 33 at approximately 1430 hours.

(4) Whiskey flight collided in midair during the second BFM engagement at approximately 1444 hours (Tab AA-6), 11,300 feet mean sea level (MSL) (Tab A-1), while performing slow speed maneuvering. Whiskey two made a distress call on his ultra high frequency (UHF) radio in which he declared a midair collision had occurred.

(5) Capt Kempf ejected successfully shortly after the radio call (Tab J-2) and received only superficial abrasions and minor bruises (Tab X-2).

(6) Lt Johnson attempted ejection but was unsuccessful due to failure of the ejection system (Tab J-2). The ejection seat remained in the aircraft through ground impact. Lt Johnson was fatally injured at ground impact (Tab X-1).

(7) Both aircraft impacted the ground approximately two miles northwest of Barchin del Hoyo, Spain in an unpopulated, uncultivated area (Tabs AA-8 and P-1). The impact site is approximately 77 miles southeast of Torrejon AB, Spain.

(8) Boston flight provided initial radio relay support for the search and rescue effort (Tab V-4).

(9) Capt Kempf was rescued by a Guardia Civil helicopter at approximately 1615 and returned to Torrejon at approximately 1700. (See paragraph h(4) below.)

(10) The accident received coverage from both United States and Spanish news media (Tab AA-5). Inquires may be addressed to 401 Tactical Fighter Wing, Public Affairs, Torrejon AB, Spain, APO New York 09283.

b. Mission.

The mission of Whiskey flight was to conduct BFM-2 flight lead upgrade training for Lt Johnson. Mission elements as prescribed by USAFE Manual 51-50 include system checks, ranging, G-warm up/G-awareness, tactical formation, comm-out maneuvering, visual high/low aspect setups, gun tracking/snap shot and guns defense, missile employment/misssile defense, and separation. Mission elements prescribed by 401 TFW Director of Operations

Operating Instruction (DOOI) 55-16 include formation takeoff, tactical formation, weapons check, roll slides, offensive perch setup, defensive perch setup, high aspect setup, and minimum fuel recovery profile.

c. Briefing and Preflight.

(1) Testimony revealed no crew rest deviations, as defined by AFM 60-16, for either Capt Kempf or Lt Johnson (Tabs V-2, 3, 12, 14, 15). Both appeared rested and there were no indications of physical or psychological stress for either.

(2) Lt Johnson had a dinner engagement Monday night, 13 Mar 89. Between approximately 2115 hours Monday night and 0100 hours Tuesday morning, he consumed approximately six beers (Tab V-12). He departed his date's house around 0145. He was first observed on base at approximately 1000 hours (Tab V-13) and was seen in the squadron at around 1100 hours (Tab V-14).

(3) The mishap flight was the second flight of the day for Capt Kempf and the first flight for Lt Johnson (Tab AA-1). Capt Kempf's first takeoff was at 0840 and he landed at 1010.

(4) Mission briefing was scheduled to start at 1230, two hours prior to takeoff (Tab V-15). No one attended the briefing except Lt Johnson and Capt Kempf. Capt Lupinski queried Capt Kempf at the conclusion of the briefing and Capt Kempf indicated Lt Johnson's briefing was good and thorough (Tab V-3). No one observed any problems or misunderstandings between Capt Kempf and Lt Johnson regarding the mission (Tabs V-3, 14, 15).

(5) Nothing abnormal or unusual was observed by operations or maintenance personnel on the ground from the conclusion of the flight briefing through aircraft takeoff (Tabs V-19, 20, 21). Lt Johnson committed a minor administrative error when he failed to sign the exceptional release block on the AFTO Form 781H as is normal procedure on the second flight of the day for the aircraft (Tab U-2).

d. Flight Activity.

(1) Whiskey flight took off at 1423 (Tab AA-2) and flew the planned routing to the LED 33 training area (Tab AA-4).

(2) Two roll slide gun attacks were performed by Whiskey two, Capt Kempf, against Whiskey one, Lt Johnson, while enroute to the training area. On the second pass, Capt Kempf maneuvered his aircraft to within approximately 600 feet of Lt Johnson's aircraft. Reference Capt Kempf's head-up display video tape. USAFER 55-79 establishes 1000 feet as the minimum separation between opposing aircraft. This separation is referred to as the "1000 foot bubble."

(3) Whiskey flight entered LED 33 at approximately 1430.

NOTE: The references for the following reconstruction of events were Capt Kempf's HUD video tape in combination with testimony from people who discussed the collision sequence with Capt Kempf (Tabs V-1, 3, 6, 8, 9, 16). Lt Ramey's testimony (Tab V-8) was the most detailed. Capt Kempf refused to answer any questions on advice of counsel.

(4) During the first BFM engagement, which lasted slightly longer than three minutes, Capt Kempf's video tape shows a close pass as Lt Johnson's aircraft flies through Capt Kempf's head-up display (HUD) field of view. Capt Kempf's radar is not locked on, but ~~using stadiometric ranging techniques, range is estimated to be 300 to 400 feet separation as the aircraft pass each other.~~ Again, this was inside the 1000 foot bubble.

Changes made per Gen Daniels 11 Jul 89 letter

approximately 500

(5) The engagement in which the Whiskey flight collision occurred began from a butterfly set up designed to produce a high aspect situation at the outset of the engagement with neither aircraft having an advantage. In the butterfly set up, the aircraft start from near line abreast at close range. Each aircraft then turns approximately forty-five degrees away from the other aircraft and maintains this divergent vector for a specified time. Each aircraft then turns approximately 150 degrees toward the other so that the engagement begins from a near head-on, high aspect situation.

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(6) During the head-on pass of the aircraft, Capt Kempf's aircraft was slightly higher than Lt Johnson's and each aircraft was offset to the other's left. Capt Kempf locked his radar onto Lt Johnson's aircraft. At 3100 feet range, 1141 knots closure velocity, Capt Kempf uncaged the seeker head on his training heat seeking missile in preparation for a simulated launch. At 2400 feet range, Capt Kempf's HUD displayed a break x signal indicating he should terminate the attack because the aircraft were predicted to pass within 500 feet of each other. Capt Kempf's radar broke lock with 600 feet range showing on his HUD symbology, inside the 1000 foot bubble again.

(7) After the aircraft passed each other, a series of turning, climbing, and diving BFM maneuvers were performed by Capt Kempf, but Lt Johnson's aircraft was not within the HUD field of view at any time. Capt Kempf did achieve a radar lock-on at one point and the symbology indicated a high aspect situation. The radar broke lock at 400 feet indicated slant range, inside the 1000 foot bubble again.

(8) During one nose high climbing maneuver performed by Capt Kempf, the slow speed warning horn activated at 160 knots calibrated airspeed (KCAS) with the aircraft in a 67 degree nose high attitude at 24,000 feet MSL. Capt Kempf rolled inverted and began a recovery maneuver, but the nose continued to an 85 degree high position before starting back down and the airspeed continued decreasing to a zero reading. USAF 55-116 requires

pilots to terminate offensive or defensive maneuvering at the activation of the low speed warning signal and take positive action to correct the low speed condition. Further, if altitude, airspace, or safety dictates, the engagement should be terminated with a knock it off or terminate call. No radio call was made. Capt Kempf continued recovery controls and achieved 170 KCAS at 22,400 feet MSL with the nose of his aircraft 60 degrees below the horizon.

(9) The engagement continued as Capt Kempf performed a series of three to five G left turns and rolls attempting to achieve a firing position to the rear of Lt Johnson's aircraft. During this maneuvering, Lt Johnson called "check gas" over the VHF radio which Capt Kempf acknowledged with a "two" call.

(10) Capt Kempf then perceived himself to be sliding in front of Lt Johnson's wing line and began a five to six G pull up from 50 degrees nose low, 265 KCAS, and 13,200 feet MSL. As his nose came through the horizon with wings near level, he began a left roll towards Lt Johnson in an attempt to achieve a position above and behind Lt Johnson. Capt Kempf continued the roll as the nose dropped below the horizon. He was at 200 KCAS, 12,400 feet MSL, and 30 degrees nose low after completing 270 degrees of roll; i.e., he was now in 90 degrees of right bank relative to the horizon, when he momentarily stopped his roll.

(11) At this point, Lt Johnson's aircraft was positioned to the right side of Capt Kempf's, slightly aft of line abreast and slightly low. Both aircraft were turning toward each other. Capt Kempf then assessed that a very near miss or collision was about to occur so he rolled wings level away from Lt Johnson and attempted to pull his nose higher, but could only achieve 1.6 Gs due to low airspeed. Capt Kempf used both hands on the control stick in an attempt to increase aircraft performance.

(12) Capt Kempf's aircraft was on the pitch limiter, a condition where the flight control system's authority in the pitch axis is limited to prevent exceeding the angle of attack limits of the aircraft with subsequent departure from controlled flight.

(13) Lt Johnson continued turning toward and closing on Capt Kempf from his low right side. Capt Kempf fleetingly considered preemptive ejection, but rejected the idea (Tab V-8). After losing sight of Lt Johnson's aircraft, Capt Kempf assumed only a near miss had occurred. Shortly thereafter, Capt Kempf felt his aircraft lunge, described as a sensation similar to flying through jetwash.

(14) The collision occurred approximately three minutes into the engagement with Capt Kempf's aircraft at 190 KCAS, 11,400 feet MSL, 22 degrees nose low, 1.6 G, and heading 135 degrees magnetic.

(15) After the collision, Capt Kempf looked back to his high left aft position and observed obvious front end damage and possible aft end fire on Lt Johnson's aircraft. Capt Kempf observed several lights and warnings in his own aircraft and attempted to add power and nose over, but with no response. At 1444, Capt Kempf made a mayday distress call on the ultra high frequency (UHF) radio guard frequency declaring a midair collision. He initiated ejection at approximately 7,500 feet MSL, just before his aircraft entered a cloud deck. The aircraft impacted the ground approximately 45 seconds after the collision.

e. Impact.

(1) The midair collision occurred at approximately 1444 hours (Tab AA-6), 11,300 feet mean sea level and 7,800 feet above ground level (Tab A).

(2) Slivers of graphite epoxy material were found imbedded in the left side of Lt Johnson's canopy. All graphite epoxy areas of Capt Kempf's aircraft were recovered intact except for the right horizontal stabilator.

(3) The radome from Lt Johnson's aircraft was shredded in the front section and was found well outside the main impact area of Lt Johnson's aircraft. Portions of the right flaperon and hydraulic actuator from Capt Kempf's aircraft were also found well outside the main impact area of his aircraft. The flaperon showed impact damage underneath and upward bending damage which caused the flaperon to tear in half and separate from the wing. Using two F-16 models and aligning the right horizontal stabilizer of one with the canopy of the other, the radome area of the trailing aircraft falls in line with flaperon of the leading aircraft.

(4) The two aircraft impacted the ground at approximately thirty nine degrees, forty two point four eight minutes north latitude and two degrees, eight point two four minutes west longitude (Tab A). Aircraft impact areas were separated by approximately six hundred and twenty eight meters (Tab AA-23). The crash site is approximately two miles northwest of Barchin del Hoyo, Spain in an uncultivated, unpopulated, hilly area of dense, short scrub brush (Tab P-1 and AA-22). No claims for property damage or personal injury are foreseen.

(5) Cockpit warning and caution lights that survived the crash were analyzed for illumination at ground impact (Tab J-6). Any information obtained from this analysis does not pinpoint illumination as being prior to or after the midair collision.

(a) For aircraft 86-0311, analysis of the Caution Light Panel revealed that the ELEC SYS light was illuminated. The ADC, BUC, AVIONICS, ANTI-SKID, NWS FAIL and CABIN PRESS lights were missing. All other lights on this panel were determined not to be illuminated at ground impact.

(b) For aircraft 86-0312, analysis of one five module warning light assembly (four modules usable) revealed that the ENGINE FIRE/ENGINE light was not illuminated. The HYD/OIL PRESS and the TO/LAND CONFIG lights were illuminated. The DUAL FC/CANOPY module was missing. From the Caution Light Panel, the FLT CONT SYS, LE FLAPS, AVIONICS, and HOOK lights were illuminated. The ADC light analysis was inconclusive. The ELEC SYS, SEC, FWD FUEL LOW, BUC, and STORES CONFIG lights were missing. All other lights on this panel were not illuminated.

f. Ejection Seats.

(1) Aircraft 86-0311 had seat serial number F6A1490 installed (Tab J-2). Lt Johnson attempted ejection. He pulled the ejection D-ring and the canopy departed the aircraft despite a malfunction in the right canopy rocket motor firing sequence (Tab J-14). Two canopy rocket motors, a left and right motor, are supposed to fire during the canopy removal sequence. Only the left canopy rocket motor fired in this case. The right Detonation Transfer Assembly (DTA) failed to propagate the shock wave signal to the right canopy rocket motor and prevented the rocket motor from firing. Analysis determined that the DTA failed due to damage which pinched the assembly and caused the propagation signal to slow down and eventually stop.

(2) Under normal operation, as the canopy clears the aircraft, two interlock lanyards attached to the canopy torque tube are extracted from two M99 cartridges, one lanyard to each cartridge (Tab J-2). Extraction of the lanyards from the cartridges causes them to fire which in turn causes the catapult to fire and eject the seat from the aircraft.

(3) In the ejection sequence of aircraft 86-0311, the canopy interlock lanyards broke free from the canopy torque tube prior to the opposite ends being extracted from the M99 cartridges (Tab J-2). Therefore, the M99 cartridges did not fire, in turn the catapult did not fire, and the seat was not ejected from the aircraft prior to ground impact. When or how the interlock lanyards broke free could not be determined. Manual bailout was not attempted since the emergency release handle was found in the stowed position.

(4) Aircraft 86-0312 had seat serial number F6A1489 installed (Tab J-2). A successful ejection occurred from this aircraft. All systems operated as designed except for two seat mounted quick disconnect assemblies where seat-mounted ballistic lines are designed to separate from aircraft-mounted ballistic lines. Instead of the ballistic lines separating at the quick disconnect points, the two lines sheared approximately twelve inches below the design disconnect point. These two lines sheared after the

seat catapult fired and had already served their purpose. This is a common anomaly in the F-16 due to the angle that the seat is positioned in the aircraft.

g. Personal and Survival Equipment.

A review of personal and survival equipment records indicated that all items had current inspections for serviceability (Tabs U-70 through U-80).

h. Rescue.

(1) The midair collision occurred at approximately 1444. The aircraft impacted the ground at approximately 1445.

(2) The Supervisor of Flying was notified of the collision over UHF radio by Boston flight (Tab V-9).

(3) At 1451, Pegaso stated that search and rescue was initiated after notifying the Spanish Senior Director of Alert and Control Wing (Tab AA-3).

(4) The following information was obtained via telecon with Capt Vallecillos, Operaciones, 803 Escuadron de Fuerzas Aereas, Base Aerea de Cuatro Vientos, Cuatro Vientos, Madrid, telephone 658-1208. The squadron launched three aircraft for the search and rescue effort. Two Alouette helicopters, call signs Rescue 30 and Rescue 31, took off at 1500, and an Aviocar C-212 aircraft, call sign Rescue 43, took off at 1520. Rescue 30 arrived at the crash site at 1610, picked up Capt Kempf, departed at 1615, and arrived at Torrejon AB at 1700 to discharge Capt Kempf. Rescue 31 arrived at the crash site at 1610 and remained until Lt Johnson's body was located, then took off at 1750 to return to Madrid. Rescue 43 arrived at the crash site at 1600 to provide radio relay and assistance locating the downed pilots. He departed for base at 1750 along with Rescue 31.

i. Crash Response.

(1) The Disaster Preparedness Response Team (DPRT) recall to the Survival Recovery Center (SRC) began at approximately 1453 (Tab V-26). After the initial meeting at the SRC, the DPRT began forming the convoy at Building 300 on Torrejon AB around 1530. Departure was delayed until approximately 1655 due to difficulty in gathering all the communications equipment required. The convoy consisted of 10 vehicles and 27 personnel. Vehicles included the mobile command post, an explosive ordnance disposal truck, a safety truck, an ambulance, a hydrazine response van, a security police van, a security police truck, two communications trucks, and a crash recovery truck. The convoy arrived at the crash site at approximately 2100.

(2) The Guardia Civil had established an entry control point approximately two kilometers from the crash site along the only access trail leading to the site. The access trail was narrow but passable to the convoy. Additional Guardia Civil were at the crash site also. No problems between Spanish and USAF officials were reported.

(3) High frequency (HF) radio communication with Torrejon AB was not established until the next day due to antenna orientation problems.

j. Maintenance Documentation.

(1) Aircraft AFTO Forms 781s (Tabs U-1 through U-16 and U-42 through U-59) were reviewed for discrepancies that might relate to the accident. None were found. However, Lt Johnson did not sign the exceptional release (ER) on aircraft 86-0311. After the first sortie of the day for that aircraft, the "status today" block changed from a dash to a red X and the ER should have been signed by Lt Johnson (Tab U-2).

(2) There were no overdue Time Compliance Technical Orders as of 14 Mar 1989 (Tab U-20 to U-22 and U-63 to U-65).

(3) Aircraft forms were reviewed for compliance with scheduled inspections and the following discrepancies found: On aircraft 86-0311, an AIM-9 Launcher 12 month in use inspection and a crash survivable data recorder 75 hour download were overdue (Tab U-18). Aircraft 86-0312 also had an overdue AIM-9 Launcher 12 month in use inspection along with a 30-day gun functional check and lubrication (Tab U-61). None of these inspections relate to the accident.

(4) Both aircraft had oil samples taken in accordance with applicable directives. Review of the Oil Analysis Records showed the wear metal data to be within acceptable limits (Tab U-24, 25, 67).

(5) There is no evidence of overdue time changes (Tabs U-18, 19, 20) with one exception for aircraft 86-0311. The personnel chute repack AFTO Form 392 shows that an O-ring required replacement in Jan 1989 (Tab U-41). This O-ring is normally replaced during the annual chute repack, which was accomplished on 29 Nov 1988. At that time, the form should have been updated. This item is not related to the cause of this accident.

(6) The Equipment Review Reports showed no discrepancies except for those already discussed in paragraph (3) above.

(7) Aircraft 86-0311 had unscheduled maintenance performed on 14 Mar 1989 after the second sortie of the day. A red X was annotated in the forms for a HUD intermittently cycling on and off throughout flight. The corrective action was to remove and replace the HUD electronic unit, and it operationally checked good (Tab U-7).

(8) Tab J-14 identified a damaged detonation transfer assembly (DTA) which prevented the right canopy remover rocket in aircraft 86-0311 from firing. With this in mind, research was performed to identify any maintenance or inspections that were performed on the egress system (in particular, DTA lines) (Tab U-26, 28).

(a) On 8 Mar 89, Sgt Yates performed the Phase 3 egress inspection workcards on 86-0311. This task consisted solely of the inspection of DTA lines to check for any type of damage. Sgt Yates stated that he performed the job with a current and applicable technical manual, and that he noted no damage on any of the lines inspected (Tab V-23).

(b) On 13 Mar 89, TSgt Ladd performed an egress final inspection which was required as follow-on maintenance to a Life Support 30-day inspection. He stated the task was accomplished in accordance with technical data and no discrepancies noted (Tab V-22).

k. Maintenance Personnel and Supervision.

(1) Preflight and servicing of both aircraft were accomplished properly (Tab U-2, 3, 43-45).

(2) All individuals involved with servicing the two aircraft were qualified as reflected on their AF Form 623 Training Records.

(3) Evidence shows no maintenance malpractice that might have contributed to the accident.

l. Engine, Fuel, Hydraulic, and Oil Inspection Analysis.

(1) No discrepancies noted during the review of the engine inspection data.

(2) Fuel tested on all equipment met specification requirements and was satisfactory for use (Tab U-79 through 81).

(3) Oil and hydraulic fluid tests were accomplished and were normal.

m. Airframe and Aircraft Systems.

(1) Egress system failure analysis (Tab J-2) was discussed in paragraph f above. There were no other airframe or aircraft systems related to the accident.

(2) Manufacturers/Depots Investigating System Failures:

(a) Right Canopy Removal Rocket DTA Line sent to:

General Dynamics, Fort Worth Aerospace Safety.
Then shipped to vender Explosives Technologies for
further analysis.

(b) Interlock Links/Lanyards/Torque Tube sent to:

General Dynamics, Fort Worth Aerospace Safety

(c) Canopy sent to:

OO-ALC/MMA
Ogden AFB, UT

(d) Personnel Life Support Equipment sent to:

Life Support Equipment Investigation Laboratory
DIR MAT MGT/MMILT, Kelly AFB, TX
Attn: Mr. R.E. Finley, Autovon 945-6831

n. Operations Personnel and Supervision.

(1) Lt Johnson arrived at Torrejon AB on 9 Sep 87 and was
involved in the following incidents prior to the midair collision.

(a) An Incident/Complaint Report dated 26 Sep 87 with
supporting documentation (Tab AA-8) alleged that Lt Johnson was the driver of
a car pursued "for reckless driving and excessive speed" at approximately 2320
hours on 25 Sep 87. Lt Johnson exited the air base without stopping for
either the pursuit car or the hand signals of the USAF main gate guard. On 26
Sep 87 at approximately 0530 hours, Lt Johnson was apprehended by 401 TFW
Security Police personnel when he reentered the base as a passenger in the
same car that he was driving the night before. The two arresting security
police personnel noted "a strong odor of alcohol on JOHNSON" and use of
abusive language by Lt Johnson. Lt Johnson was subsequently released into the
custody of Lt Col Hopkins (Tab AA-8.2). Written statements by Lt Johnson and
Capt Kearns (Tabs AA-8.3 and AA-8.5) deny any knowledge of a pursuit car or
halting signals from the main gate guard. Lt Col Hopkins counseled Lt Johnson
on the incident (Tab AA-8.13), discounting the allegations of "failure to obey
security police emergency signals/erratic driving" due to the contrary
statements of Lt Johnson and Capt Kearns, and focused instead on use of
"cursive" language. Lt Col Hopkins restricted Lt Johnson from driving on base
during the week of 5 Oct 87.

(b) On 13 May 88, Lt Johnson accepted an Article 15
for operating a passenger car while drunk on or about 23 Apr 88 (Tab AA-9).
Punishment was forfeiture of \$750 and a reprimand. As a result, Lt Johnson

was evaluated for entry into the alcohol rehabilitation program by the Mental Health and Social Actions personnel (Tab V-24). The Mental Health Clinic diagnosed Lt Johnson as a problem drinker (Tab AA-10). Both mental health and social actions personnel recommended entry in the rehabilitation program. Lt Col Hopkins elected not to enter Lt Johnson into the program.

(c) On 9 Jun 88, Lt Johnson was involved in an incident with Capt Witten in which Lt Johnson was cut by the knife of Capt Witten (Tab V-10). Lt Johnson's medical records indicate he received medical care from Dr. Gale at 2300 hours on 9 Jun 88 (Tab AA 10.3). However, hospital emergency room records have no entry to indicate that Lt Johnson was processed for treatment (Tab AA-11). Dr. Exner was the medical officer of the day on 9 Jun 88 (Tab V-26). Heavy use of alcohol by both participants proceeded this incident. Capt Witten was evaluated for entry into the alcohol rehabilitation program at the direction of Lt Col Hopkins. Social Actions personnel wrote a letter to Lt Col Hopkins recommending a reevaluation of Lt Johnson's drinking behavior (Tab AA-12). No evidence was discovered of any action taken with regard to Lt Johnson in this incident.

(d) In Aug 1988, Capt Butters was leading a two-ship mission with Lt Johnson as the wingman (Tab V-4). Capt Butters specifically briefed Lt Johnson that if a slow speed scissor situation developed and an aircraft reached the maneuvering limit for the flight controls, a radio call should be made to that effect and each aircraft should turn away from the other. When this situation developed in flight, Capt Butters turned away as briefed, but Lt Johnson continued maneuvering for a gun tracking shot and penetrated the 1000 foot minimum aircraft separation criteria. This incident was brought to the attention of the squadron supervisor on duty, Maj Rebarchak. Major Rebarchak considered the incident closed when Capt Butters thoroughly debriefed the dangerous maneuver during flight debriefing (Tab V-5). Major Rebarchak did not tell either Lt Col Hopkins or Lt Col Jones of the incident.

(e) On or about 29 Sep 88, Capt May was the instructor pilot on an air-to-ground gunnery flight lead upgrade mission for Lt Johnson which included a simulated airfield attack on Incirlik AB, Turkey. Capt May witnessed Lt Johnson descend below the 500 foot minimum altitude during the airfield attack (Tab V-6). Capt May completed an Air Force Form 1363, Individual Training Mission Grade, grade sheet and assigned an overall grade of "0", meaning Lt Johnson's performance indicated a lack of ability or knowledge. Additional comments characterizing Lt Johnson's performance as dangerous were added. Further, Capt Wade recommended that Lt Johnson be removed from the flight lead upgrade program. Capt Wade also entered the mission date, mission, sortie time and instructor name on the "Sortie Recap Record" (Tab G-22) in Lt Johnson's grade book. Capt Wade testified that after he completed the grade sheet, he took it to and discussed it with Lt Col Hopkins and Lt Col Jones. Lt Col Jones testified (Tab V-2) that in his initial discussion of the incident with Capt May, before the grade sheet was

actually completed, Capt May said he did not personally see Lt Johnson descend below 500 feet, but was going on what Major Stephens, the supervisor of flying, had told him. Lt Col Jones told Capt May to write the grade sheet on what he, himself, actually saw Lt Johnson do, not on what someone else may have seen him do. Lt Col Jones further testified that Lt Col Hopkins later showed him the completed grade sheet briefly, but recovered it even before Lt Col Jones had a chance to read it through. Lt Col Jones did not know the final disposition of the grade sheet, but was totally opposed to an IP including information in a grade sheet which the IP did not observe on a first hand basis. Subsequently, Capt May determined that the grade sheet was not filed in the grade book and Capt May's entry into the Sortie Recap Record was "whited out", deleted from the grade book, and written over. Lt Col Jones testified that Lt Johnson was grounded for six or seven days as disciplinary action for the incident (Tab V-2). Flight records (Tab AA-13) show Lt Johnson flew again on 4 Oct 88.

(f) On or about 10 Oct 88, Capt Lupinski was leading a four ship airfield attack on Incirlik AB. Other flight members were Lt Johnson, Capt Kempf, and Capt Witten (Tab V-10). All flight members except Capt Kempf used afterburner during overflight of the base. Use of afterburner during airfield attacks is not prohibited by regulation, but is considered poor judgement unless safety of flight requires its use (Tab V-7). Lt Col Hopkins verbally reprimanded Capt Lupinski for the incident.

(2) The mishap mission was conducted under the authority of Lt Col Hopkins, 612 TFS Squadron Commander (Tab AA-1).

(3) No supervisor nor anyone else interviewed attended the mission briefing or knew of anyone who did. Thoroughness and adequacy of briefing could not be assessed since Capt Kempf refused to answer questions regarding the accident. Testimony did reveal (Tab V-14) that Lt Johnson was preparing for the briefing in the flight briefing room around the 1100 timeframe, well before the briefing start time. Additionally, Capt Lupinski queried Capt Kempf at the conclusion of the briefing and Capt Kempf indicated that Lt Johnson had presented a good and thorough briefing (Tab V-3).

o. Pilot Qualifications.

(1) Capt Kempf was current and qualified to perform the scheduled mission (Tabs G-31 through G-58). He had logged 809.2 hours in the F-16, 206.5 hours of which was instructor time, and had 1008.6 hours total time. During the past 30, 60, 90-day periods preceding the accident, he logged 20.9, 49.2, and 52.5 hours respectively (Tab G-31). His last BFM mission was on 6 Dec 88 and his last air combat maneuvering/air combat training (ACM/ACT) mission was on the morning of ~~14 Nov 89~~ (Tab AA-14). Even though over 90 days had elapsed since Capt Kempf's last BFM mission, he was current in accordance with USAFER 51-50, Volume VIII, paragraph 4-8, which requires an air combat training (ACBT) mission at least every 60 days to

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maintain currency. An ACBT mission may consist of BFM, ACM, or ACT. Capt Kempf maintained ACBT currency with six ACM/ACT missions between 6 Dec 88 and 14 Mar 89. There are no specific BFM mission currency requirements other than ACBT currency.

(a) Capt Kempf completed F-16A Basic Operational Training Course at McDill AFB, FL on 14 May 85 (Tab G-33). He met standards in all phases of training in the course, but had some difficulty in the air-to-air phase. He repeated one flight twice, but progressed normally thereafter. Overall he displayed good judgment, situational awareness, flight discipline, and airmanship, but more than normal supervision was recommended.

(b) Capt Kempf proceeded from McDill AFB, FL to Kunsan AB, Korea. There he achieved full Mission Ready (MR) qualification including ACBT upgrade without difficulty (Tab G-38 through G-40).

(c) Capt Kempf reported to Torrejon AB, Spain on 13 Oct 86. He upgraded to flight lead on 16 Apr 87 (Tab G-42), to ACT flight lead on 17 Jun 87 (Tab G-44), and to instructor pilot on 17 Dec 87 (Tab G-32). In all these upgrade programs, Capt Kempf's overall performance was described as correct, efficient, skillful, and without hesitation. He completed the F-16C Conversion Training Course at Torrejon AB, Spain on 24 Mar 88 where he performed well above average and displayed excellent situational awareness (Tab AA-15). He completed ACT IP upgrade training on 27 Apr 88 (Tab G-47), again with no problems. Capt Kempf's Record of Evaluation shows an unqualified rating on a combined instrument/qualification flight evaluation on 20 Dec 88 (Tab G-32). The four unqualified areas were takeoff, in-flight checks, emergency traffic pattern, and VFR pattern/approach (Tab AA-16). He was reevaluated to qualified on 19 Jan 89 (Tab AA-16.2).

(2) Lt Johnson was current and qualified in the F-16 aircraft (Tabs G-3 through G-30), but documentation indicated a deficiency in academic training required for the mission for which he was scheduled (Tab G-23). He had logged 423.3 hours in the F-16 and had 715.9 hours total flying time. In the past 30, 60, 90-day periods preceding the accident, he had logged 24.8, 49.3, and 55.3 hours respectively (Tab G-3). His last BFM mission was on 13 Mar 89 and his last ACM/ACT mission was on 9 Mar 89 (Tab AA-13.2).

(a) He completed the F-16A Basic Operational Training Course at McDill AFB, FL on 4 Aug 87 "in an excellent manner" (Tab G-13). He met standards in all phases and the air-to-air phase was his strongest phase. Overall, he was characterized as an aggressive pilot with a good attitude.

(b) Lt Johnson arrived at Torrejon AB on 9 Sep 87. He completed upgrade to Mission Ready (MR) status on 9 November 87 at the completion of his area certification (Tab AA-21). He had only one problem in navigation on one flight in the MR upgrade flying program (Tab AA-17.4). During his first mission in the MR air-to-air checkout, Capt Butters, the IP,

noted a tendency to press inside the 1000 foot bubble without repositioning (Tab AA-17.6).

(c) Lt Johnson was approved for flight lead upgrade training on 8 Sep 88 (Tab AA-20) with 300.7 hours in the F-16 and approximately 10 months mission ready (MR) time. 401 TFW DOOI 55-16 sets the minimum criteria for pilots entering flight lead upgrade training. Given Lt Johnson's background and experience, he needed 300 hours F-16 time and at least one year MR in theater. Entrance requirements are waivable by the wing Director of Operations. No waiver was requested for Lt Johnson.

(d) Lt Johnson had no problems in the initial portions of the flight lead upgrade (FLUG) program (Tabs G-22 through G-26), which focuses mainly on air-to-surface missions, until 29 Sep 88 when he descended below the 500 foot minimum altitude on an airfield attack at Incirlik AB, Turkey as noted above. Also as noted above, the grade sheet for that mission is not in his upgrade folder. The next grade sheet following that incident is dated 7 Oct 88 and contains the comment "overall excellent FLUG ride with minor exceptions" (Tab AA-17). The squadron training officer requested an additional upgrade ride on 9 Oct 88 due to a break in training (Tab G-25). The next upgrade mission was flown on 9 Nov 88 with Lt Col Hopkins (Tab AA-17.2). Lt Johnson was administered his check ride for air-to-ground flight lead by Lt Col Jones on 23 Nov 88 with an "excellent job" noted (Tab G-26).

(e) On 13 Mar 89, Lt Johnson flew the first mission in the BFM/ACM/ACT phase of his flight lead upgrade training with Capt Lupinski acting as the instructor pilot (Tab G-29). 401 TFW DOOI 55-16, Creek Falcon, requires academics for each phase of training to be completed before beginning flying training in that phase. No air-to-air academics are documented in Lt Johnson's training folder (Tab G-23). Capt Lupinski testified (Tab V-3) that he completed the required academic training for Lt Johnson but failed to document it.

p. Medical.

(1) Capt Kempf and Lt Johnson were medically qualified for flight duties (Tab AA-18).

(2) Post accident toxicology reports (Tab X-3) revealed no presence of drug, alcohol, or other foreign substance which could affect either pilot's performance.

q. Nav aids and Facilities.

All navigation aids and facilities were functioning normally on 14 Mar 89 at the time of the accident. One NOTAM was in effect for Torrejon AB: REILs (runway end identifier lights) 23 OUT (Tab AA-19).

r. Weather.

(1) LED 33 is midway between the Torrejon and Albecete meteorological reporting stations.

(2) The forecast weather for LED 33 provided to the pilots was two-eighths coverage of stratocumulus clouds at 3,000 feet above ground level (AGL) with tops at 6,000 feet AGL, two-eighths coverage of altocumulus clouds at 8,000 feet AGL with tops at 12,000 feet AGL, two eighths coverage of cirrus clouds at 20,000 feet AGL with tops at 24,000 feet AGL (Tab W-1).

(3) At 1400 hours the actual Albecete observation was five-eighths coverage of cumulus and stratocumulus clouds at 2,000 feet above ground level (ceiling), three-eighths coverage of altocumulus and altostratus clouds at 8,000 feet AGL, winds 180 degrees at 10 knots, and unlimited visibility. The 1500 Albecete observation was identical to the 1400 observation. The 1450 Torrejon observation was one-eighth coverage of stratocumulus clouds at 4,000 feet AGL, winds calm, visibility unrestricted (Tab W-2). The 1230 satellite photo indicated low and midlevel clouds in LED 33 with clearing just to the west (Tab W-3).

s. Directives and Publications.

(1) The following regulations and manuals were directly applicable to the mission:

DOD Flight Information Publication, Area Planning, Special Use
Airspace, Europe-Africa-Middle East;
AFR 60-1, Flight Management;
AFR 60-16, General Flight Rules;
USAFEM 51-50, Vols I and III, Tactical Fighter and F-16
Training;
USAFER 55-79, Aircrew/Weapons Controller Procedures for Air
Operations;
USAFER 55-116, F-16 Pilot Operational Procedures;
USAFER 60-2, Aircrew Standardization/Evaluation Program; and
401 TFW DOOI 55-15, "Creek Falcon," F-16 Flying Operations.

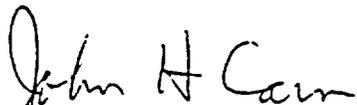
(2) Known or suspected deviations from these regulations and manuals by the pilots or supervisors involved are as follows:

(a) 401 TFW DOOI 55-16, Creek Falcon, page 23 and 24, paragraph 3, requires academics for each phase of training to be completed before beginning flying training in that phase. No air-to-air academics are documented in Lt Johnson's training folder (Tab G-23). Capt Lupinski testified (Tab V-3) that he completed the required academic training for Lt Johnson but failed to document it.

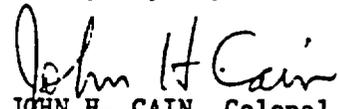
(b) 401 TFW DOOI 55-16 sets the minimum criteria for pilots entering flight lead upgrade training. Given Lt Johnson's background and experience, he needed 300 hours F-16 time and at least one year MR in theater. Lt Johnson was entered into the flight lead upgrade program on 8 Sep 88 with 300.7 hours in the F-16 (Tab AA-20) and had been MR for approximately ten months (Tab AA-21). Entrance requirements are waivable by the wing Director of Operations. No waiver was requested for Lt Johnson.

(c) USAFER 55-79, paragraph 5-21(7), prohibits pilots from maneuvering inside minimum range of an opposing aircraft. If a violation of minimum range appears imminent or has occurred, each aircraft will cease tactical maneuvering and reestablish required minimum range. Paragraph 7-3 establishes the minimum range at 1000 feet (referred to as the 1000 foot bubble). Capt Kempf's video tape shows at least four instances, not including the collision, where his aircraft was closer than 1000 feet to Lt Johnson's aircraft.

(d) USAFER 55-116, paragraph 9-13, requires pilots to terminate offensive or defensive maneuvering at the activation of the low speed warning signal and take positive action to correct the low speed condition. Further, if altitude, airspace, or safety dictates, the engagement should be terminated with a knock it off or terminate call. Capt Kempf's video tape shows one instance of activation of the low speed signal to include an excursion to zero airspeed. While positive action was observed to correct the low speed condition, no knock it off or terminate call was given even though safety was compromised.


JOHN H. CAIN, Colonel, USAF
Accident Investigating Officer

Tabs A through S in this Aircraft Accident Report match exactly those same Tabs A through S, Part 1 - Facts, of the USAF Mishap Report except for the Life Science Reports in Tab J, which are privileged information. All documents in Tabs A through S in this report were provided by the Safety Investigation Board. Only copies, not originals, were provided for Tabs I, J-6 through J-16, K, L, O, and P and originals were not located. As in the Mishap Report, tabs that are not applicable are omitted.


JOHN H. CAIN, Colonel, USAF
Investigating Officer