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AFR 110-14
USAF AIRCRAFT
ACCIDENT
INVESTIGATION BOARD

OFFICE OF THE SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

01 JULY 94

F-16B AIRCRAFT
S/N 83-1173

149FG
182FS

INVESTIGATION OFFICER

DAVID S. PARKER
Lt Col, USAF

HQ
12TH AIR FORCE

COPY NUMBER 2 OF 10

PFS Exh. 172

57998

COMMISSION

Official Exh. No. 172

Warrant No. _____
in the matter of PPS
Star _____ ✓
Applicant _____
Intervenor _____
Other _____
DATE 7/1/02
Clerk _____

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2. SUMMARY OF FACTS:

a. History of Flight

(1) Three F-16As and one F-16B, call sign MATT 41 through 44, took off from Kelly Air Force Base, Texas at 0930 Central Standard Time (TAB G-8, K-2). They were to conduct a low level ingress along VR1105 to restricted area R6312 for surface attack training on Dixie Range. Following the range work, MATT 41 flight planned to conduct two versus two tactical intercepts in the Crystal Military Operating Area (TAB K-4, V-4, V-7, V-8). At approximately 1011 Central Standard Time, the engine of MATT 44, aircraft 83-1173, experienced a power loss due to bird ingestion (TAB O-3, O-8). Inspection of the engine showed that the backup engine control was selected indicating that [REDACTED] attempted an airstart (TAB J-2). A dual sequenced ejection was initiated at approximately 1500 feet above ground level and at or below 250 knots (TAB A-2, V-4). The aircraft crashed on private property in Maverick County Texas, approximately 75 nautical miles southeast of Laughlin Air Force Base, Texas (TAB A-2, P-2). Damage to private property appeared minimal (TAB P-2). Initial news releases were provided by the San Antonio Air Logistics Center Office of Public Affairs (TAB AA-5).

(2) All times are based on MATT 44's reported takeoff time, plus event data from the aircraft's seat data recorder analysis and the crash time specified in AF Form 711A (TAB A-2). Analysis of

the seat data recorder revealed that recorded altitude, airspeed, and angle of attack information was erroneous (TAB O-3).

b. Mission:

The mission was scheduled as a four-ship surface attack mission designed to accomplish MULTI-COMMAND INSTRUCTION 11-208 training requirements (TAB V-4, V-7, V-8). Tactical intercepts were planned in the Crystal Military Operating Area following the range work (TAB V-4, V-7, V-8). The primary objective of the mission was to fill bombing training requirements and increase proficiency in two versus two tactical intercepts (TAB V-4, V-7, V-8). The mission overview planned for single ship takeoffs with 15 seconds spacing and low level navigation along low level training route VR1105 to Dixie Range located in restricted area R6312 (TAB K-4, V-4, V-7, V-8). Following range work, the flight was to proceed to the Crystal Military Operating Area, perform a G-awareness maneuver, and tactical intercepts, followed by an Instrument Flight Rules recovery to Kelly Air Force Base, Texas (TAB K-4, V-4, V-7, V-8). MATT 41 was flown by [REDACTED], MATT 42 was flown by [REDACTED], MATT 43 was flown by [REDACTED] and MATT 44 was flown by [REDACTED] with [REDACTED] occupying the rear seat of the F-16B model (TAB K-2). [REDACTED] was logging Flight Surgeon flying time as required by AFR 60-1 (TAB V-4, AA-8).

c. Briefing and Preflight:

[REDACTED] and [REDACTED] reported that they had required crewrest for the mission (TAB V-7, V-8). [REDACTED] and [REDACTED] elected not to make a statement when interviewed; as a result, it is not known whether they had required crewrest (TAB V-2, V-3). However, a review of available records indicated that both pilots had the opportunity for required crewrest (TAB AA-18). The preflight briefing started at 0800 Central Standard Time for a planned 0930 takeoff and was conducted by [REDACTED] (TAB V-4, V-7, V-8). The scheduled takeoff time was modified from the originally scheduled time due to a range scheduling error, however, this had no effect on the briefing (TAB V-7). All flight members were present at the start of the briefing with the exception of [REDACTED]. The [REDACTED] arrived approximately 15 minutes late due to an aircraft scheduling change (TAB V-4, V-7). [REDACTED] reported that [REDACTED] understood the objectives and general flow of the mission. It is not known whether [REDACTED] and [REDACTED] clearly understood the mission elements or objectives; however, no questions were asked at the conclusion of the briefing (TAB V-4, V-7, V-8). Sufficient time was allowed to brief within elements and for a F-16B model briefing (TAB V-4, V-7, V-8). [REDACTED] had a minor maintenance problem which necessitated [REDACTED] to taxi out last. This problem did not delay the takeoff (TAB V-7).

d. Flight Activity:

(1) MATT 41 flight was filed and cleared for the Gunfighter 1 stereo flight plan (TAB K-3). At approximately 0930 Central Standard Time, they accomplished single ship takeoffs with 15 seconds spacing between aircraft. They joined, then proceeded along low level route VR1105 to restricted area R6312 and Dixie Range (TAB V-4, V-7, V-8). Instrument Flight Rules were terminated upon entry into VR1105 (TAB K-4).

(2) [REDACTED] checked in with the Dixie Range controller during a flyup maneuver for a tactical pass. Communication with the range controller was degraded and Capt Watson coordinated for flightlead control on the range (TAB V-7). Additional bombing passes were performed from a pop-up pattern. Clouds over the range required some modification of planned events. Strafe was not performed due to the communication difficulties experienced (TAB V-4, V-7, V-8).

(3) MATT 41 flight departed Dixie Range and restricted area R6312 at approximately 0959 Central Standard Time, performed battle damage checks, and requested clearance to the Crystal Military Operating Area (TAB N-4, V-4, V-7, V-8). Houston Air Route Traffic Control Center assigned an Identification Friend or Foe Mode 3 code and cleared MATT 41 flight into the Crystal Military Operating Area to maintain an altitude block between "six thousand feet and flight level four, five, zero" (TAB N-4). [REDACTED] assumed [REDACTED] flight was under Instrument Flight Rules control at this point (TAB V-7).

(4) MATT 41 flight entered Crystal Military Operating Area at approximately 16,500 feet mean sea level with MATT 43 element approximately two miles in trail of MATT 41 element (TAB V-4, V-7). [REDACTED] approved MATT 43 element to split to a prebriefed north point and MATT 41 element turned toward a prebriefed south point (TAB V-4, V-7, V-8). Both MATT 41 and 43 elements performed G-awareness maneuvers with MATT 41 element maneuvering within the lateral and vertical confines of the Crystal Military Operating Area to set up a target run for MATT 43 element (TAB V-4, V-7, V-8).

(5) At some time after the split up [REDACTED] assumed the tactical lead of MATT 43 element (TAB V-4). [REDACTED] then led the element below the base of the Crystal Military Operating Area while setting up the first intercept (TAB V-4). There is no evidence that the designated flight lead of MATT 43 element [REDACTED] took any action to prevent or correct the descent below the base of the area (TAB V-4, AA-4). The proximity of MATT 43 to MATT 44's aircraft varied but appeared to be within visual limits (TAB V-4, V-5).

(6) At approximately 1011 Central Standard Time, after coming out of a turn to the south for the first intercept, MATT 44, aircraft 83-1173, ingested a turkey vulture and the engine lost thrust and disintegrated (TAB J-2, O-2, O-8, V-4, V-5). The exact altitude and airspeed of MATT 44 at the time of the bird ingestion and engine failure is unknown but visually estimated to be 1000 feet above ground level and between 350-400 knots (TAB O-2, V-2, V-3, V-4, AA-4). [REDACTED] testified that [REDACTED] did not look at the airspeed indicator or altimeter during this maneuvering but estimated altitude and airspeed by observing ground references (TAB V-4). Terrain elevation under the Crystal Military Operating Area averages between 400 to 850 feet mean sea level (TAB AA-17). The visual estimate of altitude above ground level equates to 1400 to 1850 feet mean sea level or 4600 to 4150 feet below the base of the assigned area.

(7) [REDACTED] began a zoom maneuver and an airstart attempt was evident (TAB J-2, V-4, V-5). The engine of aircraft 83-1173 did not regain usable thrust and a dual sequenced ejection was initiated by the [REDACTED] (TAB V-4, A-2). The exact altitude and airspeed at ejection is not known but estimated to be 1500 feet above ground level and at or below 250 knots (TAB O-2, V-4, AA-4, AA-13). The aircraft impacted the ground at approximately 1019 Central Standard Time (TAB A-2).

(8) The following sources were reviewed in an attempt to determine the geographical position,

altitude, and airspeed of MATT 43 element during the mishap sequence: Houston Air Route Traffic Control Center transcripts/radar plots, aircraft video tape recorder tapes, aircraft 83-1173 seat data recorder, and witness testimony. No automated source of information provided evidence of MATT 43 element's position, altitude, or airspeed prior to or during the mishap sequence (TAB N-2, N-4, AA-4). Capt Braun did not take a Video Tape Recorder (VTR) tape for an unknown reason (TAB V-3, AA-4, V-10). It is not known whether [REDACTED] took a VTR tape; however, review of the assigned tape showed no mission elements recorded (TAB V-2, AA-4); [REDACTED] and [REDACTED] did not have any information as to the position, altitude or airspeed of MATT 43 element during the mishap sequence (TAB N-2, N-4, V-7, V-8). MATT 41 element was geographically separated from MATT 43 element and no communications between the two elements occurred that indicated position, altitude, and airspeed (TAB N-2, V-7, V-8). Although VTR tapes were available for [REDACTED] and [REDACTED] review of their tapes did not reveal any information as to MATT 43 element's maneuvering after the split up (TAB N-2).

e. Impact:

Aircraft 83-1173 was impacted by a turkey vulture at approximately 1011 Central Standard Time within the lateral confines of Crystal Military Operating Area (TAB O-3, O-8, V-5). Airspeed and altitude at the time of impact was estimated to be 1000 feet above ground level and between 350-400 knots (TAB V-4). Exact aircraft altitude is unknown (TAB O-2, V-2, V-3, V-4, AA-4). A study of turkey vulture strikes from 1985 through 1993 indicates that as an aircraft decreases altitude the probability of a turkey vulture strike substantially increases. Only one turkey vulture strike was reported by aircraft flying 5000 feet or higher above ground level or .3 percent of all reported turkey vulture strikes. Flying at 1500 feet or less above ground level, the number of reported turkey vulture strikes increased to 284 or 80.2 percent of all reported strikes (TAB O-11). The aircraft impacted the ground and was destroyed at approximately 1019 Central Standard Time, 1 July 1994, at Latitude N2819.5 and Longitude W10011.8 (TAB A-2, M-2). The Report of Accident, AF Form 711A, mishap time of 1019 Central Standard Time shows an approximately 8 minute lapse between the probable ejection time and aircraft impact (TAB A-2, O-2). The 1019 time may actually be the time the report was relayed to operations. The aircraft impacted on private property in Maverick County Texas. The land is arid and used primarily for hunting. The primary impact burn area covered an area 100 feet in width by 400 feet in length. Impact and burn damage was spread intermittently throughout that area (TAB P-2). The aircraft seat data recorder was malfunctioning and no aircraft video tape recorder tape was available so aircraft impact attitude and airspeed is not known (TAB O-2, AA-4).

f. Ejection:

[REDACTED] and [REDACTED] initiated a dual sequenced ejection from their aircraft between 1011:36 and 1012:40 Central Standard Time (TAB A-2, O-3, V-4). Ejection altitude was visually estimated to be 1500 feet above ground level and at an airspeed of 250 knots or below (TAB V-4, AA-13). No deficiency was noted with the ejection system (TAB AA-13).

g. Personal and Survival Equipment:

(1) All personal and survival equipment inspections were current (TAB AA-3).

(2) [REDACTED] and [REDACTED] were unable to locate the four-line jettison modification lanyards (TAB V-4, AA-13). The four-line jettison modification is designed to improve parachute controllability and reduce pilot oscillations during parachute descent. The tacking connecting parachute riser pairs also failed to break during parachute deployment on one of four riser pairs (TAB V-4, AA-13). The tacking is designed to stabilize the position of the four-line jettison modification lanyard until opening parachute shock (TAB AA-13). The [REDACTED] was not totally familiar with the operation of the emergency locator beacon, however, this had no impact on recovery or communications (TAB V-4).

h. Rescue:

(1) The event times used in the reconstruction of the rescue and crash response were obtained from events logs and memorandums provided by involved forces. In many cases, the times are approximate and based on a best recollection of events.

(2) Aircraft 83-1173 crashed at approximately 1019 Central Standard Time (TAB A-2). [REDACTED] witnessed the crash, notified [REDACTED] and [REDACTED] and established a low altitude orbit over the crash site (TAB N-2, V-4, V-7, V-8).

(3) When able, [REDACTED] notified Houston Air Route Traffic Control Center, the supervisor of flying and squadron operations of the mishap (TAB V-7).

(4) The 149 FG Supervisor of Flying notified the Air Boss who in turn notified the 149 FG Commander (TAB V-9, V-10, V-12). The Air Boss duty position was in squadron operations and, in fact, both the supervisor of flying and squadron operations personnel heard MATT 42's transmission simultaneously. Between approximately 1020 and 1027 Central Standard Time, the 149 FG Commander contacted the Kelly Air Force Base officials, the sheriff's department, and the Texas Army National Guard at Martindale Army Air Field to coordinate for a UH-1 helicopter to assist in the rescue effort (TAB V-9, AA-15-2). A UH-1 helicopter was dispatched from Martindale to Kelly Air Force Base at approximately 1030 Central Standard Time for the purpose of refueling and to take on a flight surgeon and security personnel (TAB V-8, V-9, V-10, V-11, AA-15-2).

(5) Houston Air Route Traffic Control Center notified the border patrol through the Laredo Airport tower (TAB AA-15-3). A rescue effort was also coordinated with the County Sheriff of Maverick County Texas (TAB V-4, V-5, V-8, V-9, V-10, V-11).

I. Crash Response:

(1) [REDACTED] setup a low altitude orbit over the downed crewmembers. [REDACTED] setup a higher altitude orbit over the crash site and commanded the search and rescue effort. [REDACTED] was sent towards Kelly Air Force Base to act as a radio relay. Contact between the downed aircrew and the search and rescue orbit was first established on the universal emergency frequency then switched to the universal search and rescue frequency. On the ground, [REDACTED] ascertained their medical condition, provided initial first aid, and relayed their condition to the rescue orbit. Based on [REDACTED] inspection, [REDACTED] felt that neither [REDACTED] or [REDACTED] had internal injuries (TAB V-4). [REDACTED] passed the information to the squadron through the radio relay (TAB V-4, V-7, V-8, V-9, V-10, V-11, V-12).

(2) The Kelly AFB Consolidated Command Post activated the base Disaster Control Group at 1027 Central Standard Time (TAB AA-15-5).

(3) The Laughlin AFB Disaster Control Group was also activated in response to the mishap at 1105 Central Standard Time (TAB AA-15-4). It was not determined how Laughlin AFB obtained notification of the incident. However, Laughlin AFB personnel had no play in the rescue of the crew.

(4) At approximately 1039 Central Standard Time, the search and rescue orbit was forced to return to base due to a low fuel state (TAB V-4). At 1100 Central Standard Time another F-16, call sign MATT 31, was dispatched from the 182nd Fighter Squadron to orbit the scene (TAB V-4, V-7, V-8, V-9, V-10, V-11, V-12, AA-18). The first rescue asset on scene was a border patrol helicopter arriving at approximately 1130 Central Standard Time (TAB AA-15-3). A fixed wing aircraft of unknown origin orbited the general vicinity of the crash site and created some initial concern with rescue forces regarding a possible conflict in the area (TAB V-12). A conflict did not materialize. [REDACTED] signaled the border patrol helicopter with [REDACTED] signal mirror and the helicopter landed near the downed crewmembers (TAB V-4). The helicopter pilot offered first aid and transportation (TAB V-4, AA-15-3). [REDACTED] informed the border patrol pilot that both [REDACTED] and [REDACTED] had injuries, that neither were life threatening, and both were in stable condition (TAB V-4). The mishap crew initially elected not to use the border patrol helicopter as transportation due to its limited size (TAB V-4). Another approximately 40 minutes went by before the crewmembers were moved (TAB AA-15-3). A UH-1 rescue helicopter from Martindale Army Air Field was also enroute to the area taking off from Kelly AFB at sometime between 1040 and 1115 Central Standard Time (TAB AA-15-2, AA-15-6). [REDACTED] was informed that the UH-1 would require refueling prior to returning to Kelly Air Force Base and that this would be accomplished at Carrizo Springs approximately 21 nautical miles to the northeast (TAB V-4, AA-15-3, AA-17). With this information in mind, [REDACTED] requested that the border patrol helicopter transport them to Carrizo Springs (TAB V-4). The approximate flight time to Carrizo Springs was 10 minutes (TAB AA-15-3). With the estimated 40 minute delay at the crash site after the border patrol helicopter arrived, this placed the mishap crew at Carrizo Springs at approximately 1220 Central Standard Time. The action to move the mishap crew was relayed to the UH-1 which dropped off personnel at the crash site at approximately 1150 Central Standard Time then proceeded to Carrizo Springs (TAB AA-15-2). The UH-1 arrived at Carrizo Springs at approximately 1230 Central Standard Time (TAB AA-15-2, AA-15-6). The flight surgeon onboard the UH-1 inspected the downed crewmembers, took their vital signs, and splinted [REDACTED] ankle (TAB V-4, AA-15-6). They were then transported by the UH-1 to Lackland AFB, Texas arriving at Wilford Hall Medical Center between 1350 and 1430 Central Standard Time (TAB V-4, V-9, V-10, AA-15-2). The recorded arrival time at Wilford Hall Medical Center varied depending on the source reviewed.

j. Maintenance Documentation

The active records of AFTO Form 781's were on board the mishap aircraft at the time of the crash and therefore not available for review due to their destruction. However, a thorough review of available historical maintenance documentation dating back 60 days revealed no significant irregularities or deficiencies (TAB AA-1).

k. Maintenance Personnel and Supervision

A review of personnel training records, proficiency levels, and aircraft certifications determined that personnel were adequately trained, experienced, and supervised to perform the tasks assigned or performed. There was no evidence of maintenance practices or procedures that may relate to the accident (TAB AA-1).

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

A review of engine inspection data and test report data for fuel, hydraulic fluid, and oil revealed no irregularities (TAB AA-1).

m. Airframe and Aircraft Systems:

(1) A review of pertinent component and accessory systems indicated no discrepancies. No component accessory system repair station for repairing, benchchecking, or testing components/accessories is suspected of failure in this mishap (TAB AA-1).

(2) Post-accident analysis of the engine by San Antonio Air Logistics Center (SA-ALC) indicated that the engine was hit by a soft body object on the nose cone, later identified as a turkey vulture. The object was ingested by the engine causing internal object damage severe enough to stall the engine. The damage degraded the engine's performance to the point where it was unable to produce useable thrust or perform an airstart (TAB J-2, O-8).

(3) Engine Manufacturer:
Pratt and Whitney
179600 Beeline Hwy.
Jupiter, FL 33478-9600

n. Operations Personnel and Supervision:

The mission was authorized by [REDACTED] on a locally generated flight clearance form (TAB K-2). Squadron supervisory personnel were present in the squadron, but were not present for the briefing. The mission was thoroughly briefed in accordance with MULTI-COMMAND INSTRUCTION 11-416 (TAB V-4, V-7, V-8).

o. Crew Qualification:

(1) [REDACTED] is an experienced pilot with over 2930 flying hours in fighters and trainers and is a four-ship flight lead. [REDACTED] logged over 1810 in the F-16A/B models of which approximately 250 were instructor pilot hours and 57 were flight examiner hours. The 30/60/90 day flying totals were 9.9/14.0/28.6 hours (TAB G-2, T-8, V-8).

(2) [REDACTED] is a qualified [REDACTED]. In addition, [REDACTED] was previously qualified as a weapon system operator in the F-4. [REDACTED] logged over 1715 total hours of which over 1415 hours were logged in the F-4. [REDACTED] logged a total of 120 hours in the F-16B. [REDACTED] 30/60/90 flying totals were 2.2/3.4/3.4 hours (TAB G-4, T-7, V-3).

p. Medical:

(1) Both [REDACTED] and [REDACTED] were medically qualified at the time of the mishap (TAB AA-2).

(2) [REDACTED] suffered a fractured left ankle (TAB X, AA-2). The [REDACTED] suffered a compression fracture of the lumbar spine but remained mobile on the ground after the ejection (TAB X, V-4, AA-2). It was the opinion of this board's [REDACTED] that both injuries occurred as the result of the parachute landing (TAB AA-2).

q. Nav aids and Facilities:

All nav aids and facilities were operating and functional on 1 July 1994 (TAB AA-14).

r. Weather:

The closest reporting stations to the mishap site, Laughlin and Laredo, showed weather to be visual meteorological conditions with scattered clouds at 3000 feet above ground level and surface winds out of the southeast at 12 to 20 knots (TAB W-2). [REDACTED] testified, however, that the winds appeared to be "dead calm" during [REDACTED] parachute descent (TAB V-4).

s. Directives and Publications:

(1) The following publications were applicable to the mission:

AFR 50-46	Weapons Ranges
AFR 60-1	Flight Management
AFR 60-16	General Flight Rules
AFR 55-79	Aircrew and Weapons Director Procedures for Air Operations
MCI 11-208	Flying Training
MCI 11-416	F-16 Pilot Operational Procedures
TO IF-16A-1	Flight Manual F-16
DOD FLIP	General Planning

(2) The following are known or suspected deviations from directives or publications by mishap crewmembers or others involved in the mission:

(a) [REDACTED] and [REDACTED] deviated from AFR 55-79 by descending out of the bottom of the Crystal Military Operating Area without a "Knock-It-Off" or "Terminate" as directed in para 2-7c (3) and para 5-2b (TAB V-4, V-5, V-6, AA-6).

(b) [REDACTED] and [REDACTED] deviated from AFR 60-16, para 4-2c, 4-4, 4-59, and DOD FLIP General Planning, para 5-13, by not complying with special use airspace coordination procedures and air traffic control instructions (TAB V-4, V-5, V-6, O-8, AA-7).

(c) [REDACTED] and [REDACTED] deviated from AFR 60-16, para 5-7b and A3-3 by operating their aircraft outside of special use airspace below 10,000 feet mean sea level above 300 knots (TAB V-4, AA-7, AA-9, AA-11).

(d) [REDACTED] deviated from AFR 60-1, para 1-8 by not taking action to prevent or correct [REDACTED] descent outside of special use airspace (TAB V-4, V-7, AA-6).

(e) [REDACTED] and [REDACTED] deviated from TACR 55-116, Chapter 8/149 FG, Supplement 1, para 8a-14 by operating their aircraft below 1500 feet above ground level outside of special use airspace (TAB V-4, AA-12).

(f) [REDACTED] and [REDACTED] deviated from T. O. 1F- 16A- 1, Section 3, EJECTION, by delaying their ejection to below 2000 feet above ground level (TAB V-4, AA-9).

3. STATEMENT OF OPINION

- a. Under 10 U. S. C. Section 2254 (d) any opinion of the accident investigator as to the cause 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.
- b. Upon entry into the Crystal Military Operating Area, MATT 43 element split off from MATT 41 element and proceeded to a north point in preparation for tactical intercepts. The pilot of MATT 44, Lt Col Miles, assumed tactical lead of the element, and maneuvered to set up the first intercept (TAB V-4).
- c. For an unknown reason, [REDACTED] and [REDACTED] descended through 6000 feet mean sea level, the assigned and published base of the Crystal Military Operating Area, and leveled off at approximately 1000 feet above the ground or between 1400 to 1850 feet mean sea level (TAB N-4, V-4, V-5, V-6, AA-16, AA-17).
- d. There is no evidence to show that [REDACTED] the designated element lead, made any attempt to prevent or correct the deviation from the assigned airspace (TAB V-2, V-3, V-4, AA-4).
- e. The estimated altitude of the mishap element was 1000 feet above ground level prior to the birdstrike. This visual estimate came from an experienced crew member in MATT 44 acting in the capacity of flight surgeon. The flight surgeon was experienced in the low altitude environment with over 1400 flying hours as a weapon system operator in an F-4 prior to medical school. In addition, a 500 foot low level flight on VR1105 was accomplished by the mishap aircrew not more than 30 minutes earlier in which the flight surgeon had the opportunity to make a visual assessment of his altitude over similar terrain. An eyewitness, on the ground approximately 2.5 miles from the impact site, also provided an estimate of altitude well under the assigned minimum altitude of 6000 feet mean sea level. Although the eyewitness is not an experienced pilot, he does have routine experience in a low altitude flying environment as a passenger in a helicopter (TAB G-5, T-7, V-4, V-5).
- f. [REDACTED] cannot be held accountable for the airspace or airspeed deviations as, per AFR 60-1 and MULTI-COMMAND INSTRUCTION 11-208, [REDACTED] did not have any current requirement to maintain familiarization with applicable flying regulations or directives other than those relating to ejection, survival and flying time requirements (TAB AA-8, AA-17). In addition, [REDACTED] stated [REDACTED] was not aware of the area clearance or the published base of the Crystal Military Operating Area (TAB V-4).

g. The pilots of MATT 41 and 42, [REDACTED] and [REDACTED], cannot be held accountable for MATT 43 element's airspace or airspeed deviations as they were not in a position to visually witness the element's maneuvering, did not communicate with , or have radar contact with the element (TAB N-2, V-7, V-8).

h. A study of turkey vulture strikes clearly indicates that the probability of a strike substantially increases at 1500 feet or less above ground level (TAB O-11). The pilots of MATT 43 and 44 placed their aircraft in an area of significantly higher potential for turkey vulture strike by operating below the assigned and published base of the area (TAB N-4, O-11, AA-17).

i. Clear and convincing evidence indicates that the cause of the mishap was the ingestion of a turkey vulture weighing approximately 4.5 pounds into the engine of aircraft 83-1173 (TAB O-8). The ingestion of this bird resulted in progressive engine damage, a loss of thrust, and subsequent total failure of major engine components (TAB J-2). A successful airstart was not possible (TAB J-2).



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Investigating Officer