

STATEMENT OF AUTHORITY AND PURPOSE

By order of the Commander, Headquarters Seventeenth Air Force, Lieutenant Colonel Kenneth S. Callicut, 52nd Fighter Wing, Spangdahlem Air Base, Germany, was appointed by orders, dated 4 December 1992, to conduct an investigation into the crash of an F-16C aircraft which occurred on 22 October, while flying from Incirlik Air Base, Turkey. Captain Michael J. Andersen, 52nd Fighter Wing, Office of the Staff Judge Advocate, was detailed by the same orders as the Legal Advisor to accompany Lt Colonel Callicut throughout the course of the investigation. Captain Thomas W. Tucker, 52nd Fighter Wing, was detailed by the same orders as the Technical Advisor. (Tab Y-1,2)

MATTER INVESTIGATED

This was an investigation of a Class A aircraft accident involving F-16C serial number 85-1485 assigned to the 86th Wing, Ramstein Air Base, Germany. The aircraft crashed at 1213 hours, local Turkish time, into a unpopulated area south of Konya Range, Turkey. The pilot successfully ejected and survived. The objective of the investigation was to obtain and preserve all available relevant facts and evidence pertaining to the accident. The board also investigated circumstances leading to the accident for use in claims adjudication and evaluation, litigation, disciplinary action, adverse administrative proceedings, or other purposes deemed appropriate by competent authority. Lieutenant Colonel Callicut conducted the investigation under the authority of AFR 120-14 and was guided by the general procedures outlined in AFR 120-3.

Note: A glossary of abbreviations used in this Aircraft Accident Investigation Report follows the Summary of Facts. (See page 14)

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SUMMARY OF FACTS

I. History of Flight

1. The 86th Wing, Ramstein Air Base, Germany, equipped with F-16C/D aircraft, was tasked to support Operation PROVIDE COMFORT flying from Incirlik Air Base (AB), Turkey (TU). Unit tasking was to provide flight operations in support of Combined Task Force missions in the Turkish Area of Responsibility. The 86th Wing routinely cycled this tasking between its squadrons. The squadrons normally would deploy additional aircraft for weapons training and other tactical training not available in Germany. During the rotation on which the mishap occurred, the 512th Fighter Squadron (FS) had deployed to Incirlik AB, TU and had flown Operation PROVIDE COMFORT and training missions since 22 Sep 92.

2. On 22 Oct 92, Hang 01-04, a flight of 4 F-16Cs, took off from Incirlik AB, TU, on a weapons training mission. (Tabs A-1, K-1, V-1-5) This was flight number two of the day for all members of Hang flight with both flights scheduled for identical missions to Konya Weapons Range. Briefing, launch, and enroute portions of the mishap mission were uneventful. Mission profile for the range work was briefed for 12 bombing passes and two strafing passes after entering the range with a spacing pass.

Tabs V-1-7'

3. After the second bombing pass, Hang 02 pulled off from the delivery and experienced an engine malfunction. (Tabs V-1-8) The engine auto-transferred to a secondary mode of operation 'SEC'. (Tabs V-1-9) The pilot called for termination of the bombing training and initiated a turn towards Konya AB, TU intending to make an emergency landing at Konya AB. (Tab V-1-9) At this point, he noticed his airspeed deteriorating and attempted to use full military power to arrest the airspeed decay. He had no response from the engine in thrust or RPM. At this point he initiated an emergency airstart attempting to regain successful engine operation. (Tabs N, O, V-1-10) Due to his proximity to the ground, he was unable to wait long enough to see if the airstart sequence would produce results and he initiated ejection from the aircraft. His ejection was successful and the aircraft was destroyed upon impact. (Tabs A, C, N, O, V-1-12) Crash site was an isolated area south of Konya Range. (Tabs A, S, V-1-17, V-3-5) Property damage was minimal.. (Tab P)

4. Technical and engineering evaluations of the engine and engine-related components showed 8 parts could have contributed to the problem and they were returned for analysis. (Tabs I, J, C) These analyses were conducted under a AFR 127-4 mishap investigation and are not releaseable IAW AFR 127-4.

II. Mission

1. The mission of Hang 01-04 was to conduct weapons training at Konya Range, TU. (Tabs K, V-1-3) The mission was to be a medium altitude cruise to the range, twelve bombing and two strafe passes, and medium altitude return to Incirlik AB, TU. (Tab V-6-3)

2. Hang 02 was number two in a flight of four F-16Cs and was performing wingman duties in the training flight. (Tabs K, V-1-4)

III. Briefing and Preflight

1. Capt Martin had flown to Konya Range previously on training missions while deployed at Incirlik. (Tabs V-1-3) He deployed to Incirlik AB, TU on 30 Sep 92. In that time he had flown 20 sorties including Provide Comfort and training missions. (Tabs T-2, V-1-3)

2. On 22 Oct 92, Capt Martin was mentally and physically prepared to fly the scheduled missions. (Tab V-1-3, AA) He had adequate pilot rest required by AFR 60-1, and had eaten breakfast prior to reporting to work. (Tab V-1-4,) He arrived at the squadron with his wingmen and flight lead in sufficient time to gather all pre-mission briefing material, i.e., weather, Notices to Airmen, and flight planning data. The flight filed along prescribed routing in accordance with 39th Group local operating procedures found in Incirlik Air Base Regulation 55-1. (Tabs K-1, .)

3. The flight briefing was accomplished by Capt Walker with reference to USAFER 55-116 briefing guides and personal notes. It started on time and covered all applicable items. Capt Martin and the other flight members had no questions at the conclusion of the briefing. (Tabs V-1-5, V-2-6, V-4-4, V-6-3)

4. The pilots flew their first mission as scheduled to Konya Range and then prepared to fly their second mission of the day as scheduled. (Tabs K, V-1-5, V-2-4, V-4-4, V-6-3) The time between missions was used to review results of the first mission and eat lunch. Each pilot ate an adequate lunch and was prepared to fly the next mission. (Tabs V-1-6, V-2-8)

5. Preflight of the mishap aircraft proceeded normally with no problems encountered that would impede the second mission. Capt Martin flew the same aircraft for the mishap sortie as he had on the preceding mission that morning. Some maintenance was performed on the aircraft between missions, but it was signed off in the forms as ready for flight on the second sortie (Tabs U-1, V-1-6) Aircraft configuration for the mishap sortie was as scheduled and expected by the pilot: two external wing tanks, two SUU-20 bomb racks, 12 BDU-33 dummy bombs, one captive AIM-9 training missile, one acceleration monitoring device pod, along

with 510 rounds of 20 millimeter cannon shells. Engine start, taxi, and pre-takeoff checks were normal and performed IAW applicable directives (Tabs V-1-6)

IV. Flight Activity

1. Capt Martin took off with his flight at 1138 Incirlik Local Time (ILT). (Tabs A,K,V-1-8) Because of prevailing good weather and forecast good weather, Hang flight flew visual flight rules (VFR) for the entire mission. (Tab W) The entire mission up to the time of the mishap complied with Turkish and local Incirlik AB directives. (V-6-5) The flight proceeded to the range at medium altitude, approximately 25,000 feet above mean sea level (MSL), and entered Konya Range airspace for a scheduled range period of 1200-1230 ILT. (Tabs V-3-3)

2. The flight plan called for approximately 25 minutes enroute time to the range with 30 minutes of range time. (Tabs K) After entering the range with a spacing pass, the flight split up into separate elements to practice bombing. (Tabs V-1-8, V-3-3)

a. After the second pass the aircraft experienced an engine problem with an auto-transfer to SEC. (Tabs C-3, V-1-10) The pilot did not initially notice the auto-transfer to SEC since he was looking outside the aircraft to ascertain where his leader, Hang 01, was in relation to his aircraft. (Tabs C-3, V-1-11) Additionally, the aural voice warning was intermixed with several radio calls between the aircraft and the range control officer (Tabs O-3, V-1-11) causing Capt Martin to miss the transfer to SEC for approximately 33 seconds. (Tab O-3) During this time the aircraft decelerated from 450 knots true airspeed (KTAS) to 280 KTAS and his altitude decreased from 4,220 feet above ground level (AGL) to 1,920 feet AGL. (Tab O-3, V-1-13) The pilot initiated a turn to Konya AB, TU intending to make an emergency landing there. He saw the engine RPM below 85 percent and decided afterburner was not available due to the low RPM and engine being in SEC. Part way through the turn he perceived the engine was not operating in SEC correctly and decided to initiate an airstart to regain sufficient thrust to maintain level flight. (Tabs N-1, O-3, V-1-13)

b. Technical Order 1F-16C-1 states that a non-afterburner stall may be difficult to distinguish from abnormal engine response. (Tab FF-1-20) In cases where the engine experiences a stall, one of the indications may be a lack of engine response to throttle movement. In the case of an engine stall, the correct procedure is to initiate an airstart if the stall does not clear with the throttle in idle. (Tab FF-1-20) Abnormal engine response is varied and generally indicated by abnormal thrust in relation to throttle position, engine oscillations, a complete lack of engine response to throttle movement, auto-accelerations/decelerations, or insufficient thrust. (Tab FF-1-18) The "Low Thrust at Low Altitude" procedure should be applied in cases of abnormal engine response where insufficient thrust is

available to sustain flight. (Tab FF-1-16)

c. Capt Martin stated he thought the engine must be experiencing a stagnation or RPM rollback leading him to perform the airstart procedure. (Tab V-1-13) The aircraft was at 810 feet AGL as Capt Martin initiated the airstart. He completed the airstart sequence as the aircraft was descending through 500 feet AGL. (Tabs V-1-14, O-3)

d. Hang 01 made a call to Hang 02 reminding him to watch his altitude above the ground since airstarts require sufficient altitude and time for engine response. (Tabs N, V-6-6, FF-1-21) At this point Capt Martin realized he was too low in altitude to regain sufficient engine operation from the airstart procedure and initiated ejection. (Tabs A, N, O-3, V-1-1) Ejection was successful with minimal injuries to Capt Martin. (Tabs A, V-1-21, AA-1)

3. Hang 01, 03, and 04 followed the mishap aircraft as he turned toward Konya AB and initiated search and rescue (SAR) actions along with the Konya Range officer, Capt Smith. (Tabs V-3-3) After Hang 01 and the range control officer (RCO) had successfully coordinated the SAR effort, the remaining Hang flight members returned to Incirlik uneventfully. (Tab V-6-9)

V. Impact

1. The aircraft impacted the ground on 22 Oct 92 at 1213 LT 11 nautical miles southeast from Konya AB, TU. (Tab A) Specifically, the crash site was in a farm field away from populated areas at latitude North 37 degrees, 49.94 minutes and longitude East 32 degrees, 41.91 minutes. F-16C 85-1485 was destroyed upon impact.

VI. Ejection Seat

The Advanced Concept Ejection System (ACES) II seat has three modes of operation which determine the speed with which the pilot's main parachute deploys. (Tab FF-1-15) Ejection was initiated and occurred within the ejection seat's designed operation envelope Mode 1. (Tab FF-1-13,14) All components involved in the ejection sequence appeared to have functioned properly. (Tab V-1-22) All TCTOs and inspections on the seat were up to date at the time of the mishap. (Tab U-1)

VII. Personnel and Survival Equipment

The pilot landed on relatively flat ground with all his gear intact. The pilot encountered minor difficulties in use of his survival radio, but was able to fix the problem easily. (Tab V-1-17) The only survival equipment used was the PRC-90 radio which was used to talk to aircraft involved in the rescue operation and a smoke cartridge used to alert the helicopter crew. (Tab V-1-17 - 1-22) Personnel and survival equipment

inspections were current with the exception of the pilot helmet and oxygen mask. (Tab CC-3) They were overdue 18 days. This did not affect performance of the items. (Tab V-1-22)

VIII. Rescue

1. Hang 01 and Capt Smith at Konya Range coordinated a smooth and successful SAR effort with the Turkish military who recovered Capt Martin in a Turkish helicopter. (Tabs V-1-19, V-2-15, V-3-3) Capt Smith and other Turkish officials in the Konya Range tower initiated the SAR effort with Konya AB. Local inhabitants also arrived at the crash scene and helped Capt Martin stretch out his parachute canopy so that aircraft could see his location. They helped Capt Martin recover other personal items near his location. (Tabs V-1-19)

2. Hang 01 coordinated the actions of his flight members after the ejection setting up a radio relay to Incirlik and directing the rescue helicopter to Capt Martin's position. Hang 03 communicated with Capt Martin and ascertained he was in good physical condition. After the helicopter picked up Capt Martin, Hang 01 marked the location of the mishap aircraft and returned to Incirlik AB, TU with no further incidents. (Tabs V-6-7,8,9)

3. The Turkish military helicopter recovered Capt Martin and took him to a waiting ambulance in Konya, TU. The helicopter stopped at Konya Range to pick up a Turkish interpreter who worked for the US military at the range and SSgt Fox also rode along with Capt Martin to assist as required. (Tab V-1-16, V-3-5) After being examined by Turkish medical personnel, Capt Martin was released and returned to Incirlik AB, TU in a USAF C-12 dispatched from Incirlik AB, TU to pick him up. (Tabs V-1-20, V-3-7)

IX. Maintenance Documentation

1. The current aircraft Air Force Technical Order (AFTO) Forms 781A as well as previous 781A forms dated 15 Jun 92 to 22 Oct 92 were reviewed. Only minor non-related documentation discrepancies were found. (Tabs U-1)

2. A review of Time Compliance Technical Orders (TCTO) revealed no overdue TCTOs. (Tab U-1)

3. Aircraft scheduled inspections were satisfactorily completed. No discrepancies were found. (Tab U-1)

4. Oil analysis records were reviewed and found to be within limits. (Tab U-1)

5. A review of automated history products revealed time change requirements were complete with no discrepancies. (Tab U-1)

6. No unscheduled maintenance was performed on the aircraft

after the post-flight/preflight and walk-around inspection were performed. The mishap sortie was the second flight of the day for the aircraft. (Tab V-1-5, U-3)

7. A review of maintenance documents and testimony revealed no maintenance procedures or practices that appear related to the mishap. (Tabs U-1, V-7 - V-12)

X. Maintenance Personnel and Supervision

All maintenance personnel and supervisors performed duties IAW technical data. (Tabs U-1, V-7-2) Preflight/post-flight and walk-around inspections were completed with no discrepancies noted. (Tabs U-1, V-10-2, V-11-3) On-the-job training records (AF Forms 623) were reviewed. All training and certifications were completed satisfactorily. (Tab U-1)

XI. Engine Oil, Fuel, and Hydraulic Inspection Analysis

All engine oil records were within standards (Tab U-1). Analysis of the post-mishap oil sample showed readings out of tolerance which were due to oil servicing cart contamination or post-mishap events. (Tab U-1) Analysis of the fuel showed no contamination after testing anomalies were resolved. Analysis of the hydraulic fluid revealed it did not meet specifications, however, the pilot reported normal flight control operation up until ejection. (Tab J-6, V-1-14) Hydraulic fluid problems would not have contributed to the reported loss of engine thrust.

XII. Airframe and Aircraft Systems

1. All non-engine related systems appeared to be operating normally. (Tabs J, O, V-1-14) Three non-engine related aircraft parts were returned for contractor teardown and analysis. (Tab I-1)

a. The fire control computer (FCC) was returned to General Dynamics. The FCC will contain the parameters of various systems on the airplane at the time of impact. It has no bearing on engine operation. (Tab FF-5-1)

b. The seat data recorder was returned to General Dynamics. The output from the recorder was judged to be inconsistent with this flight. It had evidently quit recording previous to this flight. (Tab J-5)

c. The electronic component assembly circuit card from the air data computer was returned to General Dynamics. This card will contain various flight control parameters at impact. It has no bearing on engine operation. (Tab FF-2-2)

2. The engine was not delivering proper thrust to support flight. (Tabs O, V-1-14) The pilot testified the engine was operating abnormally. After the second bombing pass, the engine

auto-transferred to SEC mode. (Tabs V-1-14, J-4) The pilot initiated an airstart after diagnosing the engine as experiencing a RPM rollback associated with an engine stall. (Tab V-1-10) The engine warning system will send a message via the voice warning system and illuminate the engine warning light if the engine warning system senses a stall or RPM rollback. (Tab FF-4-15) No voice warning or engine warning light was generated for the engine problem. (Tab J-1, O-3) The engine did not respond to any pilot inputs and the aircraft impacted the ground. (Tab V-1-15 - 1-22)

3. Inspection of the engine and other components at the crash site revealed the engine was in SEC (Tab J-1, J-2) and the core components of the engine had suffered no damage prior to impact. (Tab J-2) Seven engine and engine-related components were returned for contractor teardown and analysis. (Tab I) These reports were not made available to the board due to confidentiality granted contractors under AFR 127-4. (Tab J-4)

a. The aircraft master fuel shut-off valve (MFSCV) and valve actuator was returned to General Dynamics. The MFSCV was observed to be partially closed at the crash site. (Tab J-4) The MFSCV controls flow of fuel to the engine. Failure of this valve to a partially closed position would restrict fuel flow to the engine limiting engine thrust. (Tab FF-1-13)

b. The main engine control was returned to Woodward Governor Company. No failure of the component was noted at the crash site. (Tab J-2) Control functions provided by the main engine control are compressor variable stator vane scheduling, main fuel metering, engine overspeed protection, and positive fuel cutoff. (Tab FF-1-2) Failure of this component would affect engine thrust.

c. The main fuel pump was returned to Sundstrand for analysis. No indication of failure was noted at the crash site. (Tab J-2) The main fuel pump receives pressurized fuel from the engine fuel boost pump. It provides additional pressure and supplies the fuel to the main engine control. (Tab FF-1-2)

d. The afterburner-fuel-temperature control (AFTC) was returned to General Electric A/C Engines. The AFTC is an engine-mounted, fuel-cooled solid-state computer which controls both the engine and afterburner. The AFTC provides for logic to automatically transfer operation of the engine to secondary mode (SEC) for certain AFTC failures. (Tab FF-1-2) The main engine control would then control operation of the engine. (Tab FF-1-2)

e. The fan speed sensor was returned to General Electric A/C Engines. The sensor provides an input to the AFTC. (Tab FF-1-1)

f. The variable stator vane (VSV) feedback assembly cable was returned to General Electric A/C Engines. The VSV assembly

cable was observed to be broken at the crash site. (Tab J-8) The cable transmits the position of the core inlet guide vanes and the first three stages of the core variable stator vanes. These vanes provide stall protection for the engine during changes in engine RPM. (Tab FF-1-3) Failure in this system would increase the probability of an engine stall.

XIII. Operations Personnel and Supervision

The mishap sortie was scheduled by the 512 FS and authorized on USAFE Form 406, Consolidated Flight Authorization/Approval. (Tab K-1) Lt Col Entwistle, 512 FS Operations Officer, approved the flight. Capt Martin was the only pilot and person onboard the aircraft and was the pilot in command of the aircraft. All supervisory personnel were considered qualified and capable of the required decisions and duties related to the tasking, launch, and flight of the mishap aircraft.

XIV. Pilot Qualifications

1. Capt Martin was qualified in the F-16C/D aircraft IAW applicable regulations. (Tab T-6-2, BB-1-6) He was previously an instructor pilot in the T-37. He graduated from F-16 Replacement Training (Tab V-1-1, Tab BB-1-1), spent a year flying F-16s at Osan AB, Korea, and was assigned to Ramstein AB, GE in Jun 92. (Tab BB-1-1) He completed the mission qualification program and his mission check in the aircraft on 3 Sep 92. (Tab BB-1-6) He was a qualified wingman at the time of the mishap. (Tab G-2)

2. At the time of the mishap he had been rated for over four years with a total of 1,883.2 flying hours. His total hours in the F-16 were 419.1 with 416.5 primary or pilot in command hours. The sum of his flying experience in the last 30/60/90 days were 21 sorties and 35.8 hours, 30 sorties and 46.5 hours, and 42 sorties and 60.5 hours. (Tabs G-1, T-2-1)

3. A complete review of Capt Martin's training and flight records revealed no significant training or performance problems. (Tab BB) He was current in all required training (Tab BB-2, CC-9). No unfavorable information was found in his personnel records.

XV. Medical

1. Capt Martin was medically qualified for the mishap flight on 22 Oct 92. He had a current physical and was not on Duty-not-to-Include-Flying (DNIF) status. (Tabs AA-2, 3)

2. After the helicopter delivered him to the hospital in Konya, TU, he was examined by Turkish medical officials. (Tab V-1-22) He was found to have minor scrapes and was treated for these by the Turkish medical personnel. After treatment he was released and returned to Incirlik AB, TU via US airlift. (Tab V-1-23)

3. The findings of the post-mishap flight surgeon and toxicology report revealed nothing that would have adversely affected his performance as a pilot. (Tab AA-2)

XVI. Nav aids and Facilities

The status of Incirlik facilities and NOTAMS were reviewed and would not appear to affect this mishap. (Tab V-1-15)

XVII. Weather

The forecast and actual weather was for generally VFR operations at Incirlik and Konya TU. (Tab W) Weather was also VFR enroute to Konya Range, TU. (Tab W) The pilots in Hang flight did not report any significant weather affecting flight operations. (Tab V-1-15, 2-11, 4-8)

XVIII. Directives and Publications

The following directives, publications, and technical orders were applicable to the operation of the mission and the maintenance performed on the mishap aircraft.

1. Regulations and Manuals:

- a. AFR 60-1, Flight Management
- b. AFR 60-2, Aircrew Standardization/Evaluation Program
- c. AFR 60-16, General Flight Rules
- d. USAFER 51-1, Aircrew Ground Training
- e. USAFER 51-50, Vols I and VIII, Tactical Fighter and F-16 Aircrew Training
- f. USAFER 55-116, F-16 Pilot Operational Procedures; Ramstein AB Chapter 8 to USAFER 55-116
- g. USAFER 66-5, Combat Oriented Maintenance Organization
- h. DoD Flight Information Publication, General Training
- i. DoD Flight Information Publication, Area Planning, Special Use Airspace, Europe-Africa-Middle East
- j. 86 FW In-Flight Guide
- k. 39 TacG Weapons Training Deployment In-Flight Guide

2. Technical Orders (T.O.):

- a. 1F-16C-1, F-16C/D Flight Manual
- b. 1F-16C-1CL-1, F-16C/D Checklist
- c. 1F-16C-6WC-1-11, Basic Postflight/Preflight, Launch, Recovery, and End of Runway Inspection
- d. 1F-16C-2-10JG-OO-1, Aircraft Ground Safety Guide
- e. 1F-16C-12JG-OO-1, Aircraft Ground Servicing Guide
- f. 1F-16C-34-1-1, Avionics and Non-nuclear Weapons Delivery Flight Manual
- g. 1F-16C-34-1-1CL-1, Checklist Avionics and Non-nuclear Weapons Delivery Flight Crew Procedures
- h. 1F-16C-6, Scheduled Inspections and Maintenance Requirements.

Kenneth S. Callicut

KENNETH S. CALLICUTT, Lt Col, USAF
Accident Investigating Officer

CERTIFICATION

As the investigating officer appointed to conduct this aircraft accident investigation, I certify that I have conducted a complete investigation of the facts of this accident under AFR 110-14.

The following originals were not included in the accident investigation report.

1. The originals of Tabs A through S were not forwarded to the Accident Investigation officer. Instead they were reportedly sent to HQ AFSA/SER Norton Air Force Base, California. Copies were provided to the Accident Investigation Officer.

2. Capt Martin's Flight Records may be obtained by contacting the following offices:

a. Flight Data Records and History - 86th Wing, Flight Records Management Office, Ramstein Air Base, Germany

b. Flight Evaluation Folder - 512th Fighter Squadron, Standardization and Evaluation Section, Ramstein Air Base, Germany

c. Flying Training Records - 512th Fighter Squadron, Training Office, Ramstein Air Base, Germany

3. Capt Martin's medical and dental records can be located at the 86th Medical Group, Flight Medicine and Dental Clinics respectively, Ramstein Air Base, Germany.

4. All maintenance documents of aircraft (F-16C, SN 85-1485 not included in the original copy of this report along with other photocopied original documents can be located at the Office of the Staff Judge Advocate, 86th Wing, Ramstein Air Base, Germany.

Kenneth S. Callicut

KENNETH S. CALLICUTT, Lt Col, USAF
Accident Investigating Officer

I have reviewed the above referenced originals and certify that the copies contained herein are true and correct copies of the originals.

Michael J. Andersen
MICHAEL J. ANDERSEN, Capt, USAF
Legal Advisor

LEGAL SUFFICIENCY REVIEW

I have observed and reviewed all aspects of this investigation and find it was conducted in a legally sufficient manner in accordance with AFR 110-14, AFR 120-4, and other applicable directives. Any information from the documents included in this report which would not be appropriate for release under the provisions of the Privacy Act has been deleted.

Michael J. Andersen
MICHAEL J. ANDERSEN, Capt, USAF
Legal Advisor

GLOSSARY OF TERMS

AB	Air Base
ACES	Advanced Concept Ejection System
AFM	Air Force Manual
AFR	Air Force Regulation
AFTO	Air Force Technical Order
AGL	Above Ground Level
BPO	Basic Postflight Inspection
CAMS	Core Automated Maintenance System
CAPS	Critical Action Procedure
Capt	Captain
DNIF	Duty Not to Include Flying
DO	Operations Officer
DTC	Data Transfer Cartridge
EOD	Explosive Ordnance Disposal
EPU	Emergency Power Unit
ECR	End of Runway
FCIF	Flight Crew Information File
FTIT	Fan Turbine Inlet Temperature
Guard	Universal Distress Frequency
HAS	Hardened Aircraft Shelter
HUD	Heads Up Display
IAW	In Accordance With
IFR	Instrument Flight Rules
ILIT	Incirlik Local Time
IP	Instructor Pilot
JFS	Jet Fuel Starter
Knots	Nautical miles per hour
KTAS	Knots True Airspeed
Lt Col	Lieutenant Colonel
MFSCV	Master Fuel Shut-off Valve
MQT	Mission Qualification Training
NM	Nautical Miles
NCTAM	Notice to Airmen
O'Clock	Position expressed in relation to the face of a clock
OFS	Operations
RAPCON	Radar Approach Control
RCC	Range Control Officer
RPM	Revolutions per Minute of the engine
RTB	Return to Base
SAR	Search and Rescue
SEC	Secondary mode of operation for aircraft engine
SIF	Safety Information File
SN	Serial Number
SOF	Supervisor of Flying
Step	A time set to depart the squadron for flying
Stick	Side-stick controller
TACG	Tactical Group
TCTO	Time Compliance Technical Order
TU	Turkey
UPT	Undergraduate Pilot Training

USAFE	United States Air Forces in Europe
USAFER	United States Air Forces in Europe Regulation
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VTR	Video Tape Recorder
Walk Around	A cursory check of the aircraft condition
WG	Wing
ZULU	Greenwich Meridian Time
485	Aircraft Serial Number 85-1485