

DOCKETED
USNRC

2003 JAN 15 AM 11:31

OFFICE OF THE SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

AIRCRAFT ACCIDENT INVESTIGATION REPORT

**AIRCRAFT ACCIDENT INVOLVING
F-16/A, SERIAL NUMBER 79-0398**

89-6

Pilot 

**184TH TACTICAL FIGHTER GROUP
KANSAS AIR NATIONAL GUARD**

28 JUNE 1989

NUCLEAR REGULATORY COMMISSION

Docket No. _____ Official Exh. No. 108
in the matter of PFS

Staff _____	IDENTIFIED _____ ✓
Applicant _____ ✓	RECEIVED _____ ✓
Intervenor _____	REJECTED _____
Other _____	WITHDRAWN _____
DATE <u>7/1/02</u>	Witness _____
Clerk _____	_____

Submitted By:
Michael J. O'Toole
Major, KSANG
Investigating Officer

PFS Exh. 108

56796

SUMMARY OF FACTS

A. HISTORY OF FLIGHT:

STEADY-1 flight, composed of an F-16/B (lead) and the flight mishap aircraft, an F-16/A, was scheduled for a 0935 CDT takeoff on 28 June 1989. The flight was the 8th mission in a 16 flight training course, and scheduled to perform training within the EUREKA Military Operating Area. At approximately 0958 CDT on 28 June 1989, the mishap aircraft, STEADY-2, impacted the ground in the eastern portion of the EUREKA Military Operating Area, southeast of Fall River, Kansas.

Information about the mishap was released through the Public Information/Relations Director, Adjutant General's Department, Kansas National Guard, on 28 June 1989. Both television and print media from the Wichita area were on the crash scene by late afternoon of the 28th.

B. MISSION:

The mission of STEADY-2 was to be flown in accordance with F-16/A, CX course syllabus. Scheduled events to be flown by the mishap pilot included defensive Basic Fighter Maneuvers (BFM) from perch setups.

C. BRIEFING AND PREFLIGHT:

The briefing on Wednesday morning, 28 June, was conducted by [REDACTED], Flight Lead. [REDACTED] was scheduled to fly in the back seat of the F-16/B and did not attend this portion of the pre-mission briefing. Both the mishap pilot, [REDACTED], and lead, [REDACTED], stated in testimony that it was a normal briefing, that all aspects were covered, and that the briefing did include a discussion of out-of-control situations and a discussion of the critical action procedure dealing with the deep stall.

The mission as briefed was to be BFM-2, defensive for the student. The flight was to consist of a wing formation takeoff and normal instrument departure to the EUREKA Military Operating Area. The training syllabus objectives called for the student to defeat the initial threat of the attacking aircraft, recognize errors on the part of the attacker, and then capitalize on these errors through the use of appropriate counter maneuvers. The attacker was briefed to have APHID missile capability.

The briefing covered four separate setups with the student as the defender. Testimony indicates that the briefing by Captain Flora covered all requirements of the syllabus to include 9000, 6000 and 3000 foot perch setups for the BFM engagements. Specifically, the student was to experience pursuit as the defender, and defend against both IR missile and gun attacks. The instructor was to start the setups for the first engagement, and look for the student to capitalize on the initial flight path overshoot by the attacker. On subsequent engagements, the degree of difficulty for the student was to be increased as the student's performance dictated. It appears that the pre-mission briefing was thorough, covered all the setups and proposed engagements, and covered safety-of-flight items to include possible out-of-control and emergency procedures including the responsibility of the participants if one of the aircraft was to go out of control. Indications from testimony are that the pre-mission briefing was thorough and covered all objectives. *- opinion*

[REDACTED] was the mishap pilot's primary instructor pilot and flew the mission from the back seat of the lead aircraft, STEADY-1. [REDACTED] conducted a standard F16/B briefing with [REDACTED] on this mission prior to going to the aircraft. [REDACTED] stated during testimony that [REDACTED] and [REDACTED] had discussed [REDACTED] progress as a student up to this point, and no problem areas were noted.

D. FLIGHT ACTIVITY:

STEADY-1 flight, scheduled for a 0935 local takeoff, took off at 0931. Operations were normal through wing formation takeoff and departure to the EUREKA area. Testimony indicates

that ingress into the EUREKA Military Operating Area was normal and the flight set up for the first BFM maneuver of 9000 foot trail position within the military operating area.

Three setups were flown prior to the mishap engagement, and testimony indicates that the first three engagements were normal with the exception of the third engagement where the mishap pilot did experience some difficulty in keeping sight of lead due to his graying out in response to G loading. The fourth setup was to be an intentional overshoot by the pursuing aircraft, and was to give the student an opportunity to capitalize on the BFM error. Testimony indicates that the student's recognition of the overshoot was timely and appropriately performed a reversal to capitalize on the overshoot. While performing the reversal, the aircraft was put into a low energy condition, (nose high, low air speed) and departed control flight in a deep stall configuration. The instructor pilot noted that the student's aircraft was in a position where the student's visual contact with the pursuit aircraft was questionable, and at that time queried the student as to his ability to maintain visual contact with the instructor. STEADY-1 recognized that the aircraft was developing in an out-of-control situation and monitored the attempts of STEADY-2 to regain control of the aircraft through the use of the Critical Action Procedure (CAP) for "Out of Control". Flight data indicates that the aircraft was near zero airspeed, or out of control, at an altitude as high as 24,000 feet MSL and the pilot ejected from the aircraft at an altitude slightly below 7,000 ft MSL. During this time testimony indicates that the mishap pilot, [REDACTED] attempted several series of the appropriate Critical Action Procedures involving rocking the aircraft in the vertical in order to break the Deep Stall and increase flying air speed to fly the aircraft out of the condition. Testimony from both the mishap pilot and the instructor pilot indicated that the Critical Action Procedure appeared to be ineffective after all the steps were followed. The critical action procedure was accomplished at least twice prior to ejection. The elapsed time from the start of the first Critical Action Procedure until ejection was approximately 2 minutes. STEADY-1 advised STEADY-2 of [REDACTED] altitude passing 10000 MSL and called for the student to eject as he passed 8000 ft MSL, and ejection occurred at approximately 6120 ft MSL (4620 ft above ground level).

Testimony indicated that the fuel burn rates were normal and that fuel checks were also normal prior to entering the area, and it was not suspected that the aircraft was in a condition outside normal CG ranges. Testimony from the mishap pilot indicates that the warning horn was experienced prior to the aircraft departing control flight, and that the mishap pilot may have had some difficulty in determining the horizon. In addition, the mishap pilot indicated that [REDACTED] did enter the maneuver in MIL power to

defeat the IR missile capability of the pursuit aircraft.

Weather in the EUREKA Military Operating Area on the 28th of June for this time frame was VFR and the maneuvers were conducted in VMC conditions.

Out of control as a condition of flight is covered several times during the track 5 syllabus, and particularly on flight #4 in this series; that flight being a horn-awareness flight emphasizing pitch and airspeed requirements and procedures for recovery from nose high slow airspeed conditions. In addition, the out-of-control critical action procedure is covered during a session in the cockpit procedural trainer and is also covered in required reading prior to and during the flight phases of training. It was considered by the instructor pilots that training for the out-of-control condition in the simulator would be ineffective, primarily due to the fact that the simulator for the F-16 is more of an instrument simulator and although it can be used for emergency procedures training, was both time consuming and unpredictable in setting up the out-of-control situation; but also did not present any realistic representation of what would actually happen to the aircraft. Currently there is no requirement in the simulator syllabus to simulate or practice the out-of-control condition.

E. IMPACT:

The mishap aircraft (F-16/A 79-0398) impacted the ground 60 miles East of McConnell AFB, in Elk County, Southeast of Fall River, Kansas (3731.6N / 9600.9E) at 0958 CDT, 28 June 1989.

F. EJECTION SEATS:

Inspection of the ejection seat (recovered), and testimony indicate that the ejection seat and ejection sequence functioned properly.

G. PERSONAL AND SURVIVAL EQUIPMENT:

All applicable inspections were current, and all equipment functioned properly.

H. RESCUE/CRASH RESPONSE:

The time of the crash was 0958 CDT. K.C. Center was notified through radio communication from GYRO-1 and STEADY-1 at 1000 CDT. STEADY-1 remained on scene and guided civilian

personnel to the mishap site. The mishap Pilot was transported to Flint Oak Ranch where he was subsequently examined by a para-rescue crewmember from Fort Riley, and air-evacuated via helicopter to McConnell AFB. Testimony indicates that para-rescue personnel arrived at the Flint Oak Ranch at approximately 1110 CDT.

I. MAINTENANCE DOCUMENTATION:

A review of the mishap aircraft AFTO Form 781 series and associated maintenance records indicated no discrepancies related to the accident.

There were no overdue Time Change Technical Order (TCTO).

There was an overdue 50 hour upper wing panel inspection (1.8 hours overdue).

A regular post-mission aircraft Oil Analysis was taken on the previous flight and records indicated results within standards.

All time change requirements were completed on time.

The following details the unscheduled maintenance discrepancies for the previous five flights:

- 26 June - Tanker could not disconnect from A/C. (No AAR Missions). AWAITING PARTS
- 26 June - Throttle inspection due. COMPLIED WITH
- 27 June - Over-G (9.4Gs). OVER-G INSPECTION COMPLIED WITH
- 27 June - G-suit hose leak check due. COMPLIED WITH
- 28 June - Upper wing panel inspection due. NOT COMPLIED WITH PRIOR TO CRASH

The following delayed discrepancies were noted in AFTO 781H.:

- 29 Mar 88 - Station 3 & 7 panels missing.
- 16 Nov 88 - Power Monitor in panel 2304 cracked.
- 16 May 89 - PSAPS Inspection not C/W During 50 hr Borescope.
- 5 Jun 89 - Two bad fasteners 2206 heads stopped.

There were no maintenance procedures, or practices related to the accident.

J. MAINTENANCE PERSONNEL AND SUPERVISION:

A review of maintenance personnel records revealed no evidence of maintenance practices or procedures which could have contributed to the accident.

K. FUEL, HYDRAULIC, AND OIL INSPECTION ANALYSIS:

All Inspection analyses were found to be satisfactory for use.

L. AIRFRAME AND AIRCRAFT SYSTEMS:

The aircraft was destroyed beyond the ability to determine any specific system malfunctions. There were no system malfunctions noted prior to the out of control condition.

M. OPERATIONS PERSONNEL AND SUPERVISION:

The mishap flight was conducted under the authority of the ANG Operational Training Course syllabus F16A 005 CT, which has been approved by the Director, Air National Guard. The daily schedule for this flight was approved by the Squadron Commander, Operations Officer, Assistant Operations Officer or Duty Officer. It is reviewed for crew rest, turn times, syllabus continuity, student flight currency, and area deconfliction. The briefing guide used by flight lead is approved and published by the Standardization/Evaluation section.

N. CREW QUALIFICATIONS:

The flying time and experience of the mishap pilot is covered in TAB G. [REDACTED] at the time of the mishap had a total of 3278.9 military flying hours, with 12.9 hours in the F-16. The remainder of his military flying time was in the T-33\A, T-38\A, A-10/A, and the F-4/C/D/E.

A summary of flying times and experience of the two Instructor Pilots in the flight are also contained in TAB G.

The mishap pilot had completed all required ground training prior to the mishap. Of 32 academic tests taken to that point in training, [REDACTED] had scored 100% on all but one for a combined average of 99.7%.

All flying grades for the F-16 training course were either "3" (Correct performance-minimum supervision required) or "2" (Essentially correct-requires normal supervision), TAB G.

O. MEDICAL:

All members of the mishap flight were medically qualified for the flight at the time of the accident.

A post accident medical examination of [REDACTED] was conducted by the USAF Hospital, McConnell AFB. The results of the examination and tests were normal and do not appear to relate to the accident.

P. NAVAIDS AND FACILITIES:

There are no Nav aids or facilities that affected the accident.

Q. WEATHER:

The weather observation for the area on the 28th of June was clear to lightly scattered clouds, 7 miles visibility, with light and variable winds. The forecast conditions were to be scattered Cu and high clouds over the region with light winds from the East Southeast at 9 knots. The weather in the area was clear for the BFM maneuvers planned with some very scattered high Cirrus clouds above the BFM altitude blocks. The BFM training was conducted in VMC.

R. DIRECTIVES AND PUBLICATIONS:

Publications that were applicable to the operation of the mission are: —

AFR 60-15
AFR 60-16
F-16A-1
MCM 3-1
ANG Syllabus F16A005CT

TACM 51-50, Vol 1
TAC/PACAF/USAFER 55-116

There is reference to "Minimum maneuvering airspeed" in
TAC/PACAF/USAFER 55-116 (24 August 1987) which states:

"Minimum maneuvering airspeed during (D)BFM/ACM is 200 KIAS
for RTU/TFTS/MQT students and instructors (including
I-Course) conducting student training. A "Knock-It-Off" is
not normally required; however, at 200 KIAS, primary
attention will be devoted to regaining an adequate energy
state."



MICHAEL J. O'TOOLE, Major, KSANG
Investigating Officer