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cc

**AFR 110-14
USAF AIRCRAFT
ACCIDENT
INVESTIGATION
BOARD**

14 OCTOBER 1987

TONOPAH TEST RANGE

F-117A
83-0815

4450 TG

INVESTIGATION OFFICER

LT COL JOHN T. MANCLARK

57 FWW/AT

NELLIS AFB, NV

3 OF 4 REPORTS

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MEMO FOR RECORD

8 December 1967

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JOHN T. MANCLARK, Lt Col, USAF
AFR 110-14 Investigating Officer

~~CLASSIFIED BY:~~ _____
_____ 11 Aug 84

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STATEMENT OF AUTHORITY AND PURPOSE

AUTHORITY: An investigation of the F-117A accident (SN 83-0815) which occurred on the TFWC Range, 53 NM East of Alamo, Nevada on 14 October 1987, was conducted from 17 November 1987 through 9 December 1987 at Nellis AFB, Nevada. Lt Col John T. Manclark was appointed by the Commander, Tactical Fighter Weapons Center, to conduct an AFR 110-14 investigation of the accident under authority of HQ TFWC/JA letter dated 17 November 1987 (Tab Y-2). IAW AFR 110-14 the TFWC/JA appointed Captain Gary H. Maupin as pilot technical advisor (Tab Y-3) and Captain Lawrence E. Carlson as Maintenance Technical Advisor (Tab Y-4). The investigating officer is assigned to the 57FWW/AT, Nellis AFB, Nevada, and the two technical advisors are members of the 4450th Tactical Group, Nellis AFB, Nevada.

PURPOSE: The purpose of this accident investigation was to obtain and preserve all available evidence for use in claims, litigation, disciplinary actions, adverse administrative proceedings, and for other purposes in accordance with AFR 110-14.

SUMMARY OF FACTS

1. HISTORY OF FLIGHT: BURNR 54, F-117A aircraft SN 83-0815, departed Tonopah Test Range (TTR) on 14 October 1987 at 1953 PDT on a night, single ship _____ (Tab A). Briefing, ground operations and takeoff proceeded as planned. The route of flight was under VFR procedures and remained entirely within the boundaries of the TRWC Range (Tab O-2, R-9). The mission proceeded as briefed _____

_____ the aircraft's radar reply was lost and the aircraft impacted the terrain at approximately 2033 PDT, 14 October 1987. The impact was 53 miles east of Alamo, Nevada, in open, gently sloping high desert terrain (Tab J-2). The aircraft was totally destroyed (Tab M); and the pilot, Major Michael C. Stewart, was fatally injured (Tab X). No ejection attempt was made (Tab H-9). Local and national media involvement was moderate; local media questions were handled through the Nellis AFB Public Affairs Office via a press release, and national media was handled through the Office of the Secretary of the Air Force (Tab AA 7 - 10).

2. MISSION: BURNR 54 was flying a single ship _____

(Tab V).

3. BRIEFING AND PREFLIGHT: Subject pilot had adequate crew rest (Tab AA 6). The mission was thoroughly planned and briefed by the mission lead, Captain Bryan Wright (Tab V). The procedures for the mission were normal, with the exception _____ covered during the briefing. The squadron operations officer (Major Stubbs) and Assistant Operations Officer (Major Kallman) made minor changes to the mission profile prior to the mass briefing _____

_____ (Tab V-7, V 42). In addition the squadron commander (Lt Col Weyermuller) in his post briefing comments advised that _____ was causing undue pressure, to _____ and to concentrate on aircraft control (Tab V-2). _____ mission preparation time were adequate (Tab V).

4. FLIGHT: BURNR 54 departed Tonopah Test Range (TTR) at the planned departure time of 1953 PDT (Tab N-2). The procedures after take off and radio calls _____ were normal (Tab N1). _____

_____ the aircraft departed the planned heading of 273 degrees _____. The last radar plot of the mishap aircraft shows _____ deviation from the planned ground track. BURNR 54's final flight profile (altitude and ground track) were derived from the Nellis Air Traffic Control Facility (NATCF) radar plots (Tab R-8). The aircraft impacted in the Nellis Range Complex (R-4807) in gently sloping high desert terrain (5502' MSL) at approximately 2033 PDT and was totally destroyed (Tab A, Tab C, Tab J, Tab M); _____ clear with unlimited visibility, there was no moon illumination at the time of the mishap (Tab W).

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5. IMPACT: F-117A aircraft SN 83-0815, assigned to the 4450th Tactical Group, Nellis Air Force Base, Nevada, impacted the ground at latitude 37 degrees 30'12" north, longitude 116 degrees 10'40" west (Tab R-2). The aircraft was totally destroyed (Tab M-2). Analysis of the standby altitude director indicator (ADI) indicated an attitude of 20 degrees nose down and 55 degrees of right bank (Tab J-14). Analysis of the aircraft components and fire pattern indicate that the aircraft sustained no inflight fire, and hit the ground as a single unit with the engines at low power settings (Tab J).

6. EJECTION SEAT: Investigation revealed that no ejection attempt was initiated (Tab U-9).

7. PERSONAL AND SURVIVAL EQUIPMENT: All personal and survival equipment inspections were current and documented in accordance with the appropriate technical orders (Tab U-7, AA-2,3).

8. RESCUE: BURNR 54 impacted the ground at 2033 PDT on 14 October 1987 (Tab A). The aircraft was noticed overdue _____ lost track of the aircraft during a shift change (Tab V-109). The Supervisor of Flying (SOF) and Silverbow Approach via phone communication confirmed that the mishap aircraft was neither on the ground nor in the local radar pattern (Tab N). The SOF then notified Lt Col Locher, the acting DO, and Maj Kallman, _____ supervisor (Tab V-109). Lt Col Locher met Col Short and Col Tolin _____ where the rescue effort was initiated (Tab V-107).

9. CRASH RESPONSE: The alert C-12 was dispatched to investigate the possible crash site: a range fire reported by the U. S. Forest Service, as picked up by an earth sciences satellite (Tab V-107). The C-12 was unable to locate the crash site. An additional helicopter was added to the search efforts at approximately 0100 15 October 1987 and searched until approximately 0345 when the effort was suspended until daybreak. The search continued at 0615 utilizing helicopter crews, witness reports and other available data. The actual location was identified the afternoon of 15 October. Lt Col Locher and a security party were first at the crash site and remained until Friday, 16 October.

10. MAINTENANCE DOCUMENTATION: An in-depth inspection of all available maintenance records was conducted. There were no open outstanding discrepancies in the 781 series forms prior to the accident. All scheduled airframe and powerplant inspections were properly annotated and accomplished. No irregularities were discovered at any time during this phase of the investigation (Tab U).

11. MAINTENANCE PERSONNEL AND SUPERVISION: The Quality Assurance Division reviewed the training records of the maintenance personnel involved and determined their qualifications adequate (Tab U). Additionally, the supervisors and maintenance personnel directly involved with the launch of 0815 were interviewed (Tab V). No irregularities were noted.

12. AIRFRAME STRUCTURE: The fire pattern analysis conducted on the aircraft wreckage determined that there was no in-flight fire, and that aircraft break-up occurred at impact (Tab J).

13. AIRCRAFT SYSTEMS:

a. Flight Control System (Tab J): All indications are that the flight controls were operational and that hydraulic pressure was present at impact. There is no history of flight control problems.

b. Engine System (Tabs H and J): No abnormalities were discovered during the review of engine records. Engine analysis determined that both engines were operating at impact.

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c. Egress System: Based on the unfired condition of the ejection system components recovered from the crash site, egress ship personnel determined that no ejection was initiated (Tab U).

d. Instrument and Hydraulic Systems: Nothing was noted to indicate instrument system failure prior to impact. Hydraulic system component analysis determined that _____ hydraulic system was operational at impact (Tab J).

e. Fuel System: Fuel samples from the storage tank and refueling unit were tested and found to be within Air Force specifications. The fact that both engines were operating at impact indicates that they were receiving fuel (Tab J).

f. Electrical System: _____ generators, _____ fuel boost pumps, _____ flight control actuators, and the standby Altitude Director Indicator suggests that the aircraft was powered at impact. Further, _____ was not operating at impact (Tab J).

g. Engine (Oil) Spectrometric Analysis: Records for the engines installed on the mishap aircraft were reviewed and determined to be within normal ranges (Tab U).

h. Weight and Balance: Quality Assurance reviewed and determined that the weight and balance records were in order (Tab W).

i. Foreign Object Damage (FOD) Reports: The group FOD monitor confirmed that aircraft 0815 had no significant FOD history (TAB W).

14. OPERATIONS PERSONNEL AND SUPERVISORS: The mission was flown under authority given to the Commander, 4450th Tactical Group, by the Commander, Tactical Air Command, United States Air Force. The mission was briefed in accordance with the approved 4450th Tactical Group and TACR 55-117 briefing guides by a qualified mission leader, Captain Bryan Wright. There were no operations or supervisory errors detected in the conduct of unit flying operations during the course of the mishap.

15. CREW QUALIFICATIONS: A review of Maj Stewart's flight records indicated that he was qualified and authorized to fly the mission. Maj Stewart was dual qualified in the F-117 and A-7 aircraft and current in both jets (Tab T). His training and initial instrument/qualification evaluation were completed with no discrepancies on 19 May 1987 (Tab T). Mission Qualification Training (MQT) and the initial mission qualification evaluation were completed without discrepancies on 23 June 1987. All training and evaluations were completed by qualified individuals in accordance with applicable 4450th Tactical Group Regulations. There were no training deficiencies noted in Maj Stewart's training records. Maj Stewart's flight records show that his dual qualification was properly documented on AF Forms 8 (Tab T). His flying time and sorties for the 30, 60 and 90 day periods as of 14 October 1987 in the F-117A were: 30 - 5.9/____ 60 - 18.7/____ 90 - 36.2/____ For the A-7D/K: 30 - 1.4/1; 60 - 10.0/5; 90 - 15.5/10 (Tab G). His total fighter time was 2166.1 hours in the F-117, A-7, F-15, F-4 and F-5 aircraft, of which 449 hours was instructor time. He had a total of 76.7 hours in the F-117A, _____

_____ An additional 206.0 hours were accrued in undergraduate pilot training in T-37 and T-38 aircraft (Tab G-5). Physiological training records indicate that Maj Stewart was current with his last refresher course on 06 May 1987 (Tab T-3). On the mishap date Maj Stewart was scheduled for _____ mission, his last _____ with flown on 13 October 1987 with a sortie duration of _____ hours (Tab T-13).

16. MEDICAL: Major Stewart was medically qualified for flight duty (Tab T-2). Toxicology reports were negative (Tab X-3).

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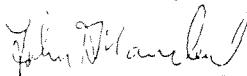
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17. NAVAIDS/FACILITIES: Nav aids/facilities were not a factor in the accident. There were no Notams (Notice to Airmen) for the local area that had an effect on the flight.

18. WEATHER: The inflight conditions during the mission were as briefed, clear skies with unlimited visibility. There was no moon illumination at the time of the mishap (Tab W).

19. DIRECTIVES AND PUBLICATIONS: The following directives and publications applicable to this mission in addition to the aircraft technical orders were:

- a. TACR 55 117, Dec 86, Aircrew Operational Procedures (S/SAR)
- b. 4450TG Sup 1 to TACM 51-50 Vol 1, Chap 1-6, Oct 87 (S/SAR)
- c. TACM 51-50, Oct 85
- d. F 117 Pilot Aid, 1 Sep 87 (S/SAR)
- e. 4450 PFCIF thru 87-06 (S/SAR)
- f. 4450 PPIF thru 87-03 (S/SAR)
- g. AFR 60-16, 10 Dec 85, General Flight Rules
- h. NAFB Sup 50-46, July 87


JOHN T. MANCLARK, LtCol, USAF
President, Accident Board

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