

USAF ACCIDENT INCIDENT REPORT

(Fill in all spaces applicable. If additional space is needed, use additional sheet(s).)

1. DATE OF OCCURRENCE (Year, month and day) 1968, November 19, Monday	2. VEHICLE(S) MATERIEL INVOLVED (TMS & Serial No. if applicable) B-52D N 55-103	3. FOR GROUND ACCIDENTS ONLY (Base Code and Report Symbol) 68-11-19-1 N/A
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4. PLACE OF OCCURRENCE, STATE, COUNTY, DISTANCE AND DIRECTION FROM NEAREST TOWN IF ON BASE, IDENTIFY. IF OFF BASE GIVE DISTANCE FROM NEAREST BASE Kadena AB, Okinawa	5. HOUR AND TIME ZONE LOCAL 0410 INDIA	6. <input type="checkbox"/> DAY <input checked="" type="checkbox"/> NIGHT <input type="checkbox"/> DAWN <input type="checkbox"/> DUSK
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7. ORGANIZATION POSSESSING OWNING VEHICLE OR MATERIEL AT TIME OF MISHAP							
Major Command	Subcommand or AF	Air Division	Wing	Group	Squadron or Unit	Name and Base Code	
SAC	NA	3AD	--	4252 SW	4252 OMS	KADENA LXZ	

8. (List organizations of second vehicle, if they differ from item 7 above)
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9. BASE AND COMMAND SUBMITTING REPORT (Do not Abbreviate)
 SAC Accident Investigating Board, Administratively Supported by 4252 SW, Kadena Air Base, Okinawa, Strategic Air Command.

10. LIST OF PERSONNEL DIRECTLY INVOLVED
 (For aircraft include operator and all other persons whether in plane or not. If more space is required to list all personnel, use additional sheet(s).)

Last Name	First Name	M.I.	Grade	Service No.	Assigned Duty	Aircraft Rating	Injury to Individual
✓ Dilworth	Billy	G.	III	Capt. ER73220	FP	SR PLT	Non Disabling
✓ Decker	Anatin	J.	II	Capt. EV3174535	CP	PLT	Non Disabling
✓ Damelio	Alex	(NMI) Jr.		Capt. ER79852	ANB	NAV	Temp Total
✓ Sible	Gary	B.		Capt. EV3152672	NN	NAV	Non Disabling
✓ Miller	Charles	D.		Capt. EV3152733	NE. CWO	NAV	Fatal
✓ Aroney	Albert	T.		SMSGT AB44903	AG	C GUN	Non Disabling
✓ Scott	Jerry	N.		SSgt AF1628067	FM	NONE	Fatal
					CRAWCHICK		

11. NARRATIVE DESCRIPTION OF ACCIDENT: Give a detailed history of flight, or chronological order of facts and circumstances leading to the mishap as applicable, the results of investigation and analysis to include discussion of all cause factors listed, findings, and recommendations, and any corrective action taken. (Continue on reverse, if more space needed.)

See Attached Narrative.

12. AUTHENTICATION			
CERTIFICATION BY (Title) President Investigation Bd	TYPED NAME AND GRADE ROBERT J. RAY Colonel, USAF	SIGNATURE 	DATE 3 DEC 68

SEQUENCE OF EVENTS

B-52D, 55-103, call sign Gold 2, assigned to 4252d Strategic Wing, Kadena AB, Okinawa, was scheduled to depart Kadena AB at 04081, 19 November 1968, on an Arc Light mission. Gold 2 was number two aircraft in a three-aircraft bomber cell. The crew assigned to 55-103 was an integral crew with an instructor pilot in command. The seventh man aboard was a crew chief.

A formal pre-takeoff briefing in accordance with SACM 50-12 was conducted in the 4252d Main Briefing Room at 0120 hours, 19 November 1968. Adequate time was provided and used for crew rest in accordance with AFR 60-7/SAC Sup I.

The crew arrived at the aircraft for preflight at 0240 hours. The dash-6 preflight was complete and the only item questioned by the pilot was an APR-25 (ECM) write-up. During crew preflight the only discrepancy noted was the parking brake accumulator being 200 lbs. low. The accumulator was serviced prior to engine start. Taxi was delayed due to maintenance problems on Gold 1; however, Gold 2 arrived at the hold line approximately 30 seconds prior to scheduled roll time.

Aircraft 55-103, Gold 2 was cleared for scheduled takeoff (04081) and the CP started a rolling takeoff on time, one minute behind Gold 1. Runway 05L, 12,100 feet long, 300 feet wide was used for takeoff. Takeoff data for Gold 2 was computed as follows: S1-108.5K. S2-155K, takeoff distance 8,850 feet.

The takeoff roll was normal with 110K attained at S1. [REDACTED]

[REDACTED]
According to witness statements abort procedures were probably initiated at approximately 7,000 feet. [REDACTED]
[REDACTED]
[REDACTED]

The aircraft departed the runway onto the sod overrun and eventually came to rest 750 feet from the end of the runway, approximately 25 feet left of centerline. Upon crossing the perimeter road and drainage ditch, the aircraft commenced breaking up. Fire ensued and engulfed the aircraft with subsequent fuel and ordnance detonations, which totally destroyed the aircraft. Prior to detonation, the crew egressed the aircraft with two members receiving injuries from second and third degree burns which subsequently proved fatal.

INVESTIGATION AND ANALYSIS

MAINTENANCE:

a. All eight engines indicated above normal predicted wet takeoff thrust (EPR 2.54) during the attempted takeoff roll, up to and including the time the decision to abort was made. Post accident examination of all engines did not reveal any malfunctions that would have caused a loss of thrust during the attempted takeoff.

b. Six brakes and parts of the remaining two brakes were recovered. Examination revealed they experienced wear and heat damage typical of a maximum heat energy stop. There was no evidence of dragging brakes or brake malfunctions. Proof of heavy braking and good anti-skid performance was further evidenced by the tire marks leading from the point where the aircraft left the runway back-up field approximately 1,000 feet to where they became unidentifiable in the maze of other existing tire marks.

c. All other systems were functioning normally, and the aircraft was structurally intact until the aircraft struck the perimeter road drainage ditch. At this time the forward landing gears were severed from the aircraft. The aircraft was destroyed as a result of subsequent fire and explosions of fuel and ordnance. Neither systems operation and/or maintenance actions contributed to or caused this accident.

OPERATIONS:

a. Pre-mission Considerations: Crew rest, pre-takeoff briefing and preflight were accomplished iAW SACR 60-7, SACM 50-12 and flight manual procedures. The preceding were not considered as contributing factors.

b. Records Review: The records review indicates all crew members were qualified and current in the B-52D. Flight status orders and physiological training requirements are on file and current. Capt Dilworth, the pilot, has 3233 total flying hours and 3026 hours in the B-52. A complete breakdown of flying time is included on the AF Form 711B. (Tab C). Both pilots' individual flight records are included in this report (Tab M). The pilots' last standardization check was an annual formal proficiency check completed 27 June 1968. Both pilots received an overall grade of qualified.

c. Crew Rest: All crew members received their required crew rest. The crew flew a combat mission on 17 November 1968, landing at 0010, 18 November 1968. Crew rest began following a debriefing and bus ride to their quarters. The officer crew members then went to the Officers' Club

to celebrate completion of their 100th combat mission.

d. Weather: Weather is not considered a factor. An observation taken at 0412I, 19 November 1968, reflected the following conditions: 4,500 scattered, wind 030 degrees at 5 knots, visibility 6+ miles, altimeter setting 30.27, temperature 16 degrees centigrade (61°F), dew point 13 degrees centigrade (56°F) and pressure altitude minus 175 feet (Tab W). The runway was dry. Surface wind variation and a possible temperature inversion condition was investigated along with jet wash/wake turbulence effects. Meteorological phenomena was ruled out as a condition which could have contributed to this accident.

e. Medical and Personal Equipment: Medical and personal equipment were found to be adequate. Investigation fails to reveal any medical, psychological or personal equipment factors which could have contributed to this accident (Tab H).

f. Facilities:

(1). Radio communications were normal. Tower tapes produced the distress call of the aircraft reporting the aborted takeoff and the relay of this call by the tower operator. Tapes from the following aircraft, Gold 3, also reflect these transmissions (Tab V).

(2). The overrun of runway 05L is a sod area 500 feet long. This overrun is not considered in computing B-52 takeoff performance data; however, the terrain profile beyond the overrun declines at a slope of 6.4% to a depression adjacent to a roadway then into a large drainage ditch. The aircraft suffered major structural damage upon contact with the depression prior to the road (Tab W).

g. Witness: Forty witnesses to the accident submitted statements. The five surviving crew members were questioned formally by the accident board. Reliability of witness information was analyzed. All portions of the ground roll were included in witness statements. Analysis of witness statements are provided in Tab W-2-3. General conclusions based on these statements are as follows:

(1). Initial Acceleration to decision speed (S1) was normal.

(2). Sometime after S1 speed, the pilot elected to abort takeoff.

(3). Subsequently, the aircraft departed the runway and finally came to rest approximately 750 feet from the end of the runway. Fire reportedly began as the aircraft slid to a stop. Shortly thereafter, minor explosions were noted in addition to the flames and approximately 2 to 5 minutes later a very large explosion occurred. The aircraft was totally destroyed by the fire and explosions.

h. Flight Operations: Based on analysis of witnesses statements (Tab N) testimony (Tab Q), performance charts (Tab W) and OCAMMA performance report (Tab W), the group concluded that the abort was initiated approximately 7,000 feet after start of takeoff roll at an airspeed which made it impossible to stop on the remaining runway. Impact at a very slow speed with the slight depression adjacent to a perimeter road caused major structural damage and subsequent fire. The Electronic Warfare Officer, Capt Miller, and Crew Chief, SSgt Scott, received severe burns due to the routes used for escape from the wreckage after egress from the aircraft. These two crew members died as a result of these burns.

CONCLUSIONS:

a. The pilot was aware that an abort after decision speed would probably result in running off the end of the runway. He was not cognizant of the overrun or terrain features beyond the runway although he had previously received a briefing on runway profile and overrun capabilities at Kadena Air Base.

b. The pilot did apply the proper procedures upon executing the abort.

c. Flight simulator tests indicate that an average reaction time of approximately eleven (11) seconds exists from recognition of an airspeed malfunction, after S1 speed, until a decision is effected. It is felt that this is significantly longer than when a malfunction occurs prior to or at S1 speed when the pilot's attention is primarily directed at the airspeed indicator. In this accident, the abort was initiated between eleven (11) and fifteen (15) seconds after passing S1 speed.

d. Insofar as possible, it has been determined that the engines were producing computed wet thrust, there were no malfunctioning brakes, tire

pressures were not excessively low, and the pitot-static system was functioning properly. Prior to abort, the brake chute was not deployed and little or no lateral control was used to level the wings. Computed performance data was accurate and actual S1 speed, 110KIAS, was above the minimum of 108.5 KIAS. No turbulence, gusts or jetwash apparently were affecting the aircraft.

e. The weighted average of witness statements place the aircraft approximately 7,000 feet down the runway when power was reduced. The Speed-Time-Distance Performance Profile developed by OCAMA, indicates that an abort started at this point on the normal aircraft acceleration curve would place the stopping point beyond the end of the runway. If the aircraft was on the "retarded acceleration" curve and abort was started at 7,000 feet, a stop could be made on the runway, assuming normal deceleration (Tab W, Fig. 5).

f. With normal acceleration, 120 KIAS occurs approximately four (4) seconds after the S1 speed of 110 KIAS. If the abort were initiated approximately seven (7) seconds later, this would place the aircraft in the vicinity of 7,000 feet and with normal deceleration into the area of the crash site.

g. The pilot initiated an abort after S1 speed, using observation of airspeed and personal judgment of acceleration. [REDACTED]

[REDACTED] The wide variation of crew and witness statements coupled with the B-52 performance characteristics are such that it is difficult to determine if the aircraft was accelerating properly. However, analysis of all factors indicates the abort started approximately 7,000 feet down the runway [REDACTED]

(1). At a speed of 123 kts or less, a stop could be made on the runway from the 7,000 ft. point (Tab W, Fig. 5, Retarded Acceleration Curves).

(2). In order to place the aircraft on the Retarded Acceleration Curve, a drag factor equivalent to the thrust forces would be required (Tab W, Fig. 12).

(3). At a speed near normal acceleration, 133-137 KIAS, a stop could not be made on the runway. Normal deceleration, maximum effort braking with all drag factors effective, shows that the aircraft would come to a stop approximately 750 feet past the end of the runway. (Tab W, Fig. 5, Normal Acceleration Curve).

h. Analysis of all factors of thrust and drag coupled with witness statements and testimony indicate that the aircraft was accelerating at a normal or near normal rate up to SI speed. It is very unlikely that full braking or equivalent drag was applied between SI speed and the point of abort. (Tab W, Figure 12)

i. The possibility exists that the pilot's airspeed indicator was sluggish or slow at the time he noted the indication. However, the Navigator heard the co-pilot's reply of "123 knots" when questioned by the pilot. The pilot did not hear the co-pilot's answer as he had decided to abort and was in the process of starting the procedures. The pilot stated he did not note his airspeed indications again. The time required for the pilot to note a reading of 115-120 knots and then decide to abort can not be determined, but could well be in the 7 second category. This then places the aircraft near the 7000 ft point on the normal acceleration curve. (Tab W, Figure 5)

FINDINGS AND RECOMMENDATIONS

FINDING 1:

The primary cause was pilot factor in that the pilot elected to abort at a point in time and distance beyond S-1 that made a safe stop impossible.

THROUGH CHANNEL REVIEW

	CONCUR	Concur in Part	Nonconcur
<u>4252 Strat Wg Commander</u>	_____	_____	_____
<u>3rd Air Division Commander</u>	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS: Corrective action taken or recommended (in turn) or reason for non-concurrence.