74-B-836
Box 3

AIRCRAFT ACCIDENT-NSO/X

382 - 26 Apr 65

TABS

Through Out File

SECRET

USAF ACCIDENT/INCIDENT REPORT CHECKLIST AND INDEX

TAB LETTER		NOT APPLICABLE	APPLICABLE NOT ATTACHED	ATTACHED	NO. FORMS ATTACHED
A	AF FORM 711			X	
B	AF FORM 711a	X			
C	AF FORM 711b			X	
D	AF FORM 711c			X	
E	AF FORM 711d	X			
F	AF FORM 711e	X			
G	AF FORM 711f	X			
H	AF FORM 711g			X	
I	UNSATISFACTORY REPORT	X			
J	TEARDOWN DEFICIENCY REPORT	X			
K	LIST OF TECHNICAL ORDERS NOT COMPLIED WITH			X	
L	AFTO FORMS 781 SERIES			X	
M	AF FORM 5			X	
N	STATEMENTS			X	
O	REBUTTALS	X			
P	ORDERS APPOINTING INVESTIGATING BOARD			X	
Q	BOARD PROCEEDINGS			X	
R	DD FORM 175 OR DD FORM 1080			X	
S	DD FORM 365 (Weight and Balance Clearance Form F)			X	
T	STATEMENT OF DAMAGE TO PRIVATE PROPERTY			X	
U	CERTIFICATE OF DAMAGE (List of Parts Damaged), MANHOURS REQUIRED TO REPAIR, AND COST			X	
V	TRANSCRIPTS OF RECORDED COMMUNICATIONS	X			
W	ANY ADDITIONAL SUBSTANTIATING DATA REPORTS	X			
X	OTHER AF FORMS (Failure and Consumption Reports, Etc.)	X			
Y	DIAGRAMS (Fall Out—Impact Area, Etc.)			X	
Z	PHOTOGRAPHS			X	

Whenever "Applicable but not attached" column is marked for any of the above items, information must be entered under remarks to indicate what action has been taken or will be taken to obtain the required attachment. Lettered tabs shown above will be inserted for corresponding attached items, i.e.; Tab N will always be used for Statements, Tab P for Orders Appointing Investigating Board, etc. Tabs will be omitted on those items not applicable.

TAB

SECRET

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)	2. VEHICLE(S)/MATERIEL INVOLVED (TMS & Serial Nr., if applicable)	3. FOR GROUND ACCIDENTS ONLY (Base Code and Report Serial Nr.)
1965 April 26, Monday	U-2G N804X (382)	N/A

4. PLACE OF OCCURRENCE: STATE, COUNTY; DISTANCE AND DIRECTION FROM NEAREST TOWN. IF ON BASE, IDENTIFY. IF OFF BASE GIVE DISTANCE FROM NEAREST BASE.	5. HOUR AND TIME ZONE LOCAL	6.
California, Kern County; 2.1 miles North of North Edwards Air Force Base Tower	1313 PDT	[X] DAY [ ] NIGHT [ ] DAWN [ ] DUSK

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
N/A	N/A	N/A	N/A	N/A	WRSP IV	North Edwards AFB

8. *(List organizations of second vehicle, if they differ from Item 7 above)*

9. BASE AND COMMAND SUBMITTING REPORT *(Do not Abbreviate)*

North Edwards AFB, California

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	Aero Rating	Injury to Individual
Edens,	Buster	E.	Civ.	N/A	P	Pilot	Fatal

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 ATTACHMENT.

12. **AUTHENTICATION**

CERTIFICATION BY (Title)	TYPED NAME AND GRADE		DATE
Board President	Alfred K. Patterson, Lt. Colonel, USAF		3 May 1965

25X1

AF FORM 711 PREVIOUS EDITION OF THIS FORM IS OBSOLETE

SECRET

AF Form 711 Item 11

History of Flight

At 1300 PDT, 26 April 1965, U-2G Number N804X (382), tactical call sign Crisp 16 took off from North Edwards Air Force Base piloted by Mr. Buster E. Edens. Purpose of the mission was to accomplish a series of simulated carrier mirror landing patterns during a scheduled one hour period.

His initial climb was normal and he proceeded to approximately 13,000 feet to check fuel balance and stall characteristics. He entered the pattern for his first landing at 1310 PDT entering on the downwind leg for a touch and go landing on Runway 06, North Edwards Air Force Base.

The turn to final approach was normal and when he had visual mirror indications, he reported his fuel as 299 gallons to the Landing Signal Officer. Approximately 3,000 feet from touch down point, the Landing Signal Officer told him he was slow and a power correction was made back to a normal approach. At the Landing Signal Officer's direction, the pilot cut his power and extended spoilers for landing. Just as the wheels were about to touch the runway, the left wing dipped sharply and dragged the runway for 50 feet. During this time the wheels were also on the runway and power was added for a go around. After take-off the pilot was advised to climb out to check the aircraft. He climbed to the North in a shallow climb. When 2.1 miles North of the North Base Tower, the aircraft entered a spin from low altitude and crashed, resulting in fatal injuries to the pilot who had ejected just prior to impact.

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AF Form 711 Item 11 SECRET

Investigation and Analysis

1. Impact Area:

The main impact area was established as being 2.1 miles North of the North Edwards Air Force Base Control Tower (See Attach. #1). The aircraft contacted the ground "right side up". There was evidence to support that it was spinning to the left at impact.

The fuselage section forward of the wing was completely gutted by fire. Both leading edges and portions of the wing where the fuel was located was also burned out by fire to various degrees. The aft fuselage was rotated to the right looking forward 90°. The fuselage severed just forward of the tail section by crushing and twisting type loads, probably on impact. The wings were pulled away from the fuselage at the root section.

The right hand dive flap was found broken off and the piston was extended. The left hand dive flap was fully extended on impact causing an indentation on the ground to indicate A/C rotation on impact.

The control cable disconnects and cables aft of Sta 555 were found to be installed in a satisfactory manner.

The engine was rotating at moderate speed as evidenced by the bending of the rotor blades. The EGT indicator showed a reading of 325° C. The fuel control lever arm was in the operating range somewhat ahead of idle.

Observations of left and right wing tips indicated symmetrical failure of the upper panels, apparent upload on contact. Rivets were pulled or popped on both left and right wing tips and loose rivet heads were found in the adjacent area. Closer scrutiny of the left hand wing tip and skid did not show any apparent damage which might be attributed to other than final impact loads.

The left hand aileron tab was near neutral and the landing flaps were in the faired configuration. The right hand aileron bend tab was deflected up from apparent impact loads. Left and right wing spoilers (carrier landings) were retracted and locked down. There was no evidence in any part of the wing of high flight loads.

The assembly was complete and portions of the control surfaces were dislodged or broken off on impact. The rudder bend tab was very near neutral or slightly bent to the left. There was no evidence of high flight loads or loading.

Elevator tab actuator was checked for extension in the shop and was found to be extended 5-1/4 inches. This amounts to 8° of nose-up trim at elevator neutral.

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The tail and main gear were up and locked. The main landing gear area was badly burned out.

Seat ejection appeared to operate in a normal manner. The canopy was found intact a few hundred feet away from the aircraft and it appeared that the right hand thruster showed more indentation on the thrust pad than the left. The carrying chain on the seat pack was found locked to the ejection D-ring wedges. Although this did not have any direct bearing on the final outcome since the pilot was disconnected from the seat pack, corrective action has been taken to remove the chain handle. There were no impact marks on any portion of the horizontal tail which could be attributed to canopy damage after the canopy jettisoned.

Portions of the flight instrument systems found in the wreckage were badly burned. Initial laboratory testing did not reveal any unusual conditions. All instruments, fuel, oil, hydraulic fluids, the engine fuel control and auto pilot are presently undergoing extensive laboratory testing. Upon receipt of detailed reports the Accident Board will be reconvened if data having a significant bearing on the accident is developed.

The seat and body were found approximately 108 feet from aircraft impact area. Both had struck the ground forcefully in left posteriolateral position in close proximity to each other. The pilot's body was found 11 feet from the seat and his parachute was in initial stage of deployment. Parachute deployment had been initiated by the automatic release; the zero delay lanyard was not attached to the parachute D-ring.

2. Flight Plan:

This mission was scheduled for one hour to accomplish simulated carrier mirror landings at North Edwards Air Force Base. The DD Form 1080, Local Flight Clearance was filed and the aircraft was to remain in the local North Base pattern after his initial climb to altitude to check stall characteristics.

3. Sequence of Events

During Mr. Edens' first MLP and shortly after the "cut 2" (extend spoilers), the left wing dropped rather sharply and the left wing skid hit the runway just before or at the same time as the main gear and dragged for approximately 50 feet along the ground before the pilot was able to lift the left wing. At the moment of touchdown the aircraft had also yawed to the left and continued to the left side of the runway. Power was applied very shortly after touchdown and the aircraft became airborne, wings level and heading slightly left of the runway before the intersection was reached. This point is exactly half-way down the runway. Power was reduced shortly after becoming airborne and remained consistent with that which would be used in a normal MLP pattern. There was no visible damage to the left wing tip skid. Upon turn out to the left, it appeared that the pilot was about to remain in the MLP pattern and was, therefore, not unduly concerned with the fact that the skid had hit the runway. He was then requested to depart the pattern to check the aircraft. He acknowledged this request and rolled the aircraft out on a northerly heading (about 90° turn to the left from the runway heading). Two witnesses stated

that power was applied after the 90° left turn but the Board considers that not much more, if any extra power was applied after this turn. Three witnesses were directly aft of the aircraft and saw black smoke from the exhaust but this would be much more evident from their locations even with a moderate power setting. The pilot continued to the north in a modest angle of climb and when last seen by an experienced witness was at about 2,500 feet. It appears to the Board that at this stage the pilot had not decided to climb up to altitude in order to check stall the aircraft again (the characteristics of which he already knew) but rather to climb up to an altitude at which he could ascertain that he had full aileron travel and that the left aileron travel had not been restricted in any way by the left wing tip skid contacting the runway. That he had adequate aileron control at fairly low speed was evidenced by the fact that he was able to raise the left wing while still on the ground and also by the fact that the left turn after take-off was normal when his airspeed was, in all probability, less than 100 k and finally by the fact that the pilot made no comment over the radio of any unusual control problem. The pilot's comment of "wow" shortly after becoming airborne is considered to have been a jocular comment adequately descriptive of the landing. Indeed, to make this transmission the pilot would have had to use one hand to put the mask to his face since the mask had been hanging free. This would also indicate no control problem. The flaps were seen to be in the process of retracting but not fully retracted at the time of turn out after the MLP. This again is normal practice when conducting closed pattern MLP's.

Of all the witnesses who state that they saw the moment of entry to the spin, only one states that the aircraft did anything except enter what appeared to be a left turn from a very slight climb or level flight and thence into a left spin. He stated that the aircraft first of all pitched up, then rolled partly one way, then the other way and continued into a spin in the last direction of roll. The Board considers that in all probability, the pilot was either about to, or in the process of checking the aileron controls at approximately 2,500 feet at a fairly low airspeed. It is considered that it was not the intention of the pilot to stall at this altitude since he well knew the characteristics of this aircraft at the stall, i.e., a fairly marked left wing drop and yaw to the left. For a reason not known to the Board, the aircraft stalled, either in one "G" flight or possibly accelerated flight due to a pitch up. Turbulence may have been a contributing factor but insufficient in itself to have caused the stall unless a transient turbulence phenomenon was encountered at that instant. The stall was immediately followed by a sharp left wing drop and a turn to the left which developed directly into a spin. The first turn of the spin appears to have been only slightly nose low but rapidly developed into a steeply nose low spin. Some three turns of the spin had been completed by the time the ejection sequence commenced at an estimated height of 300-400 feet. At or just before this point the aircraft appeared to flatten out to a degree and completed one further turn of the spin before striking the ground intact in a 30° nose low and 15° left wing low attitude. Explosion and fire was immediate upon impact. The pilot had barely separated from the ejection seat when he struck the ground and was killed instantly.

4. Other Factors

Pilot Individual Flight Record, AF Form 5 was maintained on Mr. Edens for informational purposes by the Unit. He had flown a total of 2916 hours, 1094 of which were in the U-2 aircraft. Normal Air

Force Manual 60-1 requirements and checks were required as a basis for proficiency for Mr. Edens. Training records revealed that he received an instrument check on 15 October 1964 in a T-33 aircraft. He received a proficiency check in the T-33 aircraft on 11 September 1964 and another on 11 March 1965. No flights were accomplished during January (TDY) and February (DNIF) 1965. He had 16 T-33 flights in March and one U-2 flight; eight T-33 flights and four U-2 flights in April prior to the accident.

3 T-33 on MAR FLT 1 each other flts.

The briefing for this flight was more extensive than normal. He received a general and specialized briefing at 1200 PDT, one hour before take-off. He was the Mobile Control Officer during a morning flight and had observed all landings. During the lunch period a detailed discussion of the first flight was accomplished between Mr. Barnes, the first mission pilot, and Mr. Edens. Also present were Colonel Gregory, Lt. Col. Van Cura, Lt. Col. McCarthy, and Lt. Kaup, the Landing Signal Officer. Mr. Barnes had encountered a left wing drop on his first touch down and used aileron and rudder corrections on the remainder of his landings to maintain level touchdown attitude. This was the main point of the discussion and it was the concensus that this tendency required re-evaluation by Mr. Edens during the initial stall check at altitude which precedes MLP landing practice. Colonel Gregory informed Mr. Edens that if any unsafe condition existed, the scheduled landing practice would not be performed.

The Board concluded that weather, with the possible exception of turbulence was not a factor in this accident. A U-2 pilot flying in the general area about 30 minutes after the accident reported light turbulence 12 miles southwest of the accident scene.

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Board Findings

Cause: Undetermined

Most Probable Cause: The aircraft entered a low altitude wing low stall while the pilot was flight checking aileron control. This resulted in a spin which he was unable to recover. Possible contributing factors are: unknown failure of an aircraft system component or turbulence.

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TO: Director, OSA 11 June 1965

FROM: Chief of Base, [redacted] 25X1

SUBJECT: Reviewal of Aircraft Accident Report, Article 382

1. I have reviewed the aircraft accident report on Article 382 and concur in the findings and recommendations. I consider the investigation and report to be thorough in scope and fair and impartial in its analysis.

2. In addition to the most probable cause listed in the report, there are other possible causes that could be considered; such as sudden "hard over condition" by the auto pilot, or inadvertent activation of the spoiler switch, which could have a tendency to induce a stall more quickly in a slow flying aircraft.

3. Action on recommendations is as follows:

a. Recommendation Number 1: KWBEIGE has designed retractable stall strips and the prototype model has been tested and considered satisfactory. This modification will be installed on all aircraft if approved by Headquarters.

b. Recommendation Number 2: This item is for action of KWBEIGE.

c. Recommendation Number 3: An altitude of between 15M and 20M has been established for performing stall checks.

d. Recommendation Number 4: An oxygen mask with an installed microphone will be worn on all flights when partial pressure suit and helmet is not worn.

e. Recommendation Number 5: A service bulletin is being written and kits are being prepared to eliminate this problem.

f. Recommendation Number 6: Concur in requirement for 4 sorties per month, per pilot, in the Article. However, this cannot be complied with until more articles are assigned. It is anticipated this will be accomplished in the near future.

g. Recommendation Number 7a: For action of Headquarters, KWBEIGE and [redacted] 25X1

h. Recommendation Number 7b: An automatic pilot seat separator is currently being investigated.

i. Recommendation Number 7c: The pilot is required to call in to Mobile Control prior to commencing stall checks to verify that low altitude lanyard is hooked up, in the event he fails to do so the Mobile Control is required to remind the pilot to hook up the lanyard prior to entering the landing pattern.

j. Recommendation Number 7d: All pilots have been reminded to keep flight suit pockets closed during flight.

k. Recommendation Number 7e: Pilots have been reindoctrinated on present escape limitations.

4. In addition to aforementioned actions taken, pilots have also been cautioned to make a special effort to avoid inadvertent actuation of spoilers when system is armed during MLP or carrier work. Also, in case of uncontrolled flight, to bail out at the safest altitude possible.

5. I wish to commend Col Alfred K. Patterson and his board for the very thorough and exhaustive investigation which was accomplished.

[redacted]

25X1

Commander

Recommendations

The Board recommends that:

1. Action be taken to configure the aircraft to provide improved stall characteristics. (symmetrical wing stall)

2. Fuel tanking be arranged to prevent fuel "stacking" in yaw and that a valve be provided in the fuel transfer line to prevent cross flow when the pump is not operating.

3. An altitude be established for control and trim checks that will assure safe ejection should an uncontrollable situation be encountered. Adherence should be mandatory except where specifically waived by the Commander.

4. The use of a "hands off" microphone capability be made mandatory on all flights.

5. Projections behind the circuit breaker panel (post lights) be eliminated to prevent possible fouling of equipment or clothing.

6. While not considered a factor in this accident, it is noted that pilots of this organization average only two flights per month due to lack of availability of aircraft. It is recommended that sufficient aircraft be made available to provide 4 flights per pilot per month.

7. Life Survival

   a. U-2 aircraft should be provided with an improved low altitude escape capability.

   b. The ejection seat should be quipped with an automatic pilot-seat separator.

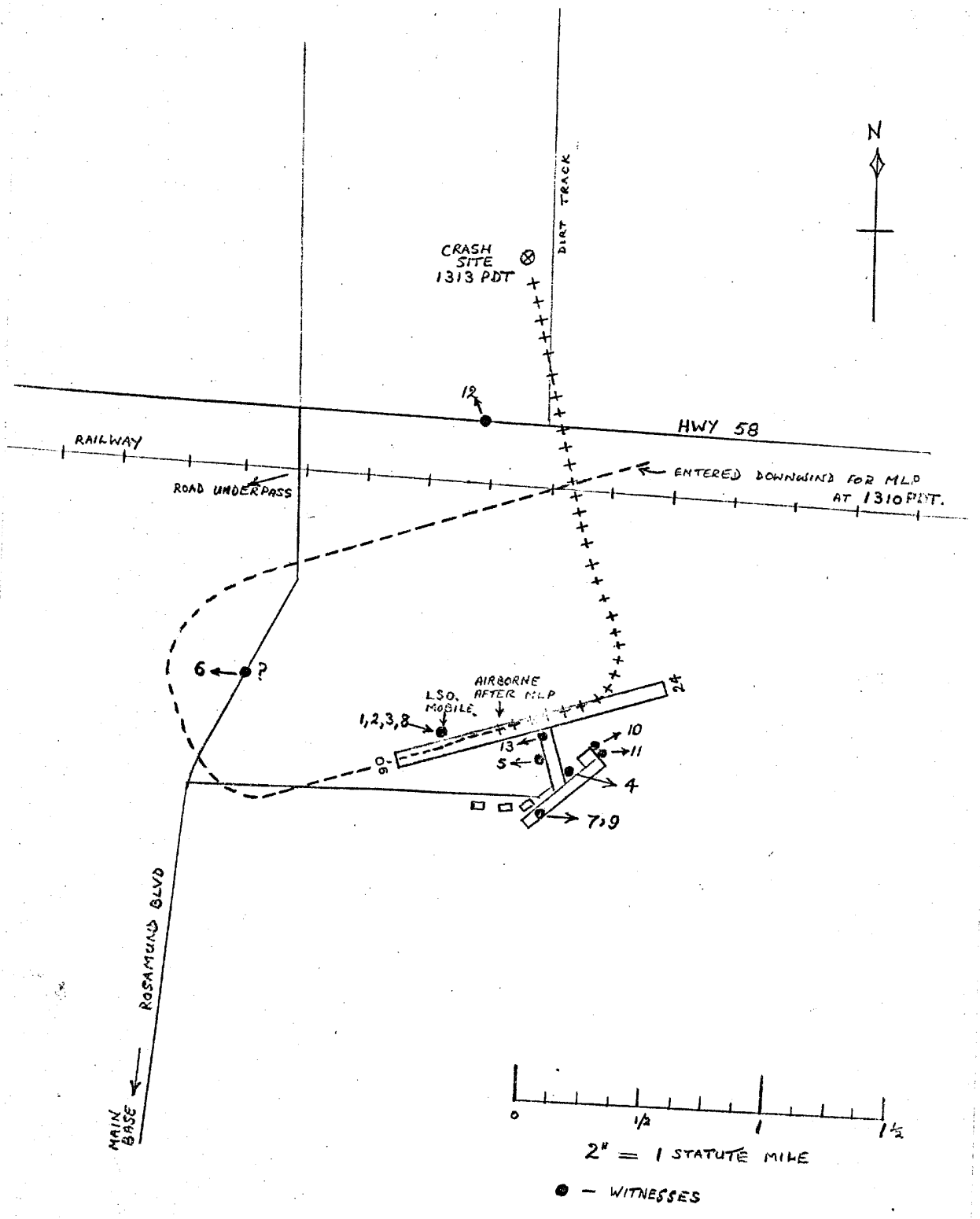
   c. A procedure of assuring low altitude attachment of the Zero-delay lanyard should be established.

   d. Pilots should fly with flight suit pockets closed.

   e. Pilots should be re-indoctrinated on present escape limitations.

SECRET

ITEM 11 ATTACHMENT 1



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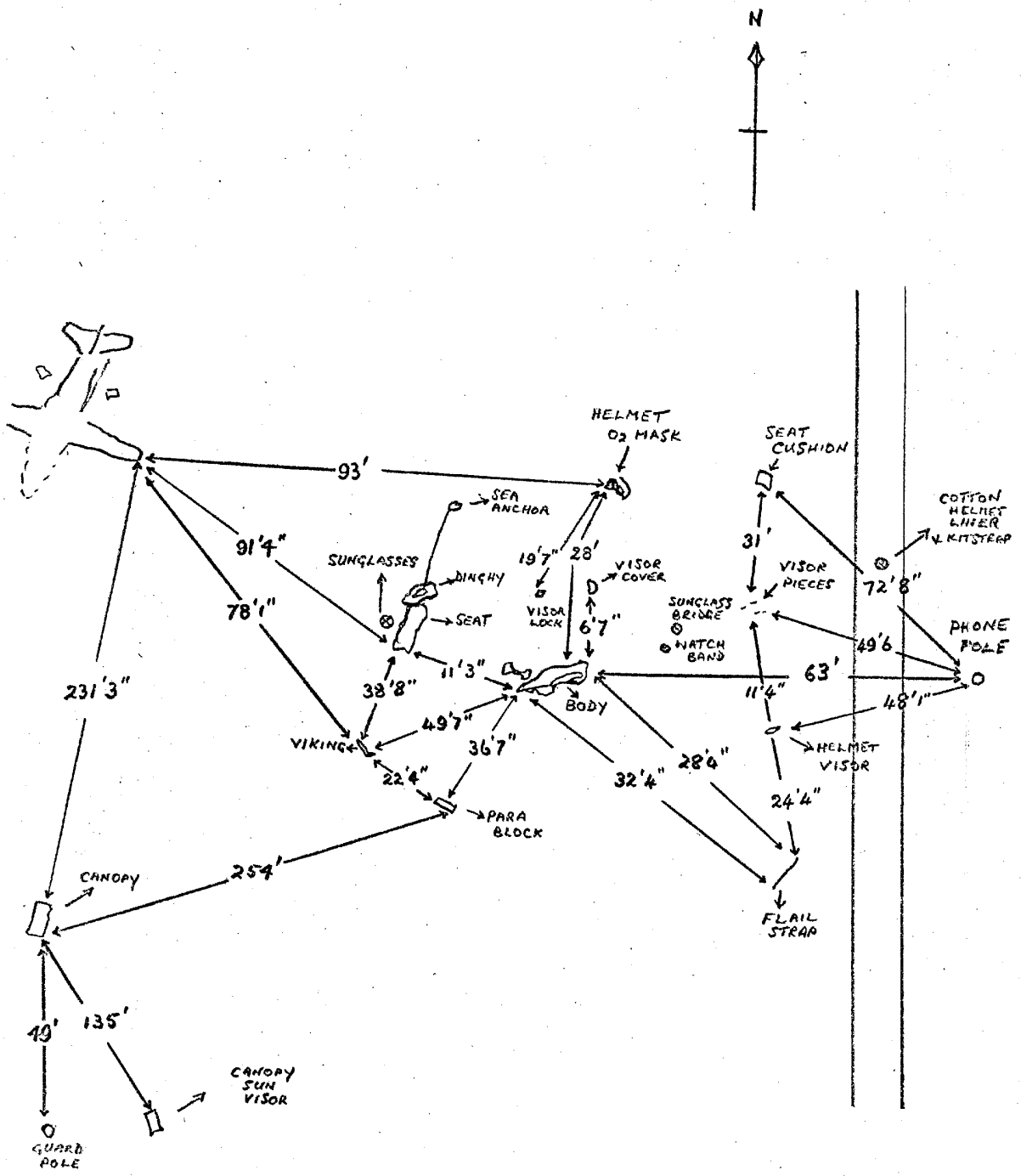
ITEM 11 ATTACHMENT 2.

SECRET



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20. FLYING EXPERIENCE *(Attach copy of AF Form 5 for Pilot(s) involved as outlined in AFR 127-4.)*

ASSIGNED DUTY ON FLIGHT ORDERS: *(Give last names only. List all flight times to nearest hour.)*	Pilot	Co-Pilot	Inst. Pilot	Acft. Cmdr.	Student Pilot
	Edens				
a. Total flying hours *(Including AF time, student and other accredited time)*:	2916				
b. Total Jet Time:	2544				
c. Total 1st Pilot/IP hours, all Aircraft:	2572				
d. Total Weather Instrument Hours:	144				
e. Total 1st Pilot/IP hours this Model:	1094				
f. Total 1st Pilot/IP hours last 90 Days:	68				
g. Total 1st Pilot/IP hours last 90 Days this Model:	23				
h. Total 1st Pilot/IP hours weather and hood last 90 Days:	12				
i. Total Pilot hours night last 90 Days:	3				
j. Total Pilot hours last 30 Days:	37				
k. Total 1st Pilot/IP hours last 30 Days:	37				
l. Total 1st Pilot/IP hours last 30 Days this Model:	19				
m. Date and Duration last previous flight this Model: 22 Apr 65	4				
n. Date of last proficiency flight check:	11 Mar 65				

21. CAUSATIVE AGENCY

Cause Factors *(Check one primary and all applicable contributing and probable factors.)*

	Primary	Contributing	Probable
Operators			
Pilot			
Co-Pilot			
Controller (Drones)			
Crewmembers *(Other than Operator)* *(Specify)*			
Supervisory Personnel *(Specify)*			
Maintenance Personnel Type of pers. and orgn. level			
Other Personnel *(Specify)*			
Materiel Failure or Malfunction			
Engines			
Airframe			
Landing Gear			
Other *(Specify)*			
Airbase or Airways			
Weather			
Misc. Unsafe Conditions *(Specify)*			

Undetermined [X]

22. DAMAGE

Damage to Aircraft	Damage Beyond Economical Repair	Manhours to Repair	Cost *(Est.)*
[X] Destroyed [ ] Substantial [ ] Minor [ ] None	[X] Yes [ ] No	N/A	$ N/A

Description of Damage *(Describe briefly extent of damage to aircraft and any property damage incurred)*

Aircraft was damaged beyond repair. The ground impact ruptured fuel cells and fire burned fuselage forward of the wings. Slight burning of sage brush and desert was the only property damage incurred.

23. AUTHENTICATION *(Signature and grade)*

President [redacted]
ALFRED K. PATTERSON, LT COL

Maint [redacted]
PETER J. MC CARTHY, LT COL

[redacted] 25X1
RONALD L. MC GOWAN, CAPT

25X1

AACS Representative
N/A

AWS Representative
[redacted] 25X1

[redacted]

Re[redacted]
ARTHUR T. VAN CURA, LT COL

AF FORM DEC 62 711b

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AIRCRAFT ACCIDENT/INCIDENT REPORT

To be filled out for principal aircraft involved. *(Appropriate blocks only should be filled out on secondary aircraft.)*

1. ACCIDENT/INCIDENT CLASSIFICATION *(Check one)*

Flight Accident Resulting in Aircraft Damage — Major [X] Minor [ ]
Accident Not Resulting in Aircraft Damage [ ]
Aircraft Non-flight Accident [ ]
Air Force Aircraft Incident [ ]

2. Aircraft/Serial Number	3. Type, Model, Series, Block No.	4. Assignment/Status Code (AFM 65-110)
N804X (382)	U-2G	N/A

5. If aircraft was being ferried or delivered indicate gaining and losing organizations, date of transfer, ultimate destination.

N/A

6. CLEARANCE: From N/A To _____ To _____

7. Filed: VFR _____ VFR— ON TOP _____ IFR _____ Local X Other _____ Direct _____ Airways _____ (Controlled) _____

8. Flight reference at time of accident	9. Duration of Flight		10. Mission of flight
	Hrs.	Mins.	
Contact X Instrument Actual _____ Sim. _____ Other _____ Unk. _____	00	13	S-8

11. ALTITUDE DATA	Cleared Alt. MSL	Altitude above terrain acdt sequence began	Altitude MSL impact point	Highest altitude MSL flown	Time flown highest alt.
	N/A Ft.	Est 2500 Ft.	2320 Ft.	Est 13000 Ft.	Hrs. 0 Min. 07

12. Fire and explosion data

a. Fire: None ___ Inflight ___ Ground X
Result of grd. impact? Yes X No ___

b. Explosion: None ___ Inflight ___ Ground X
Result of grd. impact? Yes X No ___

13. Airfield data: Applicable to takeoff and landing accidents occurring within 2 miles of airfield

Field elevation in use _____ Ft.
Length of runway in use _____ Ft.
Length of overrun _____ Ft.
Distance of touchdown from runway _____ Ft.
Heading of runway _____ °
Composition of rnwy. Asphalt ___ Concrete ___
Other *(Specify)* _____
Composition of overrun *(Specify)* _____
Surface condition. Dry ___ Wet ___ Icy ___
Other *(Specify)* _____

Conditions affecting occurrence; e.g., type of instrument or lighting approach aid used, obstructions, barrier, airspeed, gross weight, forced landing.
N/A

14. *(If answer is "Yes," to either question, discuss under item 11, AF Form 711)*
Violations [ ] Yes [X] No Breaches of air discipline [ ] Yes [ ] No

15. PHASE OF OPERATION: e.g. take off roll, initial climb, normal flight, acrobatics, landing approach, flareout
Climb after touch and go to recheck control

16. TYPE OF ACCIDENT: e.g. gear-up landing, mid-air collision, abandoned aircraft, fire or explosion in flight, undershoot, overshoot
Spin at low altitude

17. WEATHER AT TIME AND PLACE OF ACCIDENT: *(If a factor in the accident, attach statement of weather officer)*

Sky conditions	Visibility	Wind direction and velocity	Temperature	Dew point	Alt. setting	Other weather conditions
High Thin Broken	85 mi	NE 6 Kts	80F	28F	29.95	NONE

PILOT(S) INVOLVED (FLIGHT CREW)

18. OPERATOR *(Person at controls at time of accident)* a. LAST NAME *(Jr., II, etc.)* FIRST NAME MIDDLE NAME	GRADE	COMPONENT	SERVICE NUMBER	NATIONALITY	YR. OF BIRTH
Edens, Buster Eugene	Civ	N/A	N/A	U. S.	1930

b. POSITION IN AIRCRAFT AT TIME OF ACCIDENT: Single Front or Left Seat X Rear or Right Seat _____
c. ASSIGNED DUTY ON FLIGHT ORDER: AC _____ IP _____ P X CP _____ Other *(Specify)* _____

d. ASSIGNED ORGANIZATION

Major Command	Subcommand or AF	Air Division	Wing	Group	Squadron or Unit	Base
N/A	N/A	N/A	N/A	N/A	WRSP-IV	North Base Edwards AFB, Calif.

e. ATTACHED ORGANIZATION FOR FLYING

Major Command	Subcommand or AF	Air Division	Wing	Group	Squadron or Unit	Base
N/A	N/A	N/A	N/A	N/A	N/A	N/A

f. ORIGINAL AERONAUTICAL RATING AND DATE RECEIVED: Pilot 13 May 1952
g. PRESENT AERONAUTICAL RATING AND DATE RECEIVED: FAA Commercial Pilot 4/30/62
h. INSTRUMENT CARD Type FAA Date of expiration INDEF
i. AFSC Primary N/A Duty _____

19. OTHER PILOT a. LAST NAME *(Jr., II, etc.)* FIRST NAME MIDDLE NAME	GRADE	COMPONENT	SERVICE NUMBER	NATIONALITY	YR. OF BIRTH

b. POSITION IN AIRCRAFT AT TIME OF ACCIDENT: Front or Left Seat ___ Rear or Right Seat ___ Other ___
c. ASSIGNED DUTY ON FLIGHT ORDER: AC ___ IP ___ P ___ CP ___ Other *(Specify)* ___

d. ASSIGNED ORGANIZATION

Major Command	Subcommand or AF	Air Division	Wing	Group	Squadron or Unit	Base

e. ATTACHED ORGANIZATION FOR FLYING

Major Command	Subcommand or AF	Air Division	Wing	Group	Squadron or Unit	Base

f. ORIGINAL AERONAUTICAL RATING
g. PRESENT AERONAUTICAL RATING
h. INSTRUMENT CARD Type ___ Date of expiration ___
i. AFSC Primary ___ Duty ___

NOTE: IF MORE THAN TWO PILOTS ARE INVOLVED (FLIGHT CREW) REPORT SAME INFORMATION REQUIRED ON ADDITIONAL SHEET FOR EACH.

AF FORM 711b DEC 62 PREVIOUS EDITION OF THIS FORM IS OBSOLETE.

SECRET

TAB

AIRCRAFT MAINTENANCE/MATERIEL REPORT

Use this form when AF aircraft accident/incident involves inadequacy, malfunction or failure of AF materiel.

1. AIRCRAFT TM & SERIAL NUMBER	2. SPECIAL REPORTS DATA	
	a. Were Previous UR's Submitted on Factor(s) Involved? ☐ Yes ☒ No	b. No. and Date of UR's Submitted as Result of This Accident *(Attach copy)*
N 804X (382)		N/A
	c. Is TDR Requested? ☐ Yes ☒ No	d. No. of T.O.'s Not Complied With at Time of Accident *(List T.O. Nos. and titles on separate sheet(s)—Tab K)*
		10

3. AIRCRAFT HISTORICAL DATA

Item	Aircraft	Part, Component or Accessory
Identification of Aircraft/Part, etc.	U-2G-ILO	
Air Force Acceptance Date	10 SEP 57	
Total Flight Hours	3361.4	
Last Overhaul Date	24 JUN 64	
Overhauling Activity *(Name and location)*	L.C.C. VAN NUYS, CALIF.	
Hours Since Overhaul	88.7	
Hours Since Last Periodic Inspection	71.3	
Date of Last Periodic Inspection	16 FEB 65	
Type of Last Periodic Inspection	CONVERSION & P.E.	

4. ENGINE HISTORICAL DATA

(Complete a separate column for each engine involved. Also, complete a separate column for each power plant component involved.)

Installed Position	ONE			
Engine Model and Series	J75P13			
Engine Serial Number	P-610939			
Total Engine Hours	645.5			
Number of Major Overhauls	ONE			
Hours Since Last Major Overhaul	73.5			
Date of Last Overhaul	4 DEC 64 (P-13 CONVERSION)			
Overhaul Activity	P&W ACFT SOUTHINGTON, CONN.			
Date Last Installed	7 APRIL 65			
Hours Since Last Installed	17.9			
Date of Last Periodic Inspection	6 FEB 62 (PRIOR TO P13 CONVERSION)			
Type of Last Periodic Inspection	P.E. & HOT SECTION			
Fuel *(Type and octane rating)*	JTPS MIL-P-25526			

5. FIRE DATA

(To be completed when fire or chemical explosion occurs, not resulting from ground impact. Indicate: P—Probable or K—Known, in squares below.)

a. MATERIEL FAILURE CAUSING THE FIRE				b. IGNITION SOURCE				c. COMBUSTIBLE MATERIAL			
Electrical System		Propulsion System		Electrical System		Static Electricity/ Lightning		Cargo		Hydraulic Fluid	
Fuel System		Other *(Specify)*		Pneumatic System		Other *(Specify)*		Electrical Insulation		Lubricating Oil	
Hydraulic System				Propulsion System				Explosives		Other *(Specify)*	
Pneumatic System		Unknown				Unknown		Fuel		Unknown	

d. AIRCRAFT FIRE EXTINGUISHING SYSTEM						e. FIRE/OVERHEAT WARNING		
	Fixed	Portable		Fixed	Portable		Fire Detector	Overheat Indicator
Extinguished Fire			Not Activated and Not Near Fire			Operated Properly		
Reduced Fire			If Discharged, Chemical Used			Not Operated, but Near Fire		
No Effect When Discharged			If Discharged, Amount of Chemical Used			Not Operated and Not Near Fire		
Activated but Did Not Discharge			Other Pertinent Info.			Not Installed		
Not Activated but Near Fire						Other *(Specify)*		

f.	SHUT OFF PROCEDURE	RESULTS OF ALLOWING FIRE TO BURN OUT	g. EFFECT OF FIRE	MARK ONE
Extinguished Fire			Catastrophic	
Reduced Fire			Increased Severity of Mishap	
No Effect			No Change in Severity of Mishap	
Not Accomplished			Unknown	
Unknown				

AF FORM 711

6. LOCATION OF INITIAL FIRE

	Known	Probable		Known	Probable		Known	Probable
Baggage Compartment			Aft of Firewall			Wheel Well		
Bomb Bay			Forward of Firewall			Cargo-Passenger Compartment		
Cockpit/Crew Quarters			Rocket Pod			Other (Specify)		
Engine Section			Tire/Wheel/Brake			Unknown ☐		

7. MISCELLANEOUS CHEMICAL EXPLOSION DATA

	Known	Probable		Known	Probable
Initial Ignition Occurred in an Explosive Manner Prior to Ground Impact.			Intensity of Explosion Was Sufficient To Cause or Appreciably Contribute to In-Flight Airframe Break-Up.		
Explosion Occurred After Fire and Before Ground Impact.			Other Significant Data (Specify)		
Explosion Occurred Subsequent to Ground Impact.			Unknown or Not Available.		

8. AIRCRAFT MAINTENANCE OFFICER'S ANALYSIS AND SPECIFIC ACTION TAKEN

Describe difficulties involved and relationship of the various components to the accident. Describe specific action taken. For Fire Data describe the fire and/or chemical explosion. Cover in detail any noted deficiencies, malfunctions of fire detecting and extinguishing equipment, or questionable procedures. When discussing specific equipment, give the name of manufacturer, part numbers, etc., and state whether or not a UR has been submitted. Include any additional information or opinion of possible value to future technical analysis of this report.

AIRCRAFT WAS SERVICED AND INSPECTED IN COMPLIANCE WITH CURRENT POST AND PREFLIGHT INSPECTION CHARTS AND RELEASED FOR FIRST FLIGHT AS SCHEDULED. TWO MINOR DISCREPANCIES WERE NOTED BY PILOT AFTER LANDING: (1) GEAR UNSAFE LIGHT ON WITH GEAR APPARENTLY UP AND LOCKED. (2) SEXTANT AVERAGER MIRROR OFF. AIRCRAFT WAS RESERVICED AND "TURN-AROUND" INSPECTIONS WERE PERFORMED BY CREW MEMBERS PRIOR TO SCHEDULED SECOND FLIGHT. NO ABNORMAL CONDITIONS WERE OBSERVED AND AIRCRAFT WAS CONSIDERED OPERATIONALLY RMADY FOR SECOND FLIGHT. TAKE-OFF AND CLIMB APPEARED NORMAL.

VISUAL EXAMINATION OF WRECKAGE AT IMPACT SITE AND AT INVESTIGATION AREA REVEALED NO APPARENT DISCREPANCIES WHICH MIGHT HAVE BEEN A CONTRIBUTING FACTOR TO THE ACCIDENT.

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The following personnel comprised the Engineering Investigation Team:

Lt. Colonel Peter J. McCarthy

[redacted] 25X1

Laboratory assistance for detailed examination of the auto pilot, instruments, fuel, oil and hydraulic fluid samples and the fuel oil cooler was obtained from LAC, Van Nuys. The engine fuel control has been shipped to Pratt & Whitney, Hartford, Connecticut, for teardown.

Report of Aircraft Maintenance Records

1. In addition to the information contained in Part 3 and 4 of AF Form 711C the following information was determined by a review of the Aircraft Maintenance and Inspection Records:

a. The following Service Bulletins had not been complied with prior to the accident:

(1) 884 - H.F. Sel-Cal Installation.

(2) 906 - Defrost Bracket Modification.

(3) 908 - Oscar Sierra Installation.

(4) 909 - Delta System Circuit Breaker Relocation.

(5) 912 - Installation - Low Pressure Oxygen Gauge.

(6) 914 - Re-Installation System 12 and 13 Interlock.

(7) 915 - Relocation of Fire Warning Lights.

(8) 918- AFSC Pitch Auto Pilot Trim Speed Increase.

(9) 922 - Sextant Bubble Access Door.

(10) 932 - Addition of B/W Identification Switch.

The non-compliance of the above Service Bulletins is not considered a contributing factor to the accident.

2. The following aircraft maintenance discrepancies were recorded in the 781A since receipt of the aircraft on 19 April to date of crash

(1) 19 Apr 65 - Sextant filter and pull knobs transposed-Webster.

C/A - 20 Apr 65 - Changed knobs - Brundage.

(2) 19 Apr 65 - Sextant presentation slips back down when pull knob is released - Webster.

C/A - 20 Apr 65 - Adjusted mirror - Brundage

(3) 19 Apr 65 - J-8 processes too much - Webster.

C/A - 20 Apr 65 - Replaced gyro horizen serial no. in AF52-6994P serial no. out AF50-222M- Ward.

(4) 19 Apr 65 - Tail gear takes too long to lock down using emergency lowering - Webster.

C/A - 20 Apr 65 - Lube tail gear fittings - Ward.

(5) 19 Apr 65 - Right rudder (left tab) needed to trim - Webster.

C/A - 20 Apr 65 - Bent trim tab 1/16 left - Ward.

(6) 21 Apr 65 - Radio trans garbled according to ground actions (UHF) - Baker.

C/A - 21 Apr 65 - Replaced ARC-34 UHF -transceiver - Humphreys.

(7) 22 Apr 65 - Emergency lowering of gear tail wheel would not lock down when using emergency - Dodd.

C/A - Open - Aircraft was considered safe for flight in that this malfunction occurred only after cold soaking. Aircraft is not exposed to cold soaking during MLP type flights.

(8) 26 Apr 65 - Gear unsafe light on with gear apparently up and locked - Barnes.

C/A - Open

(9) 26 Apr 65 - Sextant averager mirror off - Barnes.

C/A - Open

2. In summary the information contained in the Aircraft Maintenance form indicates no contributing cause factor.

25X1

PETER J. MCCARTHY
Lt. Colonel, USAF

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Engine Investigation Report

Engine Model: J75 - P13

Serial Number: P 610939

Last Overhaul: 04 - 12 - 64

Total Time: 645.5

Time Since Overhaul: 73.5

Investigation and inspection of the engine and associated equipment shows that it was operating at a setting somewhere above idle at the time of impact. This was determined by the following:

Engine: The low compressor blades that can be seen are bent the opposite direction of rotation.

About a quarter of the third stage turbine blades are bent the opposite direction of rotation. This was caused by the entry (at impact) of a Pt7 probe into the rotating path of the third stage turbine assembly.

Engine Instruments: The only engine instrument found from which a reading could be obtained was the EGT gage and it showed 325 degrees Centigrade. This reading indicates an RPM above idle.

Fuel Control: The plate on the fuel control was in the full open position (against the maximum power stop). However, markings on the fuel control body show that the fuel control was in approximately the Idle setting upon impact and that the plate moved to the maximum power position after the crash.

Oil System: The N2 gear box and most of the oil system plumbing were completely destroyed upon impact. However, both sections of the oil filter were found. There was no contamination in the filter. Varnish deposits left in these components indicated the presence of oil in the system at impact.

Fuel System: All of the fuel system accessories were badly damaged and burned. Inspection of the screens in the fuel control, P & D valve and the fuel pump showed no contamination.

Article: The throttle when found at the scene of the crash was approximately three quarters of an inch above the Idle detent.

Summation: All of the damage to the engine occurred at the time of impact. The entire Turbine Section is intact, with the exception of three broken third stage turbine blades. These blades were broken either by the impact or by the entry of the Pt7 probe into the rotating blades. Inspection revealed no shingling of the first or third stage turbine blades.

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STRUCTURE INVESTIGATION REPORT

Detail examination of the remaining A/C structure at the crash site and at WRSP IV showed the following summary findings:

1. There was no sign of high flight loadings on either wing or tail surfaces.

2. The A/C was a complete article including all control surfaces, Primary and secondary structure at impact.

3. There was no evidence of in-flight fire. Ground fire completely gutted the fuselage from the wings forward. Ground fire also destroyed those portions of the wing where fuel was present.

4. Structural failure of either primary or secondary structure did not occur in flight.

Results of detail examinations are as follows:

L.H. Wing

1. Flaps, aileron, L.H. movable tab, and upper and lower wing skins were closely examined. Other than final impact loads there was no compression, tension, shear or buckling type loads present.

2. The L.H. tip was closely examined to determine if the first M.L.P. landing wherein the L.H. tip skid contacted the runway had caused undue stress or reorientation with respect to the normal position. None was found other than impact loads which popped rivets and which were very similar to the condition of the R.H, tip. Popped rivet heads were found at the crash site in the immediate vicinity of the L.H. tip. Only slight buckling occurred to the L.H. tip skid structure due to the impact up load which was not of sufficient magnitude if it had occurred on the first M.L.P. to impair operation of the L.H. aileron counterbalance and aileron operation.

3. Spoiler structure ("G" configuration) was intact.

R.H. Wing

1. Flap, aileron and upper and lower wing skins were closely examined. Other than final impact loads,there was no compression, tension, shear or buckling type loads present.

2. The R.H. wing tip and skid structure suffered more impact damage due to the rotation of the article to the right after initial impact.

3. Spoiler structure ("G" configuration) was intact.

Forward Fuselage

1. Completely gutted by ground fire.

Aft Fuselage

1. The aft fuselage was found rotated to the right looking forward approximately 70°. It is believed that the A/C contacted the ground L. wing and nose down and then rolled from left to right. The tail

section also pitched forward severely and the fuselage just ahead of the tail section was completely severed by crushing and twisting loads.

2. The aft fuselage inspection did not reveal any discrepancies which might be attributable to flight failure.

Dive Flaps

1. The R.H. dive flap was found fully extended with primary structure intact. The skin was burned away from ground fire.

2. The L.H. dive flap was found broken off at the trunnions with the position extended in the immediate vicinity of the fuselage.

Tail Section

1. The assembly was complete and portions of the control surfaces were dislodged or broken off on impact.

2. There was no evidence of high flight loads or loading. The tail surfaces, in fact, were in excellent condition prior to impact.

3. Both L/R horizontal tail splices located at the lower forward inboard spar attachment whose integrity was questioned on a previous accident were found to be in a completely satisfactory condition.

4. The L.H. horizontal tail leading edge and main section was badly damaged when the whole tail assembly pitched forward. The L.E. had a crush line which is in line with the fuselage crush line just ahead of the tail section. The upper and lower skins not affected by these loads was found in good condition.

5. The vertical fin leading edge and the left and right vertical fin skins were found in excellent condition and showed no evidence of high tail loadings.

6. The rudder was loaded down on initial impact to bend all hinge fittings down and then the hinge pins freed themselves when the tail pitched forward to dislodge the rudder. The rudder was in near vertical position being still attached at the rudder torque tube.

7. The L.H. elevator failed at impact at the #2 hinge from the tip.

8. The R.H. elevator complete was found a few feet from the horizontal tail having been dislodged from all hinge pins and failed at the inboard torque tube end during final impact.

CONTROLS INVESTIGATION REPORT

Detail examination of all control systems remaining after final impact and fire damage showed the following summary findings:

1. The aircraft was a complete article on impact including all control surfaces, tabs, dive brakes, wing spoilers, landing gear, etc.

2. No evidence could be found to indicate that primary controls were not functioning in a normal manner prior to impact.

3. No evidence could be found to indicate that secondary type controls such as landing gear, wing spoilers, dive flaps, tabs, etc., were not functioning in a normal manner prior to impact.

4. As a result of detail examination, positive evidence was found to establish the configuration of the aircraft at impact for the following items.

   A. Main landing gear - up.

   B. Tail landing gear - up.

   C. Dive flaps - extended.

   D. Landing flaps - faired.

   E. Wing Spoilers - retracted and locked.

   F. Ailerons - not shifted to gust.

   G. Aileron tab - neutral.
   H. Elevator tab - 8^{o} nose up trim.

   I. Rudder bend tab - 1/8" bend left.

   J. Sticksnatcher - stowed (as a result of seat ejection sequence.)

   K. Engine - in operating condition.

   L. Drag chute - not installed.

Results of detail examinations are as follows:

Aileron Controls.

1. The stick cables and chain (sprocket) were found in satisfactory condition.

2. The control wheel was broken at the base of the L.H. grip from an aft acting load.

3. The fuselage cables were destroyed in the ground fire.

4. The aileron gust shift activation was found in the aileron faired configuration.

5. The left and right wing aileron cables, crank arm, push rod and attachments were found in satisfactory condition.

6. The L.H. wing tip and aileron counter balance were examined very closely and no sign of binding or hang up were present.

7. The R.H. wing up and aileron counter balance also show no sign of binding or hang up.

8. The aileron surfaces themselves were in satisfactory condition except for impact damage.

9. The L.H. aileron movable tab was in the faired configuration.

10. The R.H. aileron bend tab was bent up from impact loads.

Elevator Controls

1. The elevator push rod and heel ramps in cockpit area were demolished by impact damage.

2. The control cables in the mid fuselage area were demolished by fire.

3. The control cables, pulleys, and disconnects in the aft fuselage were in satisfactory condition.

4. The bellcrank forward of the tail section failed against the tailpipe putting a hole in it when the tail pitched forward.

5. The aft push rod in the verticle fin area was in good condition.

6. The torque armand torque tube assembly were free and in good condition.

7. The elevators were in good shape except for impact damage.

8. The elevator trim tab angle as determined by activation shaft position was approximately 8°nose up at elevator neutral. (Normal for flight)

Rudder Controls

1. The rudder pedals, hanger assemblies, torque arms and walking beam assembly were demolished by ground fire.

2. The cables and brackets in the mid fuselage were demolished by ground fire.

3. The aft fuselage cables and brackets were found to be in satisfactory condition.

4. The rudder torque arm, cable connections to it, and pivot were all in satisfactory condition.

5. The rudder surface was in good condition except for impact damage.

6. The rudder bend tab was approximately 1/8" to the left.

7. Peculiar rudder stop marks were found on L/R stops. Insofar as they appear to scribe a small arc in lieu of a normally expected dot or spot. Reason for this peculiarity has not been resolved at this time.

Wing Flaps

1. Activators for both left and right wing flaps were found to be in the faired position and were symmetrical. The flaps were not in the gust configuration.

Dive Flaps

1. The dive flaps were in the extended configuration.

Landing Gear Controls

1. The emergency gear control handle was found not pulled.

2. The landing gear handle was in the up position and did not appear to be impacted to this position.

Main Landing Gear

1. Uplock hook found in uplock position.

2. Uplock actuator found with piston extended 1"(center line hole to face of actuator). This is normal for gear up.

3. Drag strut found in gear up position.

4. 160^{o} of R MLG wheel & tire not burned. Must have been protected from fire by sand or debris.

5. L. MLG tire and wheel completely burned away.

6. Strut extension measured 1' - 2" from wheel axle center line to face of strut housing. This is normal for gear up. Strut bowed down from impact loads and bottom part of retainers pulled forward top part of retainers in position.

7. MLG actuator cylinder piston was not found and Rod end attached to drag link and rod end housing attachment to piston shaft broken at threaded portion (end of rod end).

8. Gear was not carried aft and found facing normal forward position.

9. R.H. sway brace partly failed in severe bending and then failed completely in tension.

Tail Gear

1. Tail gear steering crank free indicating tail gear up and locked.

2. Tail gear steering cables inspected. L.H. and R.H. cables had typical tension failure impact loads.

3. L.H. pulley which starts run to overhead showed signs of binding on pulley flange which is broken off. This should have no bearing on accident with gear up. With gear down rub was not of sufficient magnitude to provide high forces thereby preventing rudder operation. The cable at this point was riding in the cable groove protected by the two guide pins at the end of the cable wrap. L. & R. pulleys were free running. Rub and flange breaking could also be due to station 555 removal procedures.

4. Tail gear steering cables inside of doghouse all in normal condition.

5. Tail gear in wheel well with doors closed on final impact. Impact caused load which moved actuator crank away and to the left of the up stop and emergency release arm.

Stick-Snatcher

1. The stick snatcher assembly was found in the stick stowed configuration. The L.H. elevator was found jammed in almost the full elevator down position, just barely off the stops. These effects are the result of normal seat ejection sequence.

Wing Spoilers

1. Both wing spoilers were found in the retracted and locked configuration which is normal for faired landing flat and also for gust flap position when selected.

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Report of Electrical, Instrument, Air Conditioning and Fuel Group

1. All electrical components recovered were examined by this group and found to be operable and not a cause factor.

2. The following instruments were recovered with readings as indicated at time of impact:

   a. Altimeter MB-2 (Cabin) - 2,438 feet.

   b. EGT Indicator - 300° C.

   c. All instruments will be examined and analysed by qualified personnel to insure there were no indications of a cause factor.

   d. The airspeed system was completely pre-flighted with a roll pump prior to the day's mission. This check firmly establishes that the system was accurate and operable prior to flight. Examination of the airspeed system components after the impact indicates the system functioned properly.

3. All air conditioning components recovered indicated no malfunction in this area.

4. All fuel systems components recovered were examined with no indications of malfunction or contributing to the accident. Fuel system components were recovered as indicated:

   a. Suction relief valves (Right and Left) - both operable.

   b. Wing fuel lines and valves - intact and operable except where destroyed by impact.

   c. Fuel dump valves - closed.

   d. Sump tank assembly (Right and Left) - destroyed by fire.

   e. Auxiliary boost pump - clean.

   f. Strainer (200 mesh) - clean.

   g. All check valves down stream of sump tanks - clean.

   h. Fuel boost pump - clean.

   i. Fuel-oil cooler - Contaminated with bronze powder - found to be result of impact and heat destruction of thermostat in fuel side of the assembly.

   j. Strainer (60 mesh) - contaminated with bronze powder from thermostat in fuel-oil cooler - result of impact and final position of aircraft. (Strainer is connected directly to fuel-oil cooler - fuel flowed into strainer after impact).

   k. Engine fuel pump and strainer - clean and operable.

1. Engine fuel control screen - clean.

5. The analysis of the fuel, engine oil and hydraulic fluid indicates no contributing factors.

6. In summary, all components and equipment examined by this group indicates no cause factor present that could have contributed to the accident.

Explosion and Fire Pattern Analysis

1. Evidence indicates that there was no fire prior to impact. The ejected seat, pilot's clothing, and canopy show no signs of cockpit fire.

2. Fire appeared to have started in fuselage mid-section after impact ruptured sump tank and associated plumbing or from oxygen system ruptures in LH cheek area.

3. The spread to wing fuel tanks with resultant explosions and burning of fuel charred all of wing area in vicinity of fuel tanks.

4. Equipment bay burned severely and fire believed to have been fed by leaking fuel and oxygen.

5. Cockpit fire damage extensive to all instruments, consoles, floor, controls, etc.

6. Magnesium wheel fire tended to concentrate, fire in cockpit, "Q" bay area where fuel was present from ruptured sump tanks and lines.

TAB

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LIFE SCIENCES REPORT OF AN INDIVIDUAL INVOLVED IN AN AF ACCIDENT/INCIDENT
SECTION A. AIRCRAFT ACCIDENT/INCIDENT

1 GENERAL

a. Name, Grade, Serial No.	b. Assigned Base and Command	c. Aircraft Type, Model, Series (as applicable)
Buster Eugene Edens, Civilian	WRSP-IV N. Edwards AFB Calif.	

d. Primary AFSC	e. Duty Assignment	f. Current Rating	g. Age	h. Height	i. Weight	j. Years of Educ.	k. Activity at time of Accident/Incident
N/A	Flight Test Consultant	Pilot	35	71"	186	14	Pilot

2 MEDICAL DATA

a. Degree of Injury: None ___ Minor ___ Major ___ Fatal X Missing ___	b. Days Hospitalized	c. Days in Quarters	d. Total Days to be Lost

e. Waiver: Yes ___ No X Specify ___	f. If Fatal: Was Autopsy Form Submitted to AFIP? Yes ___ No X Were Specimens Submitted to AFIP? Yes ___ No X Frozen ___ Fixed ___

g. Diagnosis: Describe Fatalities, Injuries and Causes (Use Basic Diagnostic Nomenclature, AFR 160-13). Specify Primary Injury in non-fatal or primary cause of death in fatal.

Injuries, multiple, extreme (See attached report)
Cause of death, Traumatic Rupture of the Brain Stem.

3 PHYSIOLOGICAL INCIDENT (Complete Items 1, 2, 3, 4, 5, 6, 7, and 10 as applicable)

a. Type Mission	b. Duration of Flight	c. Single Ship ☐ Formation ☐	d. Ind. Alt at time of inc.
e. Cabin Alt at time of inc.	f. Time at Alt. hrs.	Aircraft Pressurization ground checked on	

g. Did you use O_2 Preflight? Check: Yes ☐ No ☐	h. Regulator Setting Last Check on Type Regulator Used	i. Oxygen System Pressure at takeoff: at time of incdt ___ Capacity ___
j. Last Check of O_2 System on	k. Type of Mask ___ Adequate Fit: Yes ☐ No ☐ Checked within 15 days ☐ 30 days ☐ Over 30 ☐	l. Time Lapse between incident and examination

m. Specify Tests (Specify Type and Results):

CO Blood Sugar High CO_2

n. Attach a diagram of the flight profile involved, use additional sheet(s)

4 PSYCHOPHYSIOLOGICAL FACTORS

Check only factors present. Explain the basis for your determination in Item 10. Cite all clinical and lab evidence

FACTOR	Not Sig	CONTRIBUTED TO ACCIDENT: Definite	Probable	Possible	FACTOR	Not Sig	CONTRIBUTED TO ACCIDENT: Definite	Probable	Possible
Aging					Preoccupation/ Channelized Attention				
Alcohol					Other				
Air Sickness					Fatigue				
Auditory Interference					G-Forces				
Body Build					Hyperventilation				
Boredom					Hypoxia				
Cardiovascular					Illness				
Discipline					Language Barrier				
Distraction					Missed Meals				
Drugs and/or Self-Medication					Motivation/Morale				
Dysbarism (Specify)					Spatial Disorientation				
Emotional Disturbances					Task Over-saturation				
Anxiety					Unconsciousness				
Fear					Vertigo				
Get-Homeitis					Visual Restriction				
Irrational Behavior					Other Related Factors (Explain)				
Over Confidence					No Factors Present	X			
Panic									

5 ENVIRONMENTAL FACTORS (Check only factors present. Explain the basis for your determination in Item 10. Cite all clinical and lab evidence)

FACTOR	Not Sig	CONTRIBUTED TO ACCIDENT: Definite	Probable	Possible	FACTOR	Not Sig	CONTRIBUTED TO ACCIDENT: Definite	Probable	Possible
Air Pressure, i.e. Rapid Decompression, Pressure Loss, Etc., Specify					Smoke, fumes				
Cold					Vibration				
Deceleration Forces					Weather				
Heat					Windblast				
Light Intensity					Other Related Factors, Specify				
Noise					No Factors Present	X			

6 TRAINING RELATED TO THIS ACCIDENT/INCIDENT (Give Dates Accomplished)

a. Ejection Seat Training: Seat Simulator X Ejection Seat Tower NONE Previous Ejection N/A Lectures/Demonstrations Oct. 1964 Other (Explain) ___	HOURS Total Flying Time This model 2916

b. Survival Training:
USAF School: Ground X Water ___ Arctic X Jungle NONE Lectures/Demonstrations NONE Other X

c. Parachute Training:
Jump School: NONE Nr. Previous Jumps NONE Lectures/Demonstrations Sept. 1964 Other ___

d. Physiological Training Date June 1962 Place AFB	Edwards	e. Last Chamber Flight Date June 1962 Place AFB	Edwards	f. Type Flight Partial pressure suit

Receives continuing monthly training. Last field training Nov. 1964.

g. AFSC or Other Training	h. Name of Course or OJT	i. Dates Attended	j. Aptitude Scores Applicable

AF FORM 711 PREVIOUS EDITION OF THIS FORM IS OBSOLETE

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7 PERSONAL, PROTECTIVE AND SURVIVAL EQUIPMENT

Specify all applicable items of equipment on appropriate line and specifically indicate all types of clothing worn and any other equipment that influenced operation.

ITEM	EXAMPLE	TYPE	NOT AVAILABLE	AVAILABLE		
				Not Used	Used	
					Functioned	Failed
Head Protection	P-4B, HGU-2/P, HGU-6/P	HGU-2/P, Custom			X	
Eye Protection	Visor, Glasses	Glasses, Sun			X	
Ear Protection	Ear Plugs, Muff	HGU-2/P, Custom			X	
Oxygen Mask	MBU-5/P MBU-3/P	MBU-5/P		X		
Clothing Worn	K-2B, A/P-22S-2				X	
Clothing, Survival	Sleeping Bag, Down-Filled Suit	NONE	X			
Gloves	B-3A, MG-1				X	
Footgear	Alert Boots, Combat Boots	Wellington Boots			X	
Body Restraints	Seat Belt, Shoulder Harness	Seat Belt & Harness			X	
Life Vest	LPU-2/P	NONE	X			
Life Raft	PK-2, E-2B				X	
Survival Kit, Container	Global, MD-1	Q445 Pack,Ferry		X		
Communications	URC-11, SARAH	URC-11		X		
Other Signaling Devices	Flares, Mirrors, Whistle	Flares, Whistle		X		
Rations	Food/Water, Provided/Forged	Food and Water		X		
Survival Equipment	Rifle, Fishing Gear	Fishing Gear		X		
Seat	Fwd/Rear Facing, Side, Fixed, Etc.	FWD, Ejection			X	
Other Equipment	Flashlight, etc. (Specify)	Pen Light		X		

8 ESCAPE

a. General: (Check or fill in as appropriate)

Ejection [X] Bailout [ ] Landing Surface: Ground [X] Flat ___ Mtns ___ Ice/Snow ___ Hilly ___ Desert X Wooded ___ Swamp ___ Other (Exp) ___

Water [ ] Calm, Shallow ___ Deep ___ Rough, Shallow ___ Deep ___ Unknown [ ]

b. Surface Winds, Knots 04 KTS (estimate if unk) | Dragged: Yes [ ] No [X] | Difficulty releasing Chute Canopy: Yes [ ] No [ ] N/A

c. Reason for Jump (if more than one indicate):

Fuel Exhaustion ___ Fire ___ Engine Failure ___ Mid-Air Collision ___ Loss of Control X Other (Exp) ___

d. Attitude of Aircraft: Nose Down

Level ___ Inverted ___ Dive ___ Bank ___ Spin X Spiral ___ Climb ___ Other (Exp) ___

e. Altitude above Surface 400 Ft. IAS 75 KTS (if not known, approx.) Seat Catapult: Ballistic X Rocket

f. Difficulties Initiating Escape: NONE

Centrifugal Force ___ Canopy/Hatch Failure ___ Injury ___ Actuating Controls (Specify) ___ Other (Exp) ___

g. Difficulties During and After Escape:

Clothing/Equipment Interference ___ Seat entangled in Shroud Lines ___ Legs/Arms entangled in Shroud Lines ___ Automatic Lap Belt Malfunction ___

Held onto Seat Actuating Controls ___ Did not Separate ___ No Diff ___ Other (Exp) Too Low for System

h. Seat Separation Device Installed: Yes ___ No X Functioned Properly: Yes ___ No ___

Failed: Webbing ___ Initiator ___ Other (Exp) ___

i. Type Parachute: Seat ___ Back X Canopy release: Single [ ] Double [X] Canopy: 28' X 30' ___	Parachute equipped with Zero Delay Lanyard: Yes X No ___	Connected to D-ring: Yes ___ No X	Automatic Lanyard Connected: Yes X No ___

NOTE: A narrative statement will be prepared by each ejectee and/or survivor to include all information pertinent to escape and survival. The statement will be attached to this form. In the event of a fatality, the statement will be prepared by the Flight Surgeon. See attached report

9 RESCUE AND/OR SURVIVAL

a. Survival Involved (Survival implies any water landing and anytime over 1 hour before rescue on land) Yes ___ No X

b. Distance nearest Rescue (military base) ___ NM | Time before Rescue ___ Hrs. | Transmitted distress signal: Yes ___ No ___ | Transmitted position fix: Yes ___ No ___

c. Effects of Exposure: Frostbite Immersion Sea Sickness Insect Bites Sunburn Dehydration Other (Explain)

d. Primary Factor in Rescue: Radio/Beacon (Specify) ___ Flares ___ Mirror ___ Flashlight ___

Sea Marker Dye ___ Position Fix ___ Chaff ___ Local Population ___ Other (Specify) ___

e. Type Rescue: None Required ___ Ground Party, Military ___ Local Population ___ Helicopter/other Aircraft (Specify) ___

Boat ___ Self Rescue (Walked Out) ___ Other (Specify) ___

10 MEDICAL OFFICER'S RATIONALE, COMMENTS

This section is to include comment on medical, personal, social, family, industrial hygiene and allied factors in incident causation, and a description and analysis of the factors in injury causation. Injuries should be correlated with the operations of personal equipment, malfunctions and failures of structures, systems, etc. Pertinent contributing factors in Items 3 through 9 should be commented upon. Include X-ray and laboratory findings. Pertinent recommendations are encouraged.

See Attached Report

25X1

Date	Typed Name, Grade and Title of Medical Officer
28 April 65	RONALD L. MCGOWAN CAPT USAF, MC FS

AF FORM DEC 62 711g

LIFE SCIENCES REPORT OF AN INDIVIDUAL INVOLVED IN AN AF ACCIDENT/INCIDENT
SECTION B. GROUND/MISSILE ACCIDENT

1 GENERAL/MEDICAL

a. Name, Grade, Serial No.	b. Assigned Base and Command	c. Activity at time of Accident/Incident

d. Age	e. Years of Educ.	f. Degree of Injury	g. Days Hospitalized	h. Days in Quarters	i Total Days to be Lost
		None___ Minor___ Major___ Fatal___ Missing___			

j. Diagnosis: Describe Fatalities, Injuries and Causes (Use Basic Diagnostic Nomenclature, AFR 160-13). Specify Primary Injury in Non-Fatal or Primary Cause of Death in Fatal.

k. Visual Acuity: ____/____ Glasses: Prescribed ____ Worn ____ Sunglasses Worn ____

Auditory Acuity: ____/____ Hearing Aid: Prescribed ____ Worn ____

l. Other defects (Specify) ____

m. Cause of Injury or Death: Struck Steering Column ____ Windshield ____ Visor ____ Doorframe ____ Intruding Object ____ Displaced Object ____
Thrown from Vehicle ____ Fire ____ Pedestrian Struck by Vehicle ____ Drowned ____ Struck Sumberged Object ____ Exposure ____
Other (Specify) ____

2 PSYCHOPHYSIOLOGICAL/ENVIRONMENTAL FACTORS

Check only factors present. Explain the basis for your determination in Item 7

FACTOR	Not Sig.	CONTRIBUTED TO ACCIDENT: Definite	Probable	Possible	FACTOR	Not Sig.	CONTRIBUTED TO ACCIDENT: Definite	Probable	Possible
Alcohol					Missed Meals				
Boredom					Noise &/or Auditory Interference				
Blast/Expl. Effects					Radiation				
Carbon Monoxide					Swimming				
Cold					Non-swimmer				
Deceleration and/or G-forces					Swimming alone				
Distraction					Cramps				
Drugs and/or Self Medication					Water Temp.				
Emotional Dist., i. e., Get-Homeitis Irrational Behavior, Over-Confidence, Panic, Pre-occupation					Task over-saturation				
					Toxic Chemicals				
					Vehicle Windows closed				
Excessive speed					Vibration				
Fatigue					Visual restriction				
Heat					Weather				
Illness					Other				
Light Intensity					No Factors Present				

3 PERSONAL AND PROTECTIVE EQUIPMENT

Specify all applicable items of equipment on appropriate line and indicate all types of clothing and any other equipment that influenced operation.

ITEM	EXAMPLE	TYPE	NOT AVAILABLE	AVAILABLE: Not Used	Used: Functioned	Used: Failed
Head Protection	Protective Helmet/Hard Hat					
Eye Protection	Visor, Glasses					
Ear Protection	Plugs, Muff					
Breathing Aid	Gas Mask					
Clothing Worn	Acid Handling Suit					
Gloves	Fuel Handling/Asbestos					
Footwear	Safety Shoe					
Body Restraints	Seat Belt/Shoulder Harness					
Life Vest/Float Gear	Mae West					
Communications	Headset					
Seat and/or Other Equip.	Driver/Passenger (location)					
Escape	Ladder, Rope, Tunnel, aided by Bystanders					
Type Warning Issued	Claxon, Siren, Bell					
Other (Specify)						

4 VEHICLE

GENERAL: Make ____ Model ____ No. of Doors ____; Padded Dash, Yes ____ No ____; Padded Visor, Yes ____ No ____; Tinted Windshield, Yes ____ No ____;
Recessed Steering Wheel, Yes ____ No ____; n/a (Vehicle not involved) ____ Mechanical Condition: (Indicate by S (Satisfactory) or U (Unsatisfactory)) ____
Brakes ____; Tires ____; Steering Mechanism ____; Lights ____; W/Shield Wipers ____; Stop Lights ____; Directional Signals ____; Rear View Mirror ____;
Exhaust System ____; Other (Specify) ____
Inspection Certificate: Date ____ Military ____ Civil (Specify) ____

5 ACCIDENT AREA AND CONDITIONS (Specify all applicable items)

Time of Day (local) ____; Day ____, Night ____; Lighting: Satisfactory ____; Unsatisfactory ____. Type of Surface: Concrete ____; Macadam ____; Brick ____;
Loose gravel ____; Dirt ____; Other (Specify) ____. Road condition: Dry ____; Wet ____; Ice ____; Snow ____; Mud ____;
Slush ____; Other (Specify) ____. Road Configuration: Straight ____; Curve ____; Bank ____; Intersection ____;
Other (Specify) ____. Type of Road: One Lane ____; Two Lane ____; Three Lane ____; Four or More Lanes ____;
Divided Two Lane ____; Divided more than Two Lane ____; Other (Specify) ____. Weather: Clear ____; Cloudy ____;
Rain ____; Snow ____; Sleet ____; Fog ____; Haze ____; Other (Specify) ____
Remarks:

AFSC (or other) Training	Name of Course or OJT	Dates Attended	Aptitude Scores Applicable

7 COMMENTS

This section includes medical, personal and environmental factors which have a direct bearing on the accident and/or injury causation. The analysis of all factors by Medical Officers, with appropriate recommendations based on first hand observations is desired.

Date	Typed Name, Grade, and Title of Medical Officer	Signature

★ U.S. GOVERNMENT PRINTING OFFICE : 1962 OF—669578

Reply To

Attn Of: Squadron Surgeon, WRSP-IV

Subject: Escape and Survival Report on Aircraft Accident Involving Mr. Buster E. Edens

1. General - A U-2 aircraft (Factory Number 382) piloted by Lockheed Flight Test Consultant Buster E. Edens crashed in the vicinity of North Edwards, California, at 1313 hours 26 April 1965 while engaged in low altitude carrier landing practice. The pilot was assisted in cockpit hook-up by TSgt George Plambeck, Squadron Personal Equipment Technician. Pilot was not attached to oxygen or seat pack.

2. Cockpit - The ejection seat was not present in cockpit area. The seat platform, aircraft portion of the catapault, and right seat track were in cockpit area. The ship's half of ship to kit quick disconnect were not found but its retention cable was attached to the seat platform. The QD attaching pin was broken obliquely. The top 1/3 of the catapault tube was melted away. The stick stower was in the stowed position, the wheel was found outside the major crash wreckage location. No portions of the ship's oxygen system were found with the exception of the oxygen bottles. The status of this section is covered in the Structures & Flight Controls Report. The canopy thrusters were found intact. The right forward thruster was fully extended, the left thruster had its first and third segments completely extended; the middle segment was unextended. The tubing was intact; the flexline was torn free 25 inches from its connection to the tubing. The canopy latch mechanisms were not found. The cockpit area suffered almost complete destruction from ground impact and fire.

3. Canopy - The canopy was found 231 feet 3 inches forward from the left wing tip. The movable canopy sunvisor was found undamaged 135 feet further forward and somewhat left of the left wing tip. The canopy was only slightly damaged by torsion and had a single longitudinal linear crack in the glass. The thruster receptacles exhibited evidence of being struck by thrusters (the right being three times deeper impact than the left). There were two scratches on the inside of the rear portion of the canopy glass from the rear thruster action. The canopy lock bolts were undamaged indicating normal unlock of both sides of canopy. There was no evidence that any portion of the canopy struck either pilot or airframe.

4. Ejection Seat - The ejection seat was found on its right side, parallel to the fuselage, base forward, 91 feet 4 inches to the left and slightly forward of the left wing tip. The damage to the seat and the ground imprints indicate that the seat struck the ground forcefully flat on its left posterior then rolled onto its right side toward the aircraft. The D-Ring was in the pulled position and, although the D-Ring retention projections were locked into the front seat pack lift handle, there was no binding and the first initiator was fired. The slip joint to the canopy jettison system and stick stower was blackened from firing. The one second delay initiator and catapault were fired. The one second delay initator and cap belt unlatch were fired.

The inertia reel was fired and the shoulder straps were locked. The shoulder strap lock was on the forward position. The canopy pusher was in the fired and locked position. The stirrups were in the down position. The lap belt was attached and routed normally. It had fired normally freeing the shoulder straps and retaining the parachute automatic release key. The key was bent and was attached to the automatic parachute

release cable and zero delay lanyard. There was nothing attached to the undamaged zero lanyard hook. The seat pin was out. The left track was jammed tight to the seat and the right was loose. There was no evidence of binding and all rollers were intact. There were no tissue or material fragments on or about the seat. The unburned seat pin was found near the major wreckage.

5. Seat Pack - The top half of the Q 445 seat pack was attached to the seat by the ejection D-Ring hooked into the front seat pack carrying handle. The survival gear retention strap and anti-flail strap were attached to the seat pack; the right was found 55 feet further to the left and slightly forward of the wing tip. The ship to kit QD had separated and the personal leads QD was retained with both leads capped. The pack was broken open and the uninflated dingy and sea anchor were outside of the pack. The other survival gear was retained normally in the lower half of the seat pack. The contents were demolished. The posterior portion of both seat pack halves were crused laterally indicating that the seat pack was in the seat at time of impact. The emergency oxygen bottle was broken open but the gage indicated full at time of impact. The cushion was torn off on right and unsnapped on left. There was no blood or tissue on the pack or cushion. The pilot was not hooked-up to the seat pack in any way.

6. Communications Lead - Found intact 78 feet 1 inch left and forward of left wing tip. There was no material in clip.

7. Parachute Block - Found intact 100 feet 5 inches in line with communications lead and left wing tip.

8. Parachute - Pilot was equipped with a 50C7024-18 28 foot equivalent parachute with a F1B Timer set at 2 second delay and 14,000 feet. The timer had fired normally but had broken free at ground impact; setting 0 seconds and 14,000 feet. The D-Ring had not been pulled but the automatic release cable had been pulled and was missing from its guide sleeve. The spring plate was found 4 feet from the body and the parachute canopy was deployed down to the quarter-bag. It was lying between the legs of the body and was undamaged. The parachute harness was fastened normally and riser releases were secure. The strobe light attached to the left harness was undamaged except for a broken bulk and a torn canvas pocket. The hunting knife attached under the strobe light was broken, the handle lying 1 foot in front of the body and the blade in the undamaged sheath. The kidney pad was only minimally damaged in the region of the pressure release valve. The seams in the right lower corner of the pack were bursted open. There was blood on the harness sling and on the canopy, three feet from the apex. The last repacking of this chute was 12 March 1965. An examination of the post-accident chute by the Base Parachute Shop supervisor found the parachute to have been properly packed.

9. Helmet - The custom fitted Sierra HGU-2/P helmet was found with mask attached to left side 28 feet from the body. It was broken in on the left side but could still withstand forceful compression with less than 1/2 inch collapse. The left ear phone was bent but the right was normal. The chin strap was fastened but torn out of left side. There was blood inside helmet. The visor and visor cover were missing from the helmet with the exception of the right visor track. The left half of visor cover and visor lock were found 6 feet 7 inches and 7 feet from head of body. The right half of visor cover was found 15 feet from the head of the body in a direction 100 degrees from other half.

Many small fragments of visor glass were found in line from head of body to 60 feet. The skull cap which was lacerated on its left side was found 60 feet from the body on this same line. The MBU-5/D oxygen mask of regular wide size with four point suspension and current valve was not equipped with an oxygen adaptor. The mask itself was only moderately damaged but the shell was fragmented. The microphone and communications lead was only minimally damaged. The oxygen hose was undamaged. There was no blood on the mask. The right release suffered only bending of the release mechanism. Sun glass frames were found near the seat and the bridge about thirty feet further away. The pilot was using the mask for communications purposes only. The oxygen was not hooked-up.

10. Flight Suit - The Indian orange, light weight, USAF flying suit was in relatively good condition. In addition to suffering multiple small abrasions and tears the right ankle pocket was torn off from an open position, there was shredding of the left shoulder area and a large stellate tear over right hip area. The material was blood splattered. There was no burned material other than the piece of pocket found inside wreckage cockpit area. The left shoulder pocket contained two broken wooden pencils; there was a handkerchief and cigarette lighter in the left thigh pocket. The right thigh pocket was empty. The left ankle pocket was open and contained a screw driver, computer and checklist. The pilot also was wearing undamaged Wellington boots and USAF flying gloves that were torn slightly about the left thumb.

11. Pilot - The pilot was Buster Eugene Edens, a Lockheed flight test consultant. He had served in this capacity for nine years and had 1,094 hours in U-2 aircraft. His last U-2 flight prior to accident was 22 April 1965. On his last physical examination at Lovelace Clinic, 12 June 1964, he was found to be fully qualified for special category flying. His last chamber run was in June 1962. He had been DNIF 5 February through 5 March 1965 because of bilateral ruptured ear drums. He was cleared for full flying duties by the Lovelace Clinic. He was in excellent physical and mental condition prior to this flight. The pilot did not indicate any inflight physical abnormalities. The body was found 102 feet 7 inches to the left and slightly forward of left wing tip. The body was 11 feet 3 inches from the seat and lying perpendicular to it on its right side.

The autopsy was performed at 0900 hours, 27 April 1965 at Kern General Hospital, Bakersfield, California, by Dr. Huntington, Pathologist, and Dr. McGowan, Flight Surgeon. The autopsy was performed on the order of Mr. Newman, Kern County Coroner and observed by Mr. Christie, Coroner's Investigator. The Death Certificate indicated injuries, multiple, extreme and cause of death, traumatic rupture of the brain stem. Specific findings are as follows:

General:	No evidence of burns or carbon monoxide poisoning.
Head:	Egshell fractures and collapse of skull. Base of skull crushed. Brain severely lacerated and contused. Brain stem ruptured. Left eye popped, right eye ruptured. The face was distorted toward the right. There had been bleeding from both ears.
Thorax:	Abrasions and bruises but no lacerations. All ribs fractured, right and left.

Abdomen: Suggillation only. Pelvis with multiple fractures, left ramus forward and right ramus pressed back against sacrum.

Back: Multiple fractures of upper thoracic, lower lumbar, and upper cervical spine. Spinal cord lacerated in several areas.

Upper Extremities: Closed fractures of right and left humerus, radius, ulna, and clavicles. Multiple dislocations of left wrist. Abrasions of left shoulder and lacerations (small) of tip of left thumb and thenar eminence.

Lower Extremities: Open dislocation of right ankle. Closed fractures of both femurs and left tibia and fibula. Large bursting-type wound of right glutaeus.

Genetalia: Normal.

Viscera: Lungs - multiple lacerations; primary calcified, coccidiodal node in right hilum.

Heart: Ruptured and severed from great vessels.

Stomach: Up through diaphram into chest cavity. Partially digested contents.

Intestines: No significant abnormalities.

Liver: Severely lacerated.

Spleen & Pancreas: Unidentified.

Kidneys: Foetal lobulations.

Bladder: Ruptured and ureters torn.

Carbon Monoxide, glucose, alcohol, barbituate and microscopic studies pending.

12. Summary and Conclusions - Soon after onset of a nose down spin the pilot assumed a normal ejection position and (at approximately 500 feet) pulled his ejection D-Ring. The ejection system function normally and the pilot escaped from the aircraft tearing off his open right ankle pocket on a cockpit projection. The pilot left the aircraft uninjured. Since for some unknown reason the zero delay lanyard was not attached to the D-Ring, parachute deployment was initiated by the autmatic timer system upon lap belt and pilot-seat separation. After a two second delay and about 75 feet above ground level the parachute began to deploy the pilot striking the ground before deployment completed. The pilot was never more than a few feet from the seat and both struck the ground together on left side. The pilot was killed instantly and bounced onto right side losing his helmet. The seat rolled onto right side spilling its contents, the front carrying handle of the seat pack catching on the ejection D-Ring protrusions. A portion of the seat may have struck the pilot's right hip but this cannot be substantiated.

13. Recommendations -

a. U-2 aircraft should be provided with an improved low altitude escape capability.

b. The ejection seat should be equipped with an automatic pilot-seat separator.

c. A procedure of assuring low altitude attachment of the Zero-delay lanyard should be established.

d. Pilots should fly with flight suit pockets closed.

e. Pilots should be re-indoctrinated on present escape limitations.

[redacted] 25X1

RONALD L. MCGOWAN
Captain, USAF, MC, FS
Squadron Surgeon

TAB

SERVICE BULLETINS NOT COMPLIED WITH

The following Service Bulletins had not been complied with prior to the accident:

a. 884 - H.F. Sel-Cal Installation.

b. 906 - Defrost Bracket Modification.

c. 908 - Oscar Sierra Installation.

d. 909 - Delta System Circuit Breaker Relocation.

e. 912 - Installation - Low Pressure Oxygen Gauge.

f. 914 - Reinstallation System 12 and 13 Interlock.

g. 915 - Relocation of Fire Warning Lights.

h. 918 - AFSC Pitch Auto Pilot Trim Speed Increase.

i. 922 - Sextant Bubble Access Door.

j. 932 - Addition of B/W Identification Switch.

The non-compliance of the above Service Bulletins is not considered a contributing factor to the accident.

TAB

SECRET

DATE	CREW CHIEF	ORGANIZATION	LOCATION	ACFT T/M/S	AIRCRAFT SERIAL NO.
26-04-5	W Caldwell	WRSP IV	EAFB	U-2G	382

LAST NAME–FIRST NAME–INITIAL GRADE–SERVICE NUMBER (ORGANIZATION AND STATION, IF TRANSIENT) (PRINT PLAINLY) A	USE AS DIRECTED LOCALLY B	ENTER DUTY SYMBOL IN UPPER LEFT BOX AND FLIGHT CONDITION SYMBOL IN UPPER RIGHT BOX. ENTER TIME FLOWN IN LINE THEREUNDER. DUTY / COND C	DUTY / COND D	DUTY / COND E	DUTY / COND F	TYPE AND NO. OF PENETRATIONS, APPROACHES, AND LANDINGS G	FLIGHT DATA AND TOTAL NO. OF LANDINGS H	TIME I
Barnes J.A. civ		P 0:55	:	:	:	ℓ 2	TO ℓ ℓ	LANDING 11:55
		:	:	:	:		FROM ℓ	TAKEOFF 11:00
		:	:	:	:		MSN SYM S-7 / TOTAL LDGS 7	FLIGHT 0:55
Edens B.E. civ		P :15	:	:	:	ℓ	TO CRASHED ℓ	LANDING 13:15
		:	:	:	:		FROM ℓ	TAKEOFF 13:00
		:	:	:	:		MSN SYM S-7 / TOTAL LDGS 1	FLIGHT :15
		:	:	:	:		TO	LANDING :
		:	:	:	:		FROM	TAKEOFF :
		:	:	:	:		MSN SYM / TOTAL LDGS	FLIGHT :
		:	:	:	:		TO	LANDING :
		:	:	:	:		FROM	TAKEOFF :
		:	:	:	:		MSN SYM / TOTAL LDGS	FLIGHT :

AFTO FORM MAR 62 781 PART–I — SUB TOTALS FORWARDED: 1:10

DATE	CREW CHIEF	ORGANIZATION	LOCATION	ACFT T/M/S	AIRCRAFT SERIAL NO.
26-04-5	W Caldwell	WRSP IV	EAFB	U-2G	382

A — STATUS OF SCHEDULED MAINTENANCE INSPECTIONS (PR, HPO, AND PE) AND BASIC ENTRIES FOR OPEN RED (X) AND RED (DASH) ITEMS ENCLUDING FCF.S WHEN REQUIRED

TYPE	SYM	SYSTEM	ACCOMPLISHED BY	DATE COMPLETED	NEXT DUE
PR	—	03			

B — CERTIFICATION FOR ACCOMPLISHMENT OF BASIC POSTFLIGHT OR THRUFLIGHT INSPECTIONS

FLT NO.	ACCOMPLISHED
1	
2	
3	
4	
5	
6	

C — AIRCRAFT TIME

PREVIOUS	3560.7
TODAY	
TOTAL	
PREVIOUS LANDINGS	
TODAY	
TOTAL	

D / E

SEE BLOCK 'A' AND AFTO FORMS 781A AND 781B FOR EXPLANATION OF THE STATUS SYMBOL

STATUS TODAY		BOX NO.	EXCEPTIONAL RELEASE (ENTER BOX NUMBER)	FLT NO.	COND ACFT FLT OK	NO. OF DISC	PILOT'S SIGNATURE (ENTER AFTER EACH FLIGHT)	OVER TEMP ENCTRD	AUX ENGINE OR APU OPERATION
1 /	7	1		1		2			
2	8	1		2			0		
3	9			3					
4	10			4					
5	11			5					
6	12			6					

25X1

F GUN OR ROCKET STATUS (INDICATE WHETHER HOT OR COLD) AND QUANTITY ON BOARD	
STATUS	
QUANTITY	

G ATO BOTTLES INSTALLED ☐ YES ☐ NO QUANTITY — TOTAL TODAY

AFTO FORM MAR 62 781 PART–II AIRCRAFT FLIGHT REPORT AND MAINTENANCE RECORD — PREVIOUS EDITIONS OF THIS FORM MAY BE USED.

SECRET

SECRET

LAST NAME–FIRST NAME–INITIAL GRADE–SERVICE NUMBER (ORGANIZATION AND STATION, IF TRANSIENT) *(PRINT PLAINLY)*	USE AS DIRECTED LOCALLY	ENTER DUTY SYMBOL IN UPPER LEFT BOX AND FLIGHT CONDITION SYMBOL IN UPPER RIGHT BOX. ENTER TIME FLOWN IN LINE THEREUNDER. DUTY | COND	DUTY | COND	DUTY | COND	DUTY | COND	TYPE AND NO. OF PENETRATIONS, APPROACHES, AND LANDINGS	BROUGHT FORWARD LDGS	TIME
A	B	C	D	E	F	G	H	I
		:	:	:	:		TO	LANDING :
		:	:	:	:		FROM	TAKEOFF :
		:	:	:	:		MSN SYM / TOTAL LDGS	FLIGHT :
		:	:	:	:		TO	LANDING :
		:	:	:	:		FROM	TAKEOFF :
		:	:	:	:		MSN SYM / TOTAL LDGS	FLIGHT :
		:	:	:	:		TO	LANDING :
		:	:	:	:		FROM	TAKEOFF :
		:	:	:	:		MSN SYM / TOTAL LDGS	FLIGHT :
		:	:	:	:		TO	LANDING :
		:	:	:	:		FROM	TAKEOFF :
		:	:	:	:		MSN SYM / TOTAL LDGS	FLIGHT :

OPERATIONS: CHECKED LEGIBLE AND CORRECT *(SIGNATURE)*	MAINTENANCE ACTIVITY: TOTAL FLIGHT TIME CHECKED AND TRANSCRIBED TO AFTO FORM 781–PART II AND AFTO FORM 781B. *(SIGNATURE)*	TOTALS LDGS	TIME
			1 : [illegible]

H

SER NO.	FUEL (GALLONS OR POUNDS) OCTANE OR GRADE	QUANTITY SERVICED	TOTAL IN TANKS	OIL (PINTS, QUARTS, OR GALLONS) 1 SER	1 IN	2 SER	2 IN	3 SER	3 IN	4 SER	4 IN	5 SER	5 IN	6 SER	6 IN	7 SER	7 IN	8 SER	8 IN	OXY PRESS OR QTY	A.D.I.	WATER
1	JPTS		590	0	[illegible]															[illegible]		
2	JPTS	335	390																	175		
3																						
4																						
5																						
6																						
TOTAL																						

SERVICING CERTIFICATION: (SIGNATURE, GRADE AND STATION AT WHICH SERVICING IS ACCOMPLISHED)

1	BY	3	BY	5	BY
	AT		AT		AT
2	BY	4	BY	6	BY
	AT		AT		AT

I

J ACCESSORIES CHANGED

RE-MOVED	INSTL	ACCESSORIES AND POSITION	SERIAL NO.	ACFT TIME OR PREV OPER TIME	CHANGED BY

M&W, INC. 2-62 7,500,800

XERO COPY XERO COPY SECRET XERO COPY

SECRET

PAGE OF PAGES

DATE FROM	TO	ORGN	LOCATION	TMS	SERIAL NO.
23-04-5	26-04-5	WRSP.TK	EAFB	U-2	382

25X1

SYM	DATE DISCD	DISCREPANCY	REPORT NO.	CORRECTIVE ACTION
C	23-04-5	PREFLITE DUE		Complied with
				DATE CORRECTED 26-04-65
			CORRECTED BY Caldwell	INSPECTED BY

25X1

SYM	DATE DISCD	DISCREPANCY	REPORT NO.	CORRECTIVE ACTION
/	26 Apr.	Gear v UNSAFE X light on with gear apparently up & locked.		
				DATE CORRECTED
			CORRECTED BY	INSPECTED BY

25X1

SYM	DATE DISCD	DISCREPANCY	REPORT NO.	CORRECTIVE ACTION
/	26 Apr.	Sextant averager mirror off.		
				DATE CORRECTED
			CORRECTED BY	INSPECTED BY

25X1

SYM	DATE DISCD	DISCREPANCY	REPORT NO.	CORRECTIVE ACTION
				DATE CORRECTED
	DISCOVERED BY		CORRECTED BY	INSPECTED BY

AFTO FORM 781A DEC 61 PREVIOUS EDITIONS OF THIS FORM MAY BE USED.

MAINTENANCE DISCREPANCY/WORK RECORD

AF C&G (4-23-62) 7MM

SECRET

TAB

PILOT INDIVIDUAL FLIGHT RECORD

1. AF OR COMMAND	2. WING, GROUP, AND SQUADRON OR UNIT	3. PERIOD COVERED	4. SHEET NO.	5. NAME (Last - first - middle)	6. SERVICE NUMBER
		APR-MAY-JUN 65	116	EDENS, BUSTER E.	
7. BASE AND LOCATION		8. BIRTH (Day, month, year)	9. DUTY AFSC	13. INSTRUMENT CERTIFICATE: WHITE / GREEN / NONE	14. GRADE AND COMPONENT
10. ORIGINAL RATING AND DATE	11. PRESENT RATING AND DATE	12. DATE PHYSIOLOGICAL TRAINING CERTIFICATE EXPIRES		DATE OF EXPIRATION	

SECTION I

DATE	TYPE MODEL SERIES	MISSION SYMBOL	LANDINGS	INSTRUCTOR PILOT TIME	FIRST PILOT TIME	CLASSIFICATION OF INSTRUCTOR AND FIRST PILOT					COMMAND PILOT TIME	CO-PILOT TIME	CLASSIFICATION OF COMMAND AND/OR CO-PILOT			
						DAY		NIGHT		HOOD			DAY		NIGHT	
						VFR	WEATHER	VFR	WEATHER				VFR	WEATHER	VFR	WEATHER
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
APR																
2	T-33A	S-8	3B		1:45	0:45				1:00						
2	T-33A	S-8	2F	1:55		1:25	0:30									
6	T-33A	S-7	0B		1:45	0:45				1:00						
6	T-33A	S-8	1F	1:45		1:45										
7	U2G	S-8	1		6:15	6:15										
9	T-33A	S-7	4F	1:45		1:45										
9	T-33A	S-7	1B	1:30		1:30										
12	U2G	S-7	1		3:25			3:25								
16	T-33A	S-8	3F	1:25		1:25										
16	T-33A	S-7	0B		1:50	1:20				0:30						
19	U2G	S-8	1		4:50	4:50										
22	U2G	S-8	1		4:10	4:10										
26	U2G	S-8	0		0:15	0:15	A/C DESTROYED-FATAL									
					LAST ENTRY											
15. TOTALS THIS SHEET			18	8:20	24:15	26:10	0:30	3:25		2:30						
16. TOTALS BROUGHT FORWARD FROM SHEET NO. 115			1856	202:45	2336:45	1719:40	130:45	232:40	1:45	454:40		73:30	49:50	9:45	12:45	1:10
17. TOTALS TO DATE			1874	211:05	2361:00	1745:50	131:15	236:05	1:45	457:10		73:30	49:50	9:45	12:45	1:10

18. TYPED NAME AND GRADE OF OPERATIONS OFFICER OR AUTHORIZED DEPUTY

ARTHUR T. VAN CURA, Lt Col, USAF

25X1

PILOT INDIVIDUAL FLIGHT RECORD

SHEET NUMBER 116

NAME (Last - first - middle) EDENS, BUSTER E

SERVICE NUMBER

SECTION II - MISCELLANEOUS ENTRIES

DATE A	TYPE MODEL SERIES B	AUTH. MISSION SYMBOL C	RADIO CONTROL PILOT TIME D	AIRCRAFT COMMANDER TIME E	CLASSIFICATION OF AIRCRAFT COMMANDER TIME				APPROACHES				INSTRUMENT TRAINERS N	FLIGHT SIMULATOR O	H P	WX Q	SFO R	FCL S
					DAY VFR F	DAY WEATHER G	NIGHT VFR H	NIGHT WEATHER I	DATE J	TYPE K	RADAR A L	NON-RADAR B M						
									MAR									
									11	T-33A	2	2				2		
									18	T-33A		1			1		1F1B	
									19	T-33A	1	1			1		1F1B	
									22	T-33A	1				1		2F1B	
									23	T-33A	2	1					1F3B	
									25	T-33A	3				1		3F	
									30	T-33A	2				1		2B	
									26	T-33A							5F	
									APR									
									2	T-33A	3				1		3B	
									6	T-33A		3			1		3F	
									16	T-33A		1						
20. TOTALS THIS SHEET											14	9			7	2	27	
21. TOTALS BROUGHT FORWARD FROM SHEET NO.											325	135	64:00		12	44	134	125
22. TOTALS TO DATE											339	144	64:00		19	46	161	125

SECTION III - SUMMARY OF PILOT EXPERIENCE

DUTY A	SINGLE ENGINE B	TWO ENGINES C	MORE THAN TWO ENGINES D	SINGLE JET PROPULSION E	MULTI-JET PROPULSION F	JET ROCKET G	ROCKET H	ROTARY WING TYPE I	GLIDER J	TURBO-PROP K	TURBO-PROP L	M	TOTAL N
23. INSTRUCTOR PILOT				211:05									211:05
24. FIRST PILOT	3:35	39:10	1:50	2313:25	3:00								2361:00
25. COMMAND PILOT													
26. CO-PILOT		54:55	1:50	6:15	10:30								73:30
27. AIRCRAFT COMMANDER													
28. RADIO CONTROL PILOT													
29. TOTAL USAF RATED TIME	3:35	94:05	3:40	2530:45	13:30								2645:35

PILOT COMBAT TIME	35. INSTRUCTOR	36. FIRST	37. COMMAND	38. CO-PILOT	39. RADIO CONTROL	40. A/C COMDR	41. TOTAL COMBAT TIME

30. AF STUDENT PILOT TIME	270:00
31. CIVILIAN - OVER 450 HP.	
32. FOREIGN MILITARY	
33. OTHER U.S. MILITARY	
34. TOTAL FLYING TIME	

REMARKS (Use reverse if more space needed)

11 Mar 65 Plt Completed T-33A recurrency (Huber J.J. LCDR)
12 Mar 65 Plt Completed U2 recurrency.
31 Mar 65 Plt Completed annual Prof Flt Ck (Huber J.J. LCDR)

TAB

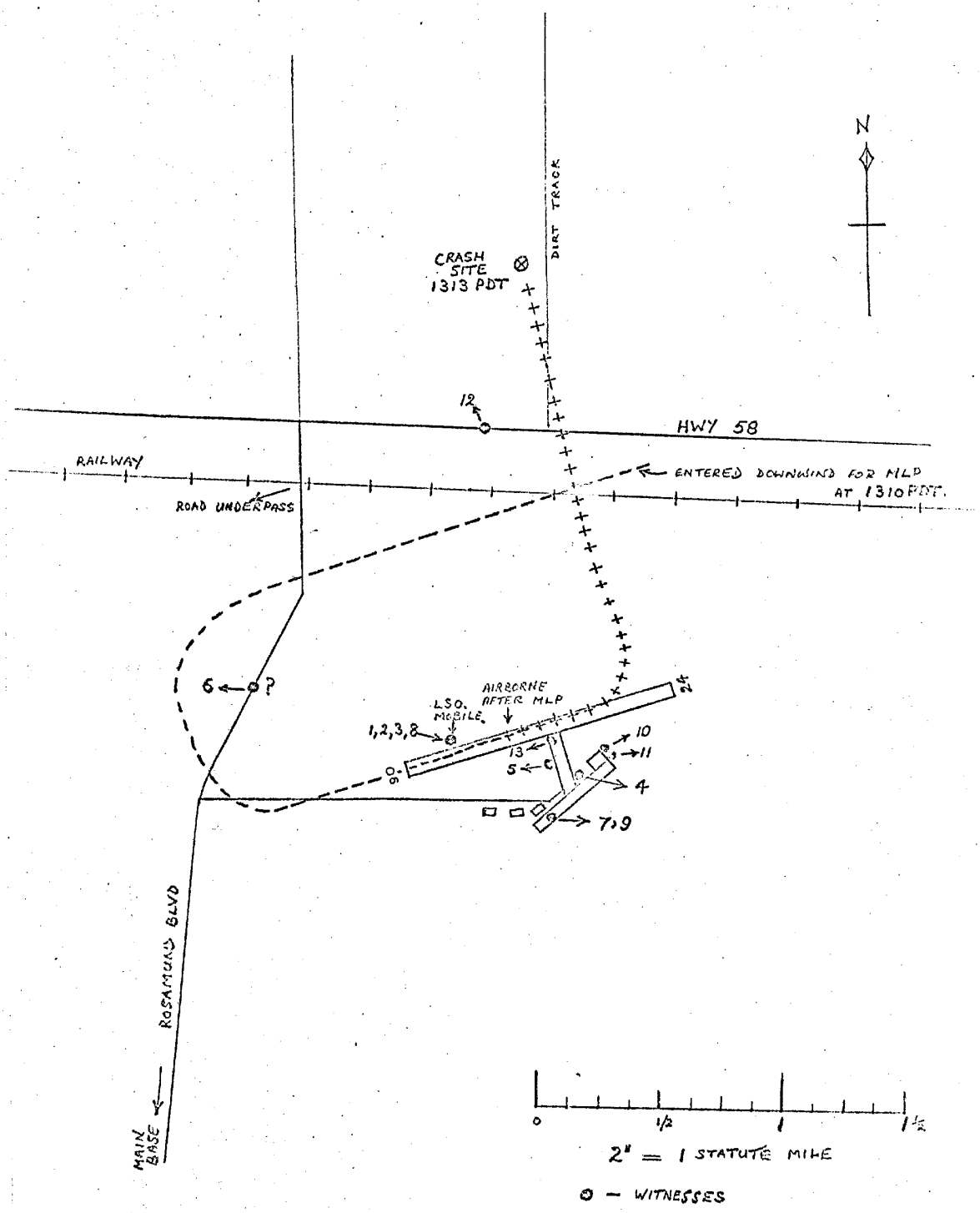
S T A T E M E N T S

Witnesses were numbered to show their location at the time of the crash as annotated on the Flight Path Diagram. Numbers for witnesses are as follows:

Number	Witness
1	Lt. Col. A. T. Van Cura
2	Mr. J. A. Barnes
3	Lt. R. C. Kaup
4	A/2C R. Varela
5	Mr. C. Summers
6	Mrs. J. Cannon
7	S/Sgt M. J. Girard
8	A/1C B.L. Humphreys
9	T/Sgt M. H. Rocker
10	[redacted] 25X1
11	
12	S/Sgt A. B. Tyree
13	[redacted] 25X1

SECRET

ITEM 11 ATTACHMENT 1



SECRET

SECRET

STATEMENT

I, Arthur T. Van Cura, 36780A, Lt. Col., USAF do hereby make the following statement concerning aircraft crash:

I was the Operations Representative at the Mobile Control Unit during a Mirror Carrier Landing Mission. A Carrier Landing Officer (LSO) and a Mobile Control Officer were also at the Unit.

The aircraft took off at 2000Z (1300 Local) on 26 April and pilot made a normal climb to altitude (Approximately 13M) to check stall characteristics prior to entering landing pattern. No difficulties were reported. His first landing was at 2010Z. Approach appeared normal but at touchdown his left wing skid dragged the runway for approximately 100 feet. He applied power for a go around and was in T/O attitude at takeoff. The Mobile Officer and I advised the Landing Control Officer to advise the pilot to recheck stall characteristics prior to the next landing. This information was relayed and the Landing Control Officer said the pilot "ROGERED'. The pilot left the landing pattern after a left turn of approximately 60 degrees and in a normal climb. The Mobile Officer and I diverted our attention away from the aircraft to check the runway for skid marks. I walked toward the approach end to look for skid marks but could not see any indication of the skid. The Mobile Officer then called to me to check on the skid mark he found. As I turned back up the runway I looked up to notice the aircraft at approximately 3 to 4M in a left flat turning spin. After what I assume to be the first turn of the spin the aircraft seemed to get in a lower nose spin. It continued to spin for about 2½ more turns before contacting the ground. It appeared that 3 to 400 feet above the ground the pilot had ejected but I did not notice a fully blossomed chute. I would estimate that from my position the last 100 feet of altitude was obstructed from my vision by the ground rise and I did not see the actual crash but flame and smoke indicated ground contact. At this time I ran to my car and returned to the hangar ramp where I met Colonel Gregory. We proceeded to the scene of the crash. Dr. McGowan was at the scene when we arrived and said the pilot was dead.

/s/
ATHUR T. VAN CURA
Lt. Colonel USAF

SECRET

SECRET

STATEMENT

As a brief preliminary, I flew the airplane on the date of, and prior to the flight that terminated with the fatal accident here concerned. My take-off was 1100 local, flight duration was 55 minutes. Accomplishments were 7 MLP type landings. Final landing was a full stop of this variety.

Shortly after landing and prior to the subsequent take-off, a thorough discussion was held with the Commander, the Director of Materiel, the pilot assigned for the next flight, and myself. The essence of this discussion was that this particular aircraft possessed a characteristic or characteristics, which at, or very near the stall speed would produce a rapid left yaw and left wing down condition.

Take-off for the flight in question was 1300 local. Take-off appeared normal, and the aircraft left the immediate vicinity of the field. The aircraft returned in an estimated 8 or 9 minutes, and entered the landing pattern on the downwind leg. I monitored the radio from 1245 local until the pilot requested a change to tactical frequency, and stated that he was initiating descent for pattern entry. Channel change was acknowledged, and control of the radio was passed to the LSO. Pattern appeared normal until spoiler activation. At this time the aircraft appeared to settle quite rapidly, with the left wing skid contacting the runway slightly prior to main gear touchdown. Power was immediately applied, with directional control and a wings level attitude quickly regained. The aircraft broke ground with a directional alignment a few degrees left of runway heading, and with the aircraft somewhat left of runway centerline. Power was reduced, and aircraft heading was corrected to that of the runway. A moderate climb was established.

The pilot had obviously experienced the full effects of left roll and left yaw, characteristic of this aircraft at or near stall speeds. In view of the above, I asked the LSO to suggest to the pilot that he depart the parttern and recheck his aircraft trim prior to another landing attempt.

As the aircraft passed my position on go-around, I had run from the Mobile Control Vehicle to the left edge of the runway, so as to be in a position to see if any obvious damage had occurred to the left skid. The skid appeared to be in a normal position.

Flap retraction was initiated, and an estimated 90 degree left turn was made. A modest rate of climb was maintained. After slightly less than a minute (estimated), the aircraft appeared to assume a nearly level flight attitude, although a small climb rate was probably maintained. My estimate of aircraft altitude at this time would be 2,000' above the ground. The LSO and walked to a position on the runway where the tip skid mark should have been. We located a mark which we believed to be the correct one.

I then looked toward the aircraft again. It was now at an estimated 3000' above the ground. The aircraft was in a tight left spiral, which almost immediately became a spin. From the aircraft heading the last time I had seen it as compared to its position in the spiral on seeing it again, I estimate the aircraft had completed 90° to 120°of turn out of my view. With the known heading of the aircraft prior to entering this maneuver, and its final position on ground impact, I believe the aircraft completed either 3¼ or 4¼ turns.

The path the aircraft described during the spin was cylindrical rather than linear. Once the full spin was established, I estimate that at no time was the longitudinal axis of the aircraft more than 15° to 20° out of the vertical with the ground. The aircraft achieved a high rate of descent prior to ground impact. The actual impact point was not visible from my viewing point, due to uneven terrain features. However, the time lapse between losing sight of the aircraft and seeing the fireball of explosion was insignificant.

Ejection occurred in a generally eastward direction as related to the aircraft at the time of ejection. Due to aircraft attitude, ejection was on a line essentially parallel to the ground. My estimate of altitude at time of ejection would be at not less than 200' and at not more than 500'. No pilot-seat separation was observed.

Duration of the flight was approximately 14 minutes.

/s/
JAMES A. BARNES

S T A T E M E N T

I was controlling the Mirror Landing Practice (MLP) Pattern at North Base, Edwards AFB on 26 April 1965. Aircraft 382, Pilot Edens, launched at 1300 local time. He climed to altitude and performed stall checks which is standard procedure on these flights. The aircraft then returned to North Base and entered downwind for runway 06 at about 1310.

His pattern was normal and he called the meatball with 299 gallons of fuel. The glide slope was normal except that he got a little slow prior to crossing the runway threshhold. I told him he was slow and he corrected back to on speed immediately. Proper speed would have been 84 kts as briefed and Iestimate that he was at that speed when I gave him the Cut #1. He continued on down normally and I gve him Cut #II. As soon as he took it the left wing dropped fairly smartly and contacted the runway between the source lights and the mirror. This is about 1,000 feet down the runway from the threshhold. The wind at the time was less than 5 knots and essentially down the runway.

The aircraft rolled a short ways and became airborne again. There appeared to be no control difficulties, however, the pilot transmitted something that sounded like "WOW". He leveled at pattern altitude, 400 feet AGL, and was evidently going to remain in the pattern.

Upon the advise of Mobile, Mr. Barnes, I told the aircraft to depart the pattern to check the aircraft as he had hit the left skid fairly hard on the runway. He rogered for these instructions, turned left about 90° to runway heading and was climbing wings level through about 1,000 feet AGL when I looked back to the runway. I next saw the aircraft when Mr. Barnes said, "He's Spinning". I looked back and saw the aircraft in a steep spin to the left. He was at an approximate altitude of 2,000 feet AGL. I did not see the aircraft enter the spin, but he spun through about 2 revolutions while I watched. The first turn was quite nose low and I had a plain view of the aircraft. The last part of the spin appeared to be flatter and I estimate the nose was only about 20° nose low.

I estimate that the pilot abandoned the aircraft between 300 and 500 feet AGL.

I had controlled the same aircraft in the MLP pattern at 1100 this date. Mr. Barnes was the pilot. His patterns and landings were normal with the exception of a left wing drop after the Cut #II on the first pass. He felt that adequate control was available to continue the flight and we conducted six more satisfactory MLP's.

Mr. Barnes remarked on debrief that the left wing drop was controllable and it was decided that Mr. Edens should fly it so that Maintenance would have the opinion of both pilots. Both pilots were familiar with this sort of problem and discussed it thoroughly while we had lunch. Mr. Edens did not appear at all concerned about it and appeared to be in excellent spirits and ready to fly. He last flew a MLP flight on 14 December 1964.

SECRET

I have been a designated Naval Aviator for six years, have 2100 hours of pilot time of which 1900 are in a single engine jet aircraft.

/s/
ROBERT C. KAUP
Lt. USN

SECRET

SECRET

STATEMENT

Crisp 16, a North Base U-2 took off from North Base at 2000Z for transitions on Runway 06. Crisp 16 entered the traffic pattern approximately at 2010Z for his first transition. Upon completion of the first transition, Crisp 16 made a left turn and proceeded north bound. I thought he would be entering closed traffic for another transition, but he kicked in the afterburner, which I thought strange, and continued climbing north bound. All of a sudden, I saw Crisp 16 go into a left hand spin and two parts of the aircraft sheered off. I believe one of the parts was the canopy, but I could not make out the other part. I saw no chute, so apparently the pilot did not eject. The aircraft continued in a spin and crashed in a point after five or six miles north of North Base. The crash occurred at 2013Z at which time I immediately notified North Base Operations of the incident. I also notified Main Base Tower and told them to ring the crash phone. During the transition, Crisp 16 was on tactical frequency and not on my frequency. Also, the winds at the time of the incident were light and variable.

/s/
ROBERT VARELA
A2C, AF 19749105
Control Tower Operator

SECRET

SECRET

STATEMENT

At 1300 hours April 26, 1965, the Crash Rescue Crew stationed at North Base was on runway alert watching aerospace vehicle do touch and go maneuvers.

After one of the take-off's the aerospace vehicle did a left turn off the north end of the runway. About 30 seconds later we saw a large black column of smoke rise about where the aerospace vehicle should have been at that time. We responded immediately and notified the Main Base Crash Station by radio. The Main Base dispatched an R-2 Rescue Truck and notified us that the aerospace vehicle was down.

When we arrived at the place of the incident we relieved the Kern County Fire Crew, extinguished the remaining fire and cooled down the wreckage. At 1425 we returned to North Base Fire Dept. Station #4.

/s/
CURTIS SUMMERS
Crew Chief, Fire Station #4

SECRET

S T A T E M E N T

I was coming from Edwards Main Base to the main highway (58). I saw the aircraft do four full turns, one half turn initially, then three full turns and one other half turn before striking the ground.

The pilot left the aircraft in a horizontal plane about one half a turn before the aircraft struck the ground. I estimate this height to be about two aircraft lengths above the ground. The aircraft burst into flames on striking the ground.

/s/

MRS. JUNE CANNON
16762 Foothill Blvd
North Edwards, Calif.

SECRET

STATEMENT

I was by No. 2 hanger refueling a T-33 when I saw the U-2 turning to the right and climbing out to the North. It appeared to be a normal climb and then started to level out slightly. It then pitched up sharply and initially rolled either to the left or the right and then reversed the direction of roll and nosed down suddenly and continued to spin in that direction. It hit the ground slightly left wing down and nose down turning to the left. It maybe did about four turns altogether. I saw something leave the aircraft followed by the pilot at about 250 feet. The parachute started to just come out before the pilot hit the ground. Just about as I started pumping fuel I looked around to see the aircraft climbing away. I think I released the nozzle as the U-2 entered the unusual maneuver.? I had pumped in 55 gallons of fuel by the time the aircraft exploded.

/s/
SGT. M. J. GIRARD

SECRET

S T A T E M E N T

The following reports the incidents prior to the crash of an aircraft on 26 April 1965 as I witnessed them.

I was stationed near the runway with the Mobile Control Officer in the event of radio failure. Mr. Edens' initial take-off appeared normal although quite steep. I next saw the aircraft as it approached the runway for an MLP touch and go landing. Just prior to touch down, when the aircraft flaired, the left wing dropped acutely and struck the ground. I do not know for certain whether the wing tip struck the surface before or after the main gear.

The left wing lifted off the runway after sliding for perhaps fifty feet and the aircraft rolled straight almost to the intersection where the pilot applied power for perhaps 2 or 3 seconds. He climb then, straight out to about 1,000 feet. He then initiated a coordinated climbing left turn and rolled out in a Northerly direction at about 1,500 altitude. I watched him for about three seconds: he appeared to be in level flight or a very shallow climb.

I then diverted my attention to the runway where he had struck. Between 15 and 25 seconds later the Mobile Officer shouted something. I turned and saw the aircraft at about 2,500 - 3,000 feet facing West in a flat left-hand spin. As the aircraft spun around the nose dropped until it was at about 45 degrees from horizontal after one full turn. I saw it turn for another one-half turn, then started running for my jeep and lost sight of the aircraft.

I saw the aircraft turn a total of one and one-half turns, going from a flat, left wing low attitude to about 45 degrees nose down descending through about 1,500 fett.

Digressing, I noted a conversation which took place just before initial take-off. The Personal Equipment technician has asked Mr. Edens whether he wished to use the boom- the oxygen mask mike. Mr. Edens indicated he wanted the mask. When the P.E. technician said that he didn't have an adaptor for the mask, Mr. Edens said it was all right, that he would just hang the mask loose and shove it to his face when he wanted to communicate. I also noticed that when he made his approach he had the mask fastened to the left side of his helmet, hanging free.

/s/
BRUCE L. HUMPHRYS
A/1C AF 17 599 187

SECRET

STATEMENT

I, T/Sgt Merlin H. Rocker on the 26th of April 1965, at approximately 1300 hours saw the following events. Our T-33 aircraft 53-5850 had just landed and was in the process of aiding in refueling when I observed the U-2 aircraft climbing out in the Northward direction. I then directed my attention to setting the fuel counters in the T-33 cockpit. My next observation of the U-2 aircraft was when S/Sgt Girard, who was refueling the right wing yelled, "Hey, Hey", and pointed toward the U-2 going down. I estimate the aircraft was approximately 500 feet or below. In what appeared to be spinning in a counter clockwise position. It was either 1½ or 2 turns that I saw before bursting into flames upon impact. After impact I observed something tumbling downward and to the left where the aircraft had fallen. I then jumped from the T-33 aircraft and ran for the telephone trying to call the Fire Truck. When no answer, I next tried to call Col. McCarthy with no results. The last try was the DM Office which was busy. I then got into a vehicle and proceeded toward the downed aircraft to give what possible aid I could.

/s/
MERLIN H. ROCKER

SECRET

S T A T E M E N T

On Monday, 26 April 1965, I was on Unit #3 at about 1300 hours. I watched the U-2 make a normal take off.

His first landing was a normal one.

On his second landing he came in touched down, took off and was going straight left from the strip. At about 100 to 200 feet the U-2 went up or rather accelerated very fast and climbed to an altitude of about 900 to 1000 feet.

At this point it seemed to nose over to the left, start down in a spin.

After the second spin I observed an object I presumed to be the ejection seat come away from the U-2. This was at about 80 to 100 feet. The seat did not go up but more or less down on an angle toward the ground and away from the U-2.

His acceleration in the climb was not more than 4 to 5 seconds.

/s/
DONALD H. COX

SECRET

STATEMENT

I, William Walsh, employed as a Lockheed Guard did observe the plane in question just prior to the crash.

I was located on the East side of the hangar with construction personnel. I saw the plane take off from the runway after a "touch and go", it started gaining altitude and flew Westward from the runway.

The last I saw of the plane was at approximately 800 feet, at which time the plane seemed to be under control.

At this time my attention was taken from the plane by the construction workers.

Within 20 seconds I turned again to the West, by this time the plane had gone from view and one huge black cloud of smoke arose from the ground.

/s/
WILLIAM WALSH

SECRET

SECRET

STATEMENT

I left the Edwards Air Force Base POL area at approximately 1300 hours Monday, 26 April 1965. At approximately 1310, still on Edwards Air Force Base Road, I noticed a long winged aircraft, black in color, circling counter-clock-wise from my position. This was before I had reached the underpass which is close to the highway. As I turned onto the highway that leads to Boron, I noticed the aircraft had crossed the highway in front of me and was again on my left. I was curious of the aircraft and continued watching it. Suddenly, the aircraft's left wing dipped and did a sharp dive. I noticed something fly off the aircraft. I don't know what it was but I think it was the canopy. Then the aircraft started spiraling to the ground. All I saw then was a big cloud of black smoke.

I saw a small road leading toward the area the aircraft went down in so I turned and drove out to the crash site to see if I could help in some way, but when I got there I could do nothing. This was approximately 1320 hours. A large number of people gathered on the road and everyone was asked to clear the area so I left. I continued to George Air Force Base and reported the incident to my supervisor and O.I.C..

/s/
ARTHUR B. TYREE

SECRET

S T A T E M E N T

I was sitting in a vehicle on the left side of the taxiway when aircraft made touch and go. Aircraft came off runway and appeared to decrease power as it passed my position then reapplied power and made a left turn while in a gradual climb approximately three quarters down the runway. After the left turn the aircraft was still in a gradual climb and going directly away from me. Engine appeared to still be running as the normal dark exhaust was coming from the aircraft. At approximately the same altitude of initial approach for landing, the aircraft started a left turn and continued to roll all the way over and started to nose first. My best estimate would be that approximately one-half way down from altitude, and while aircraft was descending nose first, an object departed the aircraft. It is unknown to me what this object was but appeared to come from the nose of the aircraft. At last sighting of aircraft, it was still descending in nose down attitude.

/s/
THOMAS F. RITZ

TAB

WEATHER RECONNAISSANCE SQUADRON PROVISIONAL (IV)
UNITED STATES AIR FORCE
Edwards Air Force Base, California

SPECIAL ORDER
8

29 April 1965

The following named personnel, are appointed to investigate Aircraft Accident of Aircraft N804X on 26 Apr 1965. Investigation will be conducted in accordance with AFR 127-4. Personnel cleared for information up to and including TOP SECRET, AFR 127-4.

RANK, NAME AND SERVICE NUMBER	ORGANIZATION
COLONEL ALFRED K. PATTERSON, 14311A (President)	Hq USAF
LT COL PETER J. McCARTHY, 15244A, (Member)	WRSP-IV
LT COL ARTHUR T. VAN CURA, 36780A, (Recorder)	WRSP-IV
LT COL RAY C. GORDON, JR., 16097A, (Special Member)	Hq USAF (Safety)
CAPT RONALD L. McGOWAN, 78272A (Medical Member)	WRSP-IV
MR IVOR B. WEBSTER (U-2 PILOT)	
(Pratt-Whitney Rep)	
Lockheed Maint Rep)	
heed Special Member)	

25X1

FOR THE COMMANDER

25X1

L. T. FITZGERALD
Director of Support

DISTRIBUTION:
1 - Ea Individual
7 - 1149 USAFSASQ
7 - PERS
5 - Hqs (OPS)
1 - OPS
15 - Recorder

8

SECRET

FORMAL BOARD MEETING #1

3 May 1965

The Aircraft Accident Board met at 1300 hours PDT at North Edwards Air Force Base. The Board, as designated by appropriate order met for the purpose of ascertaining facts related to the major aircraft accident which occurred on 26 April 1965, 2.1 miles north of North Edwards Air Force Base. The aircraft involved was U-2 N 804X (382) which resulted in the death of Mr. Buster E. Edens.

The following accident board members were present at the meeting:

Lt. Colonel Alfred K. Patterson
Lt. Colonel Peter J. McCarthy
Lt. Colonel Arthur T. Van Cura
Lt. Colonel Ray Gordon, Jr.
Captain Ronald L. McGowan
[redacted] 25X1

The following advisers were present:

[redacted] 25X1

Personnel questioned at this meeting and in order of questioning were:

Mr. Walter B. Caldwell, Maintenance
Mr. Lothar H. Broeg, Maintenance
Lt. Colonel Arthur T. Van Cura, Operations
[redacted] 25X1
Lt. Robert C. Kaup (USN), LSO
Mr. James A. Barnes, Pilot
Lt. Colonel Arthur T. Van Cura, Operations
[redacted] 25X1
Captain Ronald L. McGowan, Medical Officer

NOTE: Each witness was informed of the purpose of the investigation and the fact that no disciplinary action could arise as a result of his statements to the Board prior to interrogation.

The first witness was called: Mr. W. B. Caldwell

Pres: How was Article 382 configured, what did you have on board, where did you obtain your basic weight and balance from?

Mr. C.: I got my basic weights from the weight and balance sheet, the Marimba and I'm not too sure about that. I believe it was the 540, I'm not too sure about that, but it was a Marimba. It was all we had in there, in the systems 9 and 12 I believe, that was it.

Pres: How much weight did you have in the tail section?

Mr. C: In the tail section it was 120 lbs.

Pres: 120. Then who computed the CG? Did you compute the CG?

Mr. C: Yes, I computed the CG with Al's help.

Pres: Did Al check that for you? Did you have anything unusual that might have occurred with reference to the basic weight on this? Was it difficult to compute the weight on the aircraft?

Mr. C: No, it wasn't.

Pres: Was this a straight forward?

Mr. C: It was just a regular straight forward.

Pres: You are the crew chief of this aircraft too, are you?

Mr. C: I was acting as a crew chief then.

Pres: And now, do you have anything to contribute as to its condition that might have not been in the form; anything the pilots could have told you?

Mr. C: No, I just started on the airplane and I don't know except that the airplane as far as I was concerned was in real good shape that is, mechanically. As far as I know about it. Outside of that, I did not know anything about the aircraft, how it flew, or anything

Pres: None of the pilots have ever talked to you about the way it flew?

Mr. C: No, I didn't have a chance to talk with them as this is my first time with the pilots and the aircraft.

Pres: Thats all I have. Do you have anything, Van? Any questions?

Col Gordon: Do you ever remember what the percent MAC or CG was on this airplane?

Mr. C: I don't know. I didn't make the engine run on that thing.

Col. Gordon: And your weight and your CG, your percentage?

Mr. C: Percentage was 27.97 I believe it was.

Col Gordon: Thank you, thats all I have.

Pres: Anyone else have any questions?

Pres: All right, thank you very much much Mr. Caldwell.

Mr. Lothar H. Broeg

Pres: All right Mr. Broeg, can you tell us anything about the condition of Article 382's history since its been here; from its return from Lockheed I believe its been about a week?

Mr. B: Yes.

Pres: Would you start at that time and tell us about the condition of the aircraft; any idiosyncracies about the aircraft or any comments you might have heard from the pilots that might not have gotten into the forms?

Mr. B: First off, when the Article comes up here we go over it, visually check it out and go through all the forms and we found no irregularities there. We open up the plates to the engine compartment and check the engine compartment over thoroughly. What we can see of it as such there was nothing there that was irregular. The week it was here, the short time it was here we found nothing irregular on it as far as appearance is concerned. All the controls were in good shape and the only comment that I heard was and this happened after the incident that it was apparently stailling to the left, outside of that there was nothing on the bird that the chief could check this out on the flight test.

Pres: Has any rigging or re-rigging of the aircraft been accomplished here at all?

Mr. B: We had one write up on the rudder and this was corrected and on the following flight there was no further write up on it.

Pres: Was this aircraft average when you received it from the factory? Or was it above average, below average or--

Mr. B: I would say it was average.

Pres: Delivery discrepancies were average.?

Mr. B. Yes. In fact, this Article was probably above average I would say. The first thing I checked was for some tank interference that we've had previously, but found nothing. Good clearances all around, the engine was in good position alignment, so I would say it was average or above.

Pres: Do you have any questions? [redacted] 25X1

Mr. C: What was that one question on its rudder write up? Heard some comment out in the hangar twice that somebody here had seen a bent tab twice, was there two squawks or the same squawk? This is one squawk apparently.

Mr. B: There was only one write up on the rudder since it came up. There was a bent tab 1/16th of an inch.

Mr. C: Yes, thank you.

Mr. Sakala: The rudder squawk was for a ball center condition? It was written up for needing a trim. Right rudder, left tab needed for trim and bent trim tab 1/16th to the left. This is the only write-up that it had since.

Pres: If there are no further questions, this is all, Mr. Broeg. Thank you very much.

Pres: Col. Van Cura, would you describe to us generally what type of a briefing and the extent of the briefing that was given to the pilot prior to the take-off?

Col V.C.: Yes, Mr. Edens was briefed one hour prior to the take-off. He had been with us in the Mobile Control Unit for the first mission. I conducted the general briefing as far as the aircraft call sign and the weather conditions we knew at that time since he was out at the Mobile an hour before. My briefing was approximately five minutes and about that time I turned him to Lt. Kaup for a specialized briefing.

Pres: All right, any questions on the generalized briefing he received?

[redacted] I understand you also talked with the pilot prior to the flight, I believe it was at lunch. Would you like to go over the information which was given to him at that time? 25X1

Col V.C.: Yes, I did. This was an informal discussion and it started out by my asking the first pilot Barnes who had just flown a mission before, how the flight went. He said, in effect, well, I wasn't as pleased with it as some I have flown. Lt. Kaup who was standing there said it wasn't as bad as he'd have you believe, but Barnes went on to say then that the airplane seemed to pull left on him on all landings and the first one in particular gave him a bit of trouble. So I asked him how he felt about flying a second flight? He said he didn't think it would be a problem on this type of flight. Edens was standing there with us at this time. However, I said he should be alerted to this condition and I recommended that he take it up and stall it, do the stall series before he begins his work. Barnes said, I think it would be a good idea to get a second pilot's opinion on this airplane and if he agrees, then I think we should have it checked for a possible rig problem. Barnes then continued to brief him on his flight of that morning and they went on from that point. We did decide to go ahead and fly this sortie and cautioned Edens to be particularly careful of this condition and if he wasn't satisfied with it, to have no hesitation to bring it back.

Pres: Any questions on this part of the briefing aspect of the flight?

[redacted] what was your impression of Eden's attitude that morning, was he as calm - 25X1

[redacted] Yes, he was. He was completely ready to go with no reservations that I could detect about going. He was quite eager for the flight. 25X1

Dr. McGowan: Along that line I was also with the same group at lunch and I just happened to be interested in some past medical problems of Buster and I always bring up the matter of how his ears are and so I did talk with him. He was feeling fine and did have a very fine attitude that day, was in his usual good mood.

Pres: Any other questions?

Lt. Robert C. Kaup

Pres: Lt. Kaup, would you tell us in your own words about this specialized briefing given Mr. Edens prior to his flight? Also include in here any information you passed on to him or significant matters which you might think pertinent with regards to Mr. Barnes' flight in the same aircraft earlier in the same day.

Lt. K.: Yes sir. Mr. Edens was scheduled for I think for the 1300 launch and was mobile during the morning for Mr. Barnes' hop. On his first landing he had a left wing drop but it was considered controllable

and we shot I think we conducted six more landings which were completely satisfactory as far as he was concerned as far as controlling the aircraft and were acceptable passes for what we were trying to accomplish. After the flight Mr. Barnes and Mr. Edens and myself discussed very thoroughly the fact that this left wing did drop and it had been mentioned in Mr. Barnes' briefing in the morning flight. They did not seem to be any particular concern over the fact that it had dropped other than the fact that it was nice to know information if you are going to fly that particular airplane. Just prior to Mr. Edens going to man his airplane we discussed the pattern. I asked him if he had any questions on the pattern and we talked a little bit about altitudes and air speeds for the pattern itself. At that time he went to suit up to get ready for flying and Mr. Barnes and I went over and got into the jeep and drove over to the airplane. He was already in the airplane at this time. Would you like for me to cover the pattern itself?

Pres: Let me ask you a few questions about the briefing.

Lt. K.: Yes sir.

Pres: First of all, you act as an LSO on a Carrier; I presume this is your normal duty?

Lt. K: Not right now. Right now I am an instrument flight instructor. I am a qualified LSO and have had these duties.

Pres: You have worked with the U-2 before?

Lt. K.: Yes sir.

Pres: Have you worked out here on this particular runway?

Lt. K.: Not runway 6, but I've worked on runway 24 on numerous occasions.

Pres: Do you have any questions? There are no questions concerning the briefing. Now will you take the flight from the point Edens suited up and got into the airplane and what you observed of his original take-off and carry it right on through as far as you know?

Lt. K.: Yes sir. We sat near the airplane in the jeep discussing the radios in the jeep itself and Mr. Edens was in the cockpit; performed his checks and at 1300 taxied on to the runway and took off. He took off on runway 6 and climbed up out of sight which I assume it to be at least 10,000 feet to conduct his stall checks. These are standard procedures on each of these flights, even if the pilot has just flown the aircraft and is going right back in it again to take it to altitude after its refuel and slow fly it and stall check it. He entered the pattern about 10 minutes later. During this time we had driven to the end of the runway and turned on the mirror and set up the lights and everything to make sure everything was ready to go. He entered downwind. He didn't come into the break and told me he was entering downwind and I had the headset on at this time I was monitoring the frequency I cleared him into the pattern, he came around, and called meatball. We had briefed that meatball airspeed to be 84 knots. The previous morning's flight we had determined that airspeeds between 84 and 86 knots is considered acceptable. We decided after Mr. Barnes' flight in the morning that the higher value was just about a knot or two too fast. He was briefed and he told me that he was going to fly the first pass at 84 knots. He called the meatball with the state of 299 gallons of fuel but did not

give his speed. This is not out of the ordinary by any stretch of the imagination. He called the meatball which was in good shape, he flew the ball very well but he was on glide slpe the entire pass. He did get a little slow just prior to crossing the threshold to the runway. We had a pretty good thermal out there in the morning period and I believe he was anticipating it. I told him he was slow, and the power came on and he came back up to speed and stayed on speed until I gave him the Cut 1. At the Cut 1 he looked perfectly normal, he took it and kept his rate of descent. He looked good to me, that is all I can say. He proceeded to Cut 2 and as I gave him his Cut 2 I don't think it was simultaneous, but very soon after the Cut 2 before he was on the runway the left wing dropped. It was decided that it contacted runway. Mr. Barnes seemed to think that it contacted before the main mounts, it was very close, one way or the other; whether the main mounts were on or not. However, it was unusual that this wing would touch the runway at this time. The touch down point was between the mirror and the source lights which is just about a thousand feet from the approach of the runway. He put the power on immediately and it rolled less than 200 feet - probably only 150 feet or so and was back airborne at this time. Mr. Edens said something which I didn't understand, but it was something to the effect like "Wow", that he had realized that something was unusual and that this landing was not a completely normal one. He appeared to level off at 400 feet which is pattern altitude and was going to evidently stay in the pattern. On Mr. Barnes' recommendation I told him to depart the pattern and check the airplane because the left wing had hit fairly smartly on the runway. We felt he "rogered" for this and initiated a left turn out to about 90 degrees heading North generally. I watched him proceed North; he didn't go into a very steep rate of climb. It appeared to be a very shallow rate; relatively shallow from what I have seen that airplane can do. I watched him a little bit and in the meantime Colonel Van Cura and Mr. Barnes had prceeded to the runway to look for a skid mark and I watched them and the next thing I heard was Mr. Barnes saying "he's spinning". As I look back I saw the airplane in a left spin. Upon reflection and seeing this in my mind many times I decided that it spun just about two complete turns from the time I first saw it until it hit the ground. The first part of the spin appeared to be very steep, nose down in my estimation. After a turn and a quarter, thereabouts, the nose appeared to come up to a more flat attitude and after another quarter of a turn the pilot ejected. In my estimation the altitude that I first saw him was less than 3,000 feet and I expect he ejected at less than 500 feet.

Pres: Let me ask you a couple of questions here. On the wing drop on his first landing did it appear to be rapid?

Lt. K.: Yes sir. It was more rapid then I've seen the U-2 a number of times on the runway and I've seenthis wing fall off after the airplane has been on the runway and rolling for a little bit. It seems like its almost flying and it will drop off on one wing or the other. This wing came down before he was on the runway or very nearly so. It came down at least as fast, probably faster than I have seen it when it has occurred on the runway.

Pres: What was his pitch attitude at the time of the wing drop on the first landing?

Lt. K.: All I can say is that it was normal. We use visual references as far as his airspeed; when we give him the Cut 1, he then transfers his attention from the meatball to the deck to fly the airplane. The Cut 2 is given at an eyeball distance from the ground. He was almost flat;

the approach was very flat. Its a 2 degree glid slope. You can see it would be very flat in itself. His attitude was flat. It wasn't noticeably nose low or nose high.

Pres: Did he touch down in the expected position on the runway?

Lt. K.: Yes sir. On the field the touch down point varies considerably. You would like to have them touch down somewhere near abeam you but they can miss this depending upon his speed, you cut him at a different point. If he's slow or fast, you'd cut him at a different point and consequently Cut 2 could occur at a different point. He touched down in a normal position. I would say, or very ne arly so. That the left wing came down I am sure he touched down a little shorter than he would have had he stayed at wings level. I would say the difference would be less than 50 to 100 feet down the runway.

Pres: Would you explain for the record what you mean by the term Cut 1 and Cut 2?

Lt. K.: On a Cut 1, the pilot flies the meatball down to a point that is again an eyeball reference where you give him Cut 1. At Cut le he retards the throttle smoothly to near idle or idle and continues the same rate of descent. At this time he transfers his attention from the meatball which he has been using for glide slope information to the runway itself because from here on, the pattern is merely a coordination between his ability to depth perception on the runway and our secondary Cut 2 which tells him that he's at about the right heighth to start his rotation. At Cut 2 he pops the spoilers which are a modification for this airplane which spills the rest of his lift and the nose starts up. He rotates the nose to try to attain a nose wheel on the runway tail wheel 2 to 3 inches off altitude, which is essentially flat.

Pres: On the instance of his original wing drop, did the wing start dropping or did you notice any drop of the wing prior to Cut 2?

Lt. K.: No sir, I didn't. It seems like at Cut 2 he had time to take the Cut 2 and the wing came down and I would probably think it occurred very nearly to the time the spoilers came up considering his reaction time and the time I said Cut 2 to the time he actually actuated the switch and the spoilers came up. We're dealing in fractions of a second so I couldn't say for sure.

Pres: Did you notice anything unusual about the sound of his engine or the application of his power on the go around?

Lt. K.: No sir. As a matter of fact, I am of the opinion that he thought everything was normal because he was evidently going to stay in the pattern. The engine sounded fine and he made his turns and everything and I had the headset on all the time; he didn't say a word that I heard.

Pres: Do you recall any unusual conditions with regard to communications with him? Was there any difference in the communications that you could tell between his first transmissions prior to the first landing and after the first landing?

Lt. K.: No sir. The only things we talked about after the landing were his transmission that I didn't understand but it sounded like "Wow" or words to that effect, and the other was that he rogered for the information when I told him to depart the pattern.

Pres: This was clearly intelligible?

Lt. K.: Yes sir, it sure was. I could detect nothing wrong. As far as the sound of the engine is concerned one of the things we utilize a lot in the past when he's conducting MLP is the sound of the engine so that you can hear what he is doing with the throttle. I think if something had been wrong with it or if there had been a malfunction of any sort, I probably would have noticed it. I would have been able to hear it or if there had been chugs or anything like this .

Pres: Did you detect any black smoke from the engine on his first acceleration?

Lt. K.: The engine smokes all the time; a little bit, it seems like. I didn't notice there were any access of smoke. When he's on the runway a lot of it may be dust that comes up. I don't remember thinking anything particular about black smoke coming out of the engine.

Pres: Were you observing him at the time when he made his initial turn to the left?

Lt. K.: Yes sir. I observed everything he did until he was passing through 1,000 feet or so when I looked back to the Colonel and Mr. Barnes who were on the runway.

Pres: And this was all from your position at the mobile vehicle?

Lt. K.: Yes sir.

Pres: Did you notice any tendency of the aircraft to roll jerkily or to over-roll or to over-correct the sloppiness in the turn?

Lt. K.: No sir.

Pres: Any sloppiness of the turn?

Lt. K.: No sir. I sure didn't. From what I've seen of the airplane it appeared to be perfectly normal. The one thing I did notice to be abnormal was that he didn't do a very steep climb. But if he wasn't going to go very high or anything, this is quite understandable. I would say that he wouldn't climb like he would on the take-off which was fairly almost vertical.

Pres: You had headsets on all this time?

Lt. K.: Yes sir. Over one ear.

Pres: When did you take these headsets off?

Lt. K.: After the airplane had hit the ground we started to secure the equipment and thats when I probably took them off. I don't remember.

Pres: After you passed the instructions for him to climb out and perform a trim check, are those the correct words?

Lt. K.: A stall check. I think the words I used were probably something like "take it up to altitude and check it out and depart the pattern because the left wing hit pretty hard". He rogered for this.

Pres: After you gave him those instructions, did you hear the increase in engine power or notice any change in the smoke pattem of the aircraft?

Lt. K.: No sir, I don't think so. I would probably say there was an application of power as he started his turn and climb. I didn't notice anything particular about it.

Pres: In the final maneuver as I understand it, you said you saw what you thought was his ejection.

Lt. K.: Yes sir.

Pres: This was in what part of the maneuver?

Lt. K.: When I first saw the airplane standing out on the runway it was coming around in a left turn. The nose was coming around to point at me. It made a complete turn and came back once mre and half-way through the second turn I think he ejected. I did not see the canopy when it was ejected but I did see the seat and its occupant when it came out. I'm sure that was what it was. I think it started out initially very steep. I would say at least 45 degrees nose down because I had a plain view of the airplane. It appeared like this to me: I could see the wings and the tail surfaces and everything as it came through the second turn. It seemed to me that it came up to a more flat attitude but was still 20 degrees nose low.

Pres: You could not from your position actually see the aircraft strike the ground.

Lt. K.: I don't think so. The smoke was simultaneous. There's a little knoll over there and I couldn't see the aircraft after it was on the ground. I'm sure I couldn't see it hit the ground.

Pres: After you asked him to leave the pattern did you notice what his flap setting was at the time?

Lt. K.: No sir, I didn't.

Pres: How about his gear?

Lt. K.: It seems to me after he leveled off and was climbing on a Northerly heading, his gear was still down.

Pres: What altitude would you have expected him to climb to check the stall characteristics?

Lt. K.: Well sir, I have never seen them stall the airplane. They always go out of sight so I would say they had been talking during the lunch period about where the normal heating turbulence was here and Mr. Barnes said it stopped above 10,000 feet. I would expect he would go to at least 10,000 feet. I know I watched him out of sight and I'm sure he was above that altitude in his initial stall and I would expect that he would probably go back up there.

[redacted] As he came back in after going up for the original stall, was there any acknowledgement that the stalls were good, bad, or indifferent? I'm sure he wouldn't have even come into the pattern if the stalls were not all right. 25X1

Lt. K.: Yes sir. By his entering the pattern because we had specifically briefed if the airplane did not feel right at all we would knock off and try again.

Pres: Thank you.

Captain McGowan: When he went past you on his first touch and go, did you notice if he had his mask on, or was it hanging off the side?

Lt.K.: I didn't notice.

Capt McG: And you say you saw the pilot leave the aircraft; are you fairly sure you saw the pilot?

Lt. K.: Yes.

Capt. McG: What made you think it was the pilot?

Lt. K.: The size of the object which left the cockpit.

Capt McG: You saw no color?

Lt. K.: It was dark in color and it wasn't like a canopy where you would see a rim. It was a solid object.

Capt McG: And the trajectory of the ejection was vertical or horizontal or inbetween?

Lt. K.: He went horizontal but he did have an up trajectory,but it was very slight.

Capt McG: At any time did you see anything which looked like a parachute?

Lt. K.: No sir.

Col. Gordon: When you observed him climbing out, you state that you think the gear was down.

Lt. K.: Yes sir.

Col G.: Later on, can you tell us any other configuration?

Lt. K.: No sir. It was a couple of miles away. I couldn't tell whether the gear or flaps were up or down.

Col. G.: How about speed brakes?

Lt. K.: No sir. I couldn't tell you about those either.

Col G.: During this maneuver did you see anything unusual in color, anything?

Lt. K.: No sir. Like a picture there was nothing wrong, except what the airplane was doing. Nothing fell off the airplane that I could see.

Col. G.: Any vapors of any kind did you notice?

Lt. K.: No sir. I sure didn't.

Col. McCarthy: Just for purposes of record, you mentioned many times during your statement the wing touched the runway or dragged the runway. Did the wing actually skid?

Lt. K.: Yes sir. The skid touched down.

Dr. McGowan: I have another question. When you saw the ejection, was the aircraft heading toward you, or away from you?

Lt. K.: The airplane was headed toward me. It was in the left turn but the nose had turned 90 degrees from my position.

Mr. Sakala: After No. 1 MLP what was his recovery technique after the wing dropped and proceeding down the runway?

Lt. K.: The power came on and I don't know that the wing was stalled . It probably was, if it dropped like that, but when he had flying speed it was a normal go around from that point on.

Mr. S.: It looked like no undue difficulty in regaining control of the aircraft.

Lt. K.: No sir, it sure didn't. He just put the power on and it flew away, which appears to be normal to me.

Mr. S.: Did you walk out the runway to look at the skid mark?

Lt. K.: After we came back in from the crash site I went out to secure the mirror, etc., and looked on the runway to see if there was a skid mark and I found a strip of about 50 feet where it looked like the wing tip had hit the runway.

Mr. S. What was your impression of the attitude of the aircraft when it went out of sight? What wing low and so forth?

Lt. K.: Behind the hill.

Mr. S.: How do you think it hit the ground?

Lt. K.: Very nearly in a flat attitude. It had come from the steep part - I would say no more than 15 or 20 degrees nose down at the most. And the left wing was very low, but not very much. No more than 15 degrees angle of bank.

Pres: Did the aircraft flatten its attitude before or after what you presumed to be the ejection?

Lt. K.: Before. I would say a second, I don't know how fast it would be turning but it flattened and it went around just a little bit more. It was at an attitude where I could see the flattening by looking at it.

Pres: Are there any other questions? Thank you very much, Lt.

Mr. James Barnes

Pres: Mr. Barnes, will you tell us in your own words what you saw of Mr. Eden's last flight starting with his original take-off and his original landing.

Mr. B.: The original take-off was 1300, I think right on the hack. It made a climbing left 90 degree turn and proceeded to turn beyond my visual range assumably to perform his MLP type planning checks. In approximately 5 minutes (I was on the radio at this time) he made a transmission to the effect that he was beginning descent for a pattern entry and requested a change to tactical frequency at that time. We changed to tactical frequency, acknowledged that change and passed the

radio to Lt. Kaup. At about 8 to 10 minutes he entered into a rather long downwind toward the pattern somewhat before the approach end of 06. When I noticed the aircraft it was in landing configuration as far as I can determine, that is flaps, gear, brake and all that. He proceeded around the pattern. I am not aware or knowledgeable of the radio transmission that took place at this time, I did not have it on. He turned into a groove that appeared normal as far as distance from the touchdown position and altitude were concerned. It gave me the impression he was somewhat slow. About the approach end of the overrun he seemed to correct this. The aircraft seemed to come back into line. He made some throttle adjustments, both audible and visual. At the Cut 2 position, our spoiler position which is about normal position, the aircraft seemed to settle more rapidly than is normal from a spoiler activation. The left wing dipped sharply to the left striking the surface of the runway just prior to main gear touchdown. Immediately the power came on and this control was regained through a short ground roll, possibly 75 feet of skid ground roll before the wing came up. During this time the aircraft had been pulled somewhat to the left of the center line; of measurement, I have no idea. But when the aircraft broke groind it was heading in the direction somewhat left to that of the heading of the runway and somewhat to the left. After a few feet of altitude had been gained, he corrected through a right turn to coincide with the runway heading, not to fly back over the runway, but the runway heading. I was sitting on the hood of the control vehicle. I jumped off immediately after the aircraft passed my position. I ran toward the strip to have a look at the wing when it broke ground, with particular reference to the skid. We have had skid damage skin warping with very minor impacts and we have had some very severe impact with no damage. This appeared to be normal to me. I suggest to the LSO, Lt. Kaup, that he ask Buster to have the aircraft leave the pattern and recheck the aircraft trim prior to any further landing attempts, because it was quite obvious that he had gone through something rather violent at the spoiler activation point. Apparently, this message was relayed, for when he made his climbing left turn, the flaps had started up which is not a standard procedure when remaining in the MLP pattern and he rolled out 90 degrees perpendicular to the strip, as though to return to the field. Immediately after breaking ground, and having the aircraft under good control, he had reduced the power which is in accordance with accepted procedures for remaining in the MLP pattern, maintaining a speed below flap unsafe speed. He established a modest rate of climb even when it was evident that he was leaving the pattern by not continuing his turn to downwind. I didn't notice any aircraft attitude change or hear any additional power come up. He proceeded in this modest climb to a position I would judge to be somewhat between the runway and 466 or the main highway out here in a very modest rate of climb. About this position or about the time he should have approached the highway at 2200 - 2500 feet, I would judge, I took my eyes off the airplane and walked further toward the approach end to attempt to locate the wing tip skid mark on the ground. We found the mark that more or less coincided, I don't know whether it was the right one or not. We just didn't have time to examine it. After discussing this and giving a brief look at its length, for some reason I looked back toward the plane and at this moment it was in a somewhat less than nose level attitude in a fairly high degree of bank. What I would describe as just having started a spiral turn. So, judging from the direction the aircraft was heading and the position it was now in, I would judge it had made about a 90 degree or possibly something in excess of this. It may have been over 90 degree of this first spiral like turn that almost immediately became a spin and the lowering of the nose and the assuming of a whipping

or cylindrical shape spin rather than just coming straight down. The aircraft to the best I am able to reconstruct this, was either a 3¼ or 4¼ turns prior to impact. Once the nose spin was established, it didn't deviate from this more than 15 or 20 degrees, that is, the longitude of the aircraft as measured to a vertical from the ground. At approximately 3/4 of a turn prior to the impact or during the early part of its last full revolution I would determine this is when pilot ejection occurred. The pilot left the aircraft on an original line almost parallel to the ground. Of course, he had the downward motion of the aircraft imparted so naturally it was an abrupt departure. But the line of ejection was initially much parallel to the ground and in a generally Eastward direction or in other words from our viewing position, to crash sit to our right. This would carry 20 to 30 degrees from Eastward ejection from the aircraft down. The aircraft actually dropped from our sight before the explosion and before ground impact. From the time it went from sight to the explosion was not to be judged. In other words, my land sight vision to the impact point was interrupted by uneven terrain features. I didn't see any pilot seat separation at all. It was when the pilot and seat went below these uneven features. I guess this to be a 14 minute flight according to my watch. I did not have a hack time. That is essentially what I saw.

Pres: On this wing drop on the initial landing. How would you describe this wing drop as violent, more rapid than --

Mr. B.: Well, it was quite rapid. Obviously, it was speed and magnitude - the combination of the two that cannot be controlled. I had experienced the same thing on the flight before on my first pass. However, obviously, not to this degree. It paid off sharply to the left; turning and wing drop. However, with full rudder and aileron I was able to maintain a somewhat more wings level attitude in that my tip did not hit the ground or didn't come quite close. I would have to describe it as a very rapid drop. At the Cut 2 position or on spoiler activation, the wing lead almost immediately all the way down, almost simultaneous with the spoiler activation very shortly thereafter.

Pres: How would you evaluate his attitude at the time he went into Cut 2, was he nose high, normal, or just how would you put it?

Mr. B. Aircraft attitude at Cut 2. In reconstructing the latter part of the groove, he was slow. During the early position of the groove he had corrected this from a position approaching the over-run to the Cut 2 position by the adding of power. The attitude that Cut 2, if it were abnormal was so much that I could notice it. The LSO is probably more qualified to give you this than I am. I really couldn't say at that point. It had an initial slow groove corrected and the reference points that I use on the aircraft for determination are now misaligned at the Cut 2 position to give me a real good end indication. On his climb out after he was given the command to climb out of altitude or check his aircraft he complied.

Pres: What position did he raise his flaps, could you tell?

Mr. B.: No, I couldn't tell. Somewhere after he had passed our position the flaps had started up. Thats all I can tell you. I don't know where the flaps came to. In fact, when I last saw the plane I'm not certain if they were up or not. I couldn't tell you. The flaps had started up, that is all I can say.

Pres: If at that portion of your flight you were to go to gust position would you get a pitch up of the nose or a pitch down?

Mr. B.: Always in activating the gust you have a tendency to nose up. As must be counted by a forward motion of the trim tab which would naturally counter a nose up tendency. Going into gust at any attitude and air speed you have to trim forward. Coming out of gust you must trim to the rear.

Pres: In his roll out from his left turn, did you notice any over-roll or correction that seemed abnormal?

Mr. B.: Are you talking about the turn departing the pattern? I would hesitate to say that he overshot under any conditions because I don't k ow what his selected heading was. No, I would say that the turn was a pre-planned mild turn. It didn't look to me that he did. Now, if you mean he chose to correct his heading by a few degrees, he could have done this without being noticed. It did not make an impression on me.

Pres: Did you hear the engine increase power when he was told to climb?

Mr. B.: No, I didn't. Not when he was told to climb, when he was told to climb or when I - now this goes back a little bit. I do not know when he was told to climb. I asked the LSO who had control of the radio, to relay this message to him. I assumed that he did, at exactly what time I do not know. Yes, there was a decided burst of power on the go around. As soon as the aircraft was off the ground and under control there was an abrupt reduction in power as is standard. I could not say for sure that there were any other changes, or they were not of a magnitude that I would or did notice.

Pres: How about his gear position.

Mr. B.: The last time I saw the gear it was not retracted. I am not going to say that it was not started up or anything else. The last time I noticed the aircraft, the gear was not up.

Pres: And this was where?

Mr. B.: Oh, it was somewhere between the approachend of 24 and highway 466, roughly I would say half-way, twothirds of the way.

Pres: This was on the climb out?

Mr. B.: Yes. On his initial climb out, I took my eyes off the aircraft when the aircraft was somewhat short of 466 or the highway.

Pres: How about in the spin? Did you notice?

Mr. B.: I did not notice at all. In fact, when I initially saw the aircraft, it was in such a position to me that I could not have seen the gear regardless of its position. It was more or less canopy toward me, the gear would have been on the far side. Throughout the spin I did not notice at all. I could not tell you through the spin in what position the gear was.

Pres: How about the dive flaps in climb?

Mr. B.: I did not notice dive flap retraction, however, I did notice them as being out. The only thing I noted during the early portion of his climb was that the wing flaps were started up. I couldnot even tell you at what position they faired; or if he stopped them and ran them backdown again. But I know that they did start upon occasion.

Pres: I would like to ask the same question I asked Rollo. What altitude would you have expected him to climb to, to carry out trim or stall check?

Mr. B.: Now, at what altitude Iwould have climbed to?

Pres: No, under the conditions, what altitude might you have expected him to climb to?

Mr. B.: If he were going to stall the airplane I would have expected him to climb to an altitude of about 10,000 feet. I base that only on what I would do, you see? Under no conditions would I consider full stalling this aircraft below 10,000 feet. I will say under no conditions, I have never done it; other than in the landing pattern, other than at landing point. Excuse me, that wasn't worded right. With an obvious mis-trim condition I would have probably allowed something else. You asked the question,I'll answer it, I would not have expected him to climb to less than 10,000 feet.

Dr. McGowan: You saw no pilot seat separation, is that correct?

Mr. B.: I saw none, thats correct.

Dr. McG: Did you at any time see anything that looked like a parachute?

Mr. B.: No, I didn't.

Col. Gordon: Going back to the climb out that you observed. What would you say his speed was during this climb?

Mr. B.: During the initial climb or the climb from his touch and go landing?

Col Gordon: From his touch and go.

Mr. B.: Oh, from his touch and go landing. Prior to the time that the flaps were up, I would say just knowing what the airplane will do under these acceleration conditions and no attitude or power noise or anything would suggest anything different, that it was 100 knots or less. I know about the time it takes at normal go around power to achieve this.

Col G.: Actually, what I mean is, was it normal, greater, or less?

Mr. B.: Oh no. This was much reduced than a normal climb. Much reduced climb angle and speed. The normal climb speed is 160 knots indicated to a certain point. All of this climb on his initial climb and this one would, of course have been within this range. This is normal climb speed. 160 knots indicated unless certain rough air conditions of course, would become a factor. Then it depends on your configuration. I would say that he was both slower in rate and slower in speed than a normal climb.

Col G.: Another question then, please. Why did you look back toward the plane?

Mr. B.: I don't know. I really don't know; I have no idea.

Col G.: Thinking back, could it have been something you heard?

Mr. B.: Yes, as a matter of fact, now that you put it that way; in thinking back it may have beensomething that I heard. Not directly associated with the airplane but one of the members of the group.

There were four members fairly close togehter in the grou which I was by the landing position. One of the members of the group said that he made some sort of oral exclamation when he saw the aircraft, and he obviously saw it somewhat befire I did. This may have diverted my attention. I do not remember hearing this exclamation at all, but for some reason in a kneeling position on the strip I did look back toward the plane.

Col G.: All right, and when you looked back toward this airplane, we've gone over it once before, but what configuration did you notice; anything unusual?

Mr. B.: I noticed it unusual, not in configuration, but in attitude. The aircraft was in a near level, somewhat nose low, steep left turn at this time. The configuration, I could not say, it was probably out of dive brake vision from a top vertical view, and the gear, any gear configuration would have been hidden from me at this time.

Col. G.: All right, another question. Would you tell us what you saw in the way of vapors or smoke at this time?

Mr. B.: At this time I saw nothing in the way of vapors or smoke that made an impression.

Col G.: All right. During your flight earlier, did you go into the gust position at all?

Mr. B.: Yes. I went into the gust position -- let's see -- it was during the initial part of letdown. I leveled at about 11,000 feet and ran into smooth air. I started by level off around 12, probably leveled about 12-5 somewhat between 12 and 13. I ran through a series of stalls. Initially I ran two, or three clean. Now, when I say clean, I mean without flap only. Dive brake and gear were extended. Then I ran through my selected landing configuration and made some trim adjustments. Particularly with reference to fuel. The aircraft indicated to me initially that there was a fuel misalignment, however, after a series of stalls I determined that regardless of fuel alignment at or very near the stall the left wing would make this motion. When I was returning to the field I was told to conserve and hold because they were to change landing directions. This involved moving some equipment out here on the strip. At this time I climbed back to about 15,000. Now you asked me about the gust. I'm getting to it. During the initial part of the descent, from there to the pattern I went to gust.

Col. G.: When you went to gust position, could you tell us what motions you had to make with the stick or --

Mr. B.: I remember nothing other than normal. You have to hold a pressure here unless you trim it out. If you trim excactly in conjunction with gust you can over-ride this; if you are a little lagging, you will have a backward stick pressure.

Col G.: My last question concerns airspeed indicator. Cockpit indicator. Could you tell us anything that you might remember about this?

Mr. B.: Yes, I can. I can tell you something that might concern that. This aircraft, that day, for some reason, required 2 to 4 percent more power per weight than the other airplanes we have flown to maintain the correct indicated, or safe indicated speeds, or proper speeds for that portion of the pattern. I base this on this fact, 78-70 which actually means nothing - but to me it does. 78-70 will normally carry

88 - 90 knots which is a good pattern speed prior to groove. This airplane required 82 to 83 percent to hold that 88 or 90 knots. In the groove, once your threshold speed is established, 73, 72, 73, 74 percent is the normal. Normal is the average between two or three other airplanes that we have done this extensively with. This airplane required 75, 76, I think in the early part of the groove. I even had 77. This could have beencorrection for a low arrangement, you know, one percent could have been too much. Two, three, occasionally four percent additional power to maintain the same indicated airspeed for the configuration and weight. This is all on airspeed, but it was quite a difference. That's more than the other two or three airplanes I've done this with -- were all very close on this power. This one decidedly required more.

Col. G.: Was this point discussed between you and the other pilot during your --

Mr. B.: Yes. I believe that this point was specifically discussed, in fact, I remember discussing it. I am just not certain who it was with. I could probably find out, though; tjere were other people in the discussion.

Mr. Sakala: Mr. Barnes, do you feel that there was an undue amount of turbulence? The fact that his climb out was at,as I understand your discussion, much more reduced power and a lesser angle. Do you suppose that might have been a factor?

Mr. B.: No, I don't think that severe turbulence was a factor. There was a normal amount of turbulence very near the surface when I flew and I flew with the winds somewhat in excess of what he had. The terrain features around here seemto, with wind, aggravate the surface turbulence conditions along with heating. He may have been a few degrees warmer, I don't think a great deal. His winds were somewhat diminished so I would tend to discount turbulence as a reason for a much reduced climb.

Mr. S.: Do you have anything other to suggest that might be why he would be climbing at a reduced speed?

Mr. B.: I have absolute nothing. I cannot - I have nothing to offer for that rate.

Pres: I would like you to think back very carefully about his flap position. If you can visualize that on his climb. When he first started his climb.

Mr. B.: This is after he has - -

Pres: After he broke bround. After he broke and appeared to level off at 400 feet and then he was given the command to take it back upstairs. See if you can remember what the flap position was.

Mr. B.: All right. I am certain, no, I'm not certain. I believe the radio transmission was made to him prior to his beginning his left turn out of pattern. I believe this, I'm not certain when Lt. Kaup said this. After he broke ground he had full flaps, some 50 degrees down. The flaps remained -- the flaps were downfull while he corrected to correspond with the runway heading. If I am not mistaken, prior to his even beginning his left turn was when I noticed the flaps at a reduced position which would indicate to methat they were on their way up. I cannot recall flap position when he was established on the final heading that took him away from the field. I just can't recall. I don't recall seeing the flaps stop at any position or return low.

I just have a note in my mind that I saw them start up.

Pres: Your last recollection was partial flaps then?

Mr. B.: Yes. Flaps were -- well, and then my recollection would be, on their way up. This is how I had registered it in my mind, that the flaps had started up.

Mr. Webster: His actual turnout to climb, or as it was, to re-enter the MLP pattern, was he shallower or steeper than normal for Buster?

Mr. B.: Now, wait a minute. Would you say that again, I'm not sure exactly --

Mr. W.: Well, you have seen Buster do MLPs before and he will turn out to re-enter downwind to continue his MLPs at a certain angle of bank. Was that angle of bank steeper or shallower or normal?

Mr. B.: I would say that the bank he made was consistent with staying in thepattern, in other words no more than he would have used were he staying in the pattern and no less. I would say normal. I noticed nothing unusual about his turn. Now it might be well to check with someone about Buster's flat procedure. I know in the initial days of doing this, Buster would reconfigure his airplane for each approach.. that is, he would retract flaps after each landing. I think the last time I had an MLP period with Buster, he did not do this. That had beensome while ago. I think he had begun to leave his flaps down throughout the pattern. I know the initial few though he would re-configure. I don't know if this would be significant or not. It was just a thought.

Pres: Mr. Barnes, you mentioned on your flight that morning, that you had a left wing drop out on your first MLP. On subsequent MLPs did you have to increase power to prevent this?

Mr. B.: No. I led in with both aileron and rudder control, however, as those who were out there on one or two more passes the wing would tend to go down. At no time did it approach getting out of control or contacting the strip. The reason I mentioned the first approach, the first approach was because I was just not expecting it to be this decidedly andthis abrupt. It made a motion substantially more toward the strip than I would have liked. On about half of the remaining patterns, if I'm not mistaken, I made seven landings that morning. Of about half of the remaining patterns, we'll say three as a guess, I had full right aileron and most of rudder correction in at or just before touch down and would have had to maintain this control selection until power or additional airspeed was regained. I attribute this to the fact that the wing didn't get that much further away. I was expecting it and had substantial control in at this time. I would lead the condition I attented to. Does that answer your whole question?

Pres: Are there any further questions? Thank you very much, Mr. Barnes.

Lt. Col. A. Van Cura:

Pres: Col. Van Cura, will you tell us in your own words what you saw with relationship to the initial landing made by Mr. Edens and carry on into his go around and as much of the incident as you saw?

Col V.C.: We can go back a little farther than that and bring him on the downwind leg. From the downwind leg he entered at approximately

1310, ten minutes after take-off. His turn on final approach was normal. At approximately 1000 feet from the touch down point he did accelerate slightly and he had a slight yaw to the right and then decreased power to come to a normal attitude. I would assume this is where Lt. Kaup told him he was slow. On touch down I was blanked by the Mobile Officer and the LSO so I didn't actually see his initial touch down. I would assume that when I did see him, the left wing skid was on the ground and the wheels were also on the ground. He was slightly left of the centerline on the runway going toward the left side of the runway when he did have it completely under control. The left wing did come on up after power was put to the aircraft for another take-off. He did take off from the left side of the runway and then after approximately 300-400 feet he started a left turn to stay in traffic for another touch and go when Mr. Barnes told the LSO to advise Mr. Edens to climb to altitude to check his configuration. I saw him going out, approx tail from me heading North. I diverted my attention from the aircraft at that time to look for skid marks on the runway. Going toward the approach end of the runway which actually my back would be to the aircraft as it was climbing looking for skid marks. I did not see any skid marks when Mr. Barnes indicated that he had seen one. At this time I turned around and kneeled down on the runway to kinda look at the skid mark and for some ungodly reason I looked up. At this time I saw the aircraft in a - oh let's see, that would be Northwest position, actually about 45 degrees from the last time I saw him climbing on out. At this time it did have a left wing low, nose slightly low, I'd say approximately 30 to 45 degree bank. I thought he was coming on back into the pattern to run additional touch and go landings there,but then the wing continued on down and at about the 90 degree point, his wing was, I'd say, about 60 degrees down. I believe at this time Mr. Barnes looked up and saw him also. I believe I told Mr. Barnes that he was coming on back to enter trafic, but then the wing kept decreasing in a steeper bank. The nose started going down and instead of a turn, it entered a spiral and then actually a spin. Looking back I think there was about a three and half turn spin after about 2½ to 2-3/4 turn spins I did notice something leave the aircraft. That was approximately 300-400 feet above the ground. I assumed it was the pilot and I was hoping I could see a blossoming parachute. I did see a slight blur disappear from my view. I'd say that about 100 feet was obscure from my view because of a slight hill. The next thing that I saw was the flame and the smoke of the crash.

Pres: On his go around, would you tell us what you heard with relationship to application of power and/or saw with reference to smoke from the engine?

Col V.C.: I would say that the application of power was just about normal. He applied power just about the same time and as much power as the previous mission of Mr. Barnes on his go around. After take-off I did not notice any decrease in power. Smoke was normal, and then as I said, after he turned out of traffic, I could see that he started a shallow climb to altitude and I assumed that he was going to climb on up to about 10 or 12 thousand to perform stall characteristics and I did not see himduring his climb.

Pres: The next time that you observed him - let me back up one -- did you notice the position of his gear or flaps?

Col. V.C.: No, I didn't.

Pres: The next time you observed him after looking at the skid mark on the runway was in the turn? A left turn?

Col V.C.: No, the next time I -- this was before I went out to the runway, that he had taken on off, made a slight left turn, I assume he was about 60 degrees to the left and at the same time he had received this call from the LSO to climb to altitude. At that time he had leveled his wings and in a slight climb going in a Northerly direction.

Pres: When you next observed him after going to the runway?

Col. V.C.: Yes.

Pres: He was in a turn, about a 35 degree bank angle?

Col V.C.: I'd say about 35-45.

Pres: Was his nose high or low?

Col V.C.: I think it was slightly low at this time. In other words, it looked as though he was making a normal turn. I did not see an abrupt left wing down at that time. It looked like 45 degrees from his original path that I had seen him climbing on out. With about a 35 - 45 degree bank and a light nose down attitude. This was my initial look, or concept of the aircraft. Then that bank increased at about 180 degrees from the original heading. That would be heading South, the nose was almost vertical to the ground and he was spinning.

Pres: What was the impression of his speed during the initial part of the turn that you saw?

Col V.C.: Slow.

Pres: How slow, very slow?

Col V.C.: Much slower than a normal climb on initial take-off where you could see that they do climb rapidly and the airspeed there was much faster than the airspeed at this time. But there, too, it would depend on if he had any headwind. It would indicate that he was going slower. I would assume that he was going below a normal climb speed.

Pres: In the turn?

Col V.C.: In the turn.

Pres: Any stability on the climb, bouncing up and down?

Col V.C.: Too far to see.

Mr. Laddie Sakala: Did it look like, in the latter part of the turn, I didn't remember your describing them, did the nose look like it was coming up?

Col V.C.: Probably about the last three quarter turn of the spin prior to hitting the ground. It seemed to flatten out there, but saying yes it did flatten out, I couldn't say for sure.

Dr. McGowan: During what portion of the spinning did you say you saw something leave?

Col V.C.: You could take him after 2½ turns, in other words, he was spinning and I would say that - with his nose down attitude at this

time, that the plane of the wing was just about perpendicular to me, in other words, I could see no wing at this time. I did see something come out and eject to the right side of the airplane. Actually, it would be to the left side of the airplane, the right side from me. Cause all the way down in this spin I was telling him to bail out, and eject. I was just hoping to see something.

Dr. McG.: How much further around did he go before he impacted in?

Col V.C.: About three quarters of a turn of a spin.

Dr. McG.: And the trajectory of the parts that left?

Col V.C.: Using the ground as a horizon I would say almost even in other words, horizontal to the ground, with maybe a slight downward toward the ground.

Pres: You say you were telling him to eject?

Col V.C.: Yes, in my mind. I don't know whether I was hollering it out or not.

Pres: Thats an interesting point. Did anybody call for him to eject on the radio.

Col V.C.: Lt. Kaup doesn't remember anything and I remember Mr. Barnes saying the same thing. He was thinking about it but he doesn't know if he was saying it out loud or not. Something like that sort of mills in your mind at that time.

Pres: How long have you known Mr. Edens?

Col V.C.: Oh, since I reported here in November of last year.

Pres: What was your impression of him as a pilot.

Col V.C.: Well, I have flown with him in a T-bird. I think he was a very good pilot, nice and smooth. I have flown with him in the front seat and with him under the hood in the back seat. An above average pilot, definitely.

Pres: Did he practice MLPs here before that you have watched?

Col V.C.: I don't think that I have ever seen any of his MLPs. No, I believe that his last MLP landings were in December. I can look that up in the LSO's book.

Pres: Did you notice anything that he was doing differently at this time Van, than what you expected him to do?

Col V.C.: You mean after his go around during the MLP pattern or what?

Pres: Yes, was he flying the aircraft differently in any way other than what you would expect him to fly it under the circumstances?

Col V.C.: No. He had a normal initial pattern there. That was the only pattern that he flew there until we told him to climb to altitude and recheck the aircraft.

Pres: Was there anything in his climb that appeared to you to be unusual considering the circumstances?

Col V.C.: You mean his slow rate of climb after leaving the pattern here?

Pres: Yes,did you question that?

Col V.C.: No, I didn't because I thought that he might be cleaning up the aircraft there and just had initial slow climb and that after cldaning up the airplane that he would proceed at a higher rate of climb to his altitude. But at that time I just looked to the runway and didn't -- the initial portion was slower than the initial take-off, but I didn't check his climb attitude after that. Initially yes, it was slow, but I just assumed that he was cleaning up the aircraft to climb altitude.

Pres: Do you have any idea what attracted your attention to the aircraft?

Col V.C.: No, I couldn't say, except that looking back down the runway I may have just caught him at the top part of my vision and saw him turning on backwhich I thought was kinda odd that he was turning back at this time because I don't think he was going to make - had performed his stalls, or any difference in wing loading at that time. In other words, fuel configuration.

Mr. D. O'Kennedy: I was just curious, does anybody know when Mr. Edens got the word to get away from the pattern and climb out?

Col V.C.: Yes, he received this word just about the time he was maybe 60 to 90 degrees from the runway heading to the left. In other words, it looked as though he was going to stay in normal pattern. In other words about 400 feet.

Mr. O'K.: The reason I bring this up, you just said he was climbing slower than a normal initial take-off when actually he was just continuing his MLP patterns. I mean a normal rather than a climb,you know.

Col V.C.: I would assume if he stayed in his normal MLP pattern that he would have his full flaps down and gear down and then have slowed it up and just about leveled off at 400 feet and started his turn to the left. At this time Iwould assume that he did receive word to break traffic and climb to altitude to run stall characteristics check on it. Then when he was on the Northerly heading, yes, he did have a shallow climb there and, as I said before,this would be just about normal until he cleaned up the airplane.

[redacted] 25X1

Pres: [redacted] you were one of the first people at the accident scene. We have made up a chart here showing the accident scene and the dispersion of wreckage. Would you give us in your own words your impression regarding the manner in which the aircraft impacted,and relate it to this accident scatter pattern? 25X1

Col G.: Of course. It had been stated that the aircraft was in a spin to the left and it impacted on a heading of what I would estimate I haven't actually measured this,to be 225 degrees and from a search of the area there was nothing missing that could be found of the aircraft except the canopy, ejection seat, and of course, the pilot

and associated items with the ejection. The canopy was located ahead of the aircraft almost on the exact same arc at about 231 feet by measurement from the left wing tip, but almost directly in front of it on the same arc of the spin. To me, this would indicate that the canopy came off one turn, almost one turn prior to impact. Perhaps three quarters of a turn. The seat, obviously came out immediately thereafter and the travel of the seat was from Southwest, well, actually from the West toward East. The debris from the pilot's visor, pencils in his pocket and extraneous material of this type were scattered for several feet from the actual resting point on a heading of about 70 degrees which was just about the opposite point where I estimated he came out of the canopy. There was quite a force, obviously from that direction indicating that he probably came out fairly horizontal with his body traveling in an Easterly direction or slightly North of East at time of impact. Everything associated with the seat, seat pack and personal equipment was located fairly close together roughly from the point of impact. It was in an East slightly Southeasterly direction with the seat pack 91 feet from the left wing tip and the body 11 feet further and in the same general direction. The helmet was just beyond the pilot by a few feet. I don't believe this was actually yes, in fact, it was -- it looks like about 30 feet or a little more than that. There was the right strap from the seat in the road; because cars were running over it, it was removed to a position right beside the helmet. It and the skull cap were both in the road, the point was visually marked and they were laid beside the helmet. You will see those in the picture which is not the place they actually came down. That essentially covers it and as you say, we do have a chart of this which Dr.McGowan's Life Support people did a pretty accurate job of measuring.

Pres: Was the aircraft burning when you arrived?

Col G.: Yes.

Pres: Was the fire confined, or was it generally spread when you arrived?

Col G.: The whole forward part, well the wings and everything forward was burning heavily.

Pres: What seemed to be feeding this fire?

Col G.: I judged fuel. It was more than just -- it was a fuel fire. No question about that.

Pres: Any explosion occur after you arrived?

Col G.: No, not that I detected.

Dr. Ronald L. McGowan

Pres: Doctor, do you have any comment to make on this distribution?

Dr. McG: I don't think its timely to take all the details of the report. There are a few observations that the seat did strike on its left side, left posterior side. Almost in a flat, in fact, exactly flat on its left posterior side and then made a roll onto its right side. The body's position shows it impacted very close, in fact, in the immediate vicinity of the seat. Impacting on its left side with a great deal of force and also making a roll onto its right side. The

The parachute was deployed only up to the quarter pack which is a special pack to allow for slowing down. It doesn't allow the skirt of the parachute to billow until the entire parachute has been deployed. That portion had not been torn out of the pack as yet, indicating the parachute had only been opening about 30 to 45 seconds. I'm sorry, hundredths, tenths, hundredths of a second. It opened actually half a second. The zero lanyard was not attached, the hook for the zero delay lanyard was empty. The timer had fired the parachute two seconds after leaving the seat. Everything else seemed to have operated normally.

Pres: You say that this was a normal ejection at a very low altitude?

Dr. McG: Yes sir. We couldn't have expected anything better, especially with pre-evidence that the trajectory was still, the ballistic trajectory of the seat was going right laterally thendown into the ground so that the speed even from that altitude was not just the velocity of gravity but had actually imparted other velocities onto it.

Pres: You knew Mr. Edens very well, didn't you?

Dr. McG: Yes sir.

Pres: Is there any way, in your mind, that you can account for him not leaving the aircraft sooner?

Dr. McG: Yes sir. I think he thought he could recover and I think I know he is the type that would try. In fact, I am sure in my own mind he tried to the last minute. In fact, the last second, to recover the aircraft. I think this is consistent with all our pilots.

Pres: And you were with him at his noon meal?

Dr. McG: Yes sir.

Pres: Do you have any comment on his attitude, general health, etc.?

Dr. McG: No, except that his, as I said before, his attitude was as usual- - very pleasant attitude and he had nothing bothering him and was in excellent health at the time of this take-off.

Pres: You know of no psychological factors which would have an adverse bearing on this?

Dr. McG: None at all, sir.

Questioning period was completed at 1730 PDT and the President recommended that we continue discussion as to the cause factors for the accident, contributing factors, and recommendations of the Board for prevention of recurring accidents of this nature. The meeting was adjourned at 1930 PDT by the President and to reconvene at 0830 PDT, 4 May 1965.

FORMAL ACCIDENT BOARD MEETING #2

4 May 1965

At 0830, 4 May 1965, the Accident Board was convened by the Board President, Lt. Colonel Alfred K. Patterson. This was the second formal meeting of the Board.

The primary objective for this meeting was to discuss and arrive at the final cause factors for the accident and to recommend corrective action to prevent recurrence of similar accidents.

The following voting members of the Accident Board were present:

Lt. Colonel Alfred K. Patterson
Lt. Colonel Peter J. McCarthy
Lt. Colonel Arthur T. Van Cura
Captain Ronald L. McGowan

25X1

After arriving at findings and recommendations, the President of the Board declared that meeting was adjourned at 1200 hours

TAB

SECRET

LOCAL FLIGHT CLEARANCE

STATION		DATE
Edwards AFB (NB) Calif.		26 APRIL 65
TYPE A/C: T-38	A/C NO.: N804X	MISSION: 5-8

OCCUPANTS (State whether crew or passenger. List additional passengers on reverse.)

DUTY SYMBOL	NAME AND INITIALS	GRADE	SERVICE NO.	HOME STATION
P	Ebo, B	CIV	—	EDW

ETD	ETE (Home base)	HOURS OF FUEL	AUXILIARY BASE OF 1ST INTENDED LANDING
2000Z	1+00	1+45	—

FORM "F" FILED AT	DATE FILED (Day, month, year)

WEATHER IS FORECAST TO REMAIN VFR FOR THE DURATION OF THIS FLIGHT. I AM FAMILIAR WITH ALL CURRENT REGULATIONS AFFECTING THIS FLIGHT AND THIS FLIGHT WILL BE CONDUCTED IN ACCORDANCE WITH SUCH REGULATIONS.

25X1

ACTUAL DEPARTURE	ACTUAL ARRIVAL
2000Z	

25X1

REMARKS

DD FORM 1 JAN 58 1080 REPLACES AF FORM 113, 1 NOV 51, WHICH MAY BE USED. GPO: 643 16 - 77993 - 1

XERO COPY XERO COPY XERO COPY

SECRET

SECRET

Weather Observation

The following sequence was reported from Edwards Main Base at 1318 PDT, 26 April 1965.

High thin broken/vis 85 miles, temp 80°F, Dew point 28°F, winds 050/6kts, gusts to 11 kts. (Winds at North Base, which is 8 miles North, were recorded as variable at 4 kts.)

Winds aloft	
3000 '	060/10
4000 '	040/17
5000 '	040/20
6000 '	050/21
7000 '	050/20
8000 '	050/17
9000 '	040/15
10000 '	040/10

A U-2 pilot flying at 3300 feet, 12 miles South of the crash area 30 minutes after the impact, indicated he encountered light to moderate turbulence in that area.

 SECRET

TAB

SECRET

WEIGHT AND BALANCE CLEARANCE FORM F

TACTICAL

(USE REVERSE FOR TRANSPORT MISSIONS)

FOR USE IN T. O. 1-1B-40 & AN 01-1B-40

DATE	AIRPLANE TYPE	FROM	HOME STATION
26 APR 65	U-2G	LOCAL	EAFB
MISSION/TRIP/FLIGHT/NO.	**SERIAL NO.**	**TO**	**PILOT**
	(383) 56-6715		EDENS

REMARKS

REF	ITEM	WEIGHT	[1] INDEX OR MOM/
1	BASIC AIRPLANE (*From Chart C*)	13133	562221
2	OIL (5.5 *Gal.*)	41	16.8
3	DISTRIBUTION OF LOAD		

COMPT.	CREW NO.	CREW WEIGHT	BAGGAGE	CARGO AND MISC.	WEIGHT	[1] INDEX OR MOM/
B	1	285	PILOT		285	67.6
C		530	GLOCKENSPIEL		530	148.4
C			"B" HATCH A		75	21.0

COMPUTER PLATE NO. (*If used*)

4	OPERATING WEIGHT FS 417.79	14064	58755
5	AMMUNITION — COMPT. / ROUNDS / CALIBER		
6	BOMBS, ROCKETS, ETC. — FORWARD		
	AFT		
	EXTERNAL		
	ROCKETS		
7	FUEL — BUILT IN (*Gal.*)		
	BOMB BAY (*Gal.*)		
	EXTERNAL (*Gal.*)		
8	WATER INJ. FLUID (*Gal.*)		
9	JATO OR RATO		
10	TAKEOFF CONDITION (*Uncorrected*)		
11	CORRECTIONS (*If required*)		
12	TAKEOFF CONDITION (*Corrected*)		
13	TAKEOFF C. G. IN % M. A. C. OR IN.		
14	LESS EXPENDABLES — JATO OR RATO		
	BOMBS		
	AMMUNITION		
	FUEL		
15	ESTIMATED LANDING CONDITION		
16	ESTIMATED LANDING C. G. IN % M. A. C. OR IN.		

C.G. 27.8

Pertinent instructions to the pilot for shifting load and crew during takeoff and landing should be noted above.

CORRECTIONS (*Ref. 11*)

COMPT.	ITEM	CHANGES (+ or −) WEIGHT	[1] INDEX OR MOM/
TOTAL WEIGHT REMOVED		−	−
TOTAL WEIGHT ADDED		+	+
NET DIFFERENCE (*Ref. 11*)			

LIMITATIONS

[2] GROSS WT. TAKEOFF (*lb.*)	[2] GROSS WT. LANDING (*lb.*)

	FROM	TO (% *M. A. C.* or *IN.*)
[3] PERMISSIBLE C. G. TAKEOFF ZFW	26.5	
[4] PERMISSIBLE C. G. LANDING		28.0

[1] *Enter constant used.*
[2] *Enter values from current applicable T. O.*
[3] *Applicable to gross weight (Ref. 12).*
[4] *Applicable to gross weight (Ref. 15).*

COMPUTED BY (*Signature*)

WEIGHT AND BALANCE AUTHORITY (*Signature*)

PILOT (*Signature*)

25X1

DD FORM 1 SEPT 54 365F

SECRET

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SECRET

STATEMENT

The accident occurred in an uninhabited area. There was only slight damage to the surrounding desert such as burned cactus, scorched earth and vehicle tire tracks.

No claim is anticipated but AFFTC Claims Officer will investigate and contact the owner of the property.

[redacted] 25X1

ARTHUR T. VAN CURA
Lt. Colonel, USAF

SECRET

TAB

SECRET

CERTIFICATE

This is to certify that aircraft N804X(382) was completely destroyed by crash impact and fire. No parts or equipment were considered salvagable.

Total cost of aircraft and equipment is as follows:

Basic Aircraft	$1,015,000
Equipment Aboard	$ 59,895
TOTAL	$1,064,895

25X1

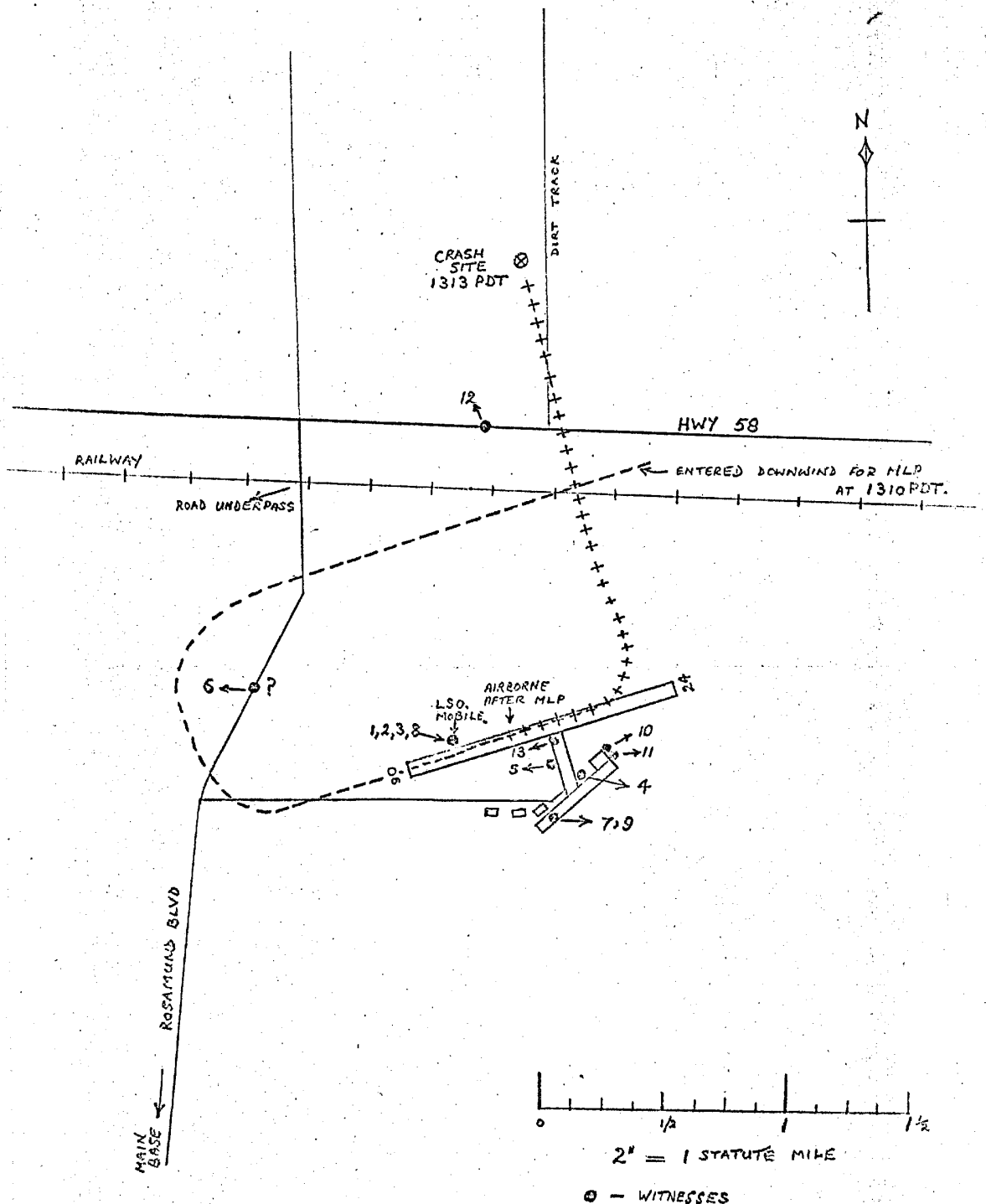
PETER J. MCCARTHY
Lt. Colonel, USAF
Director of Materiel

SECRET

TAB

SECRET

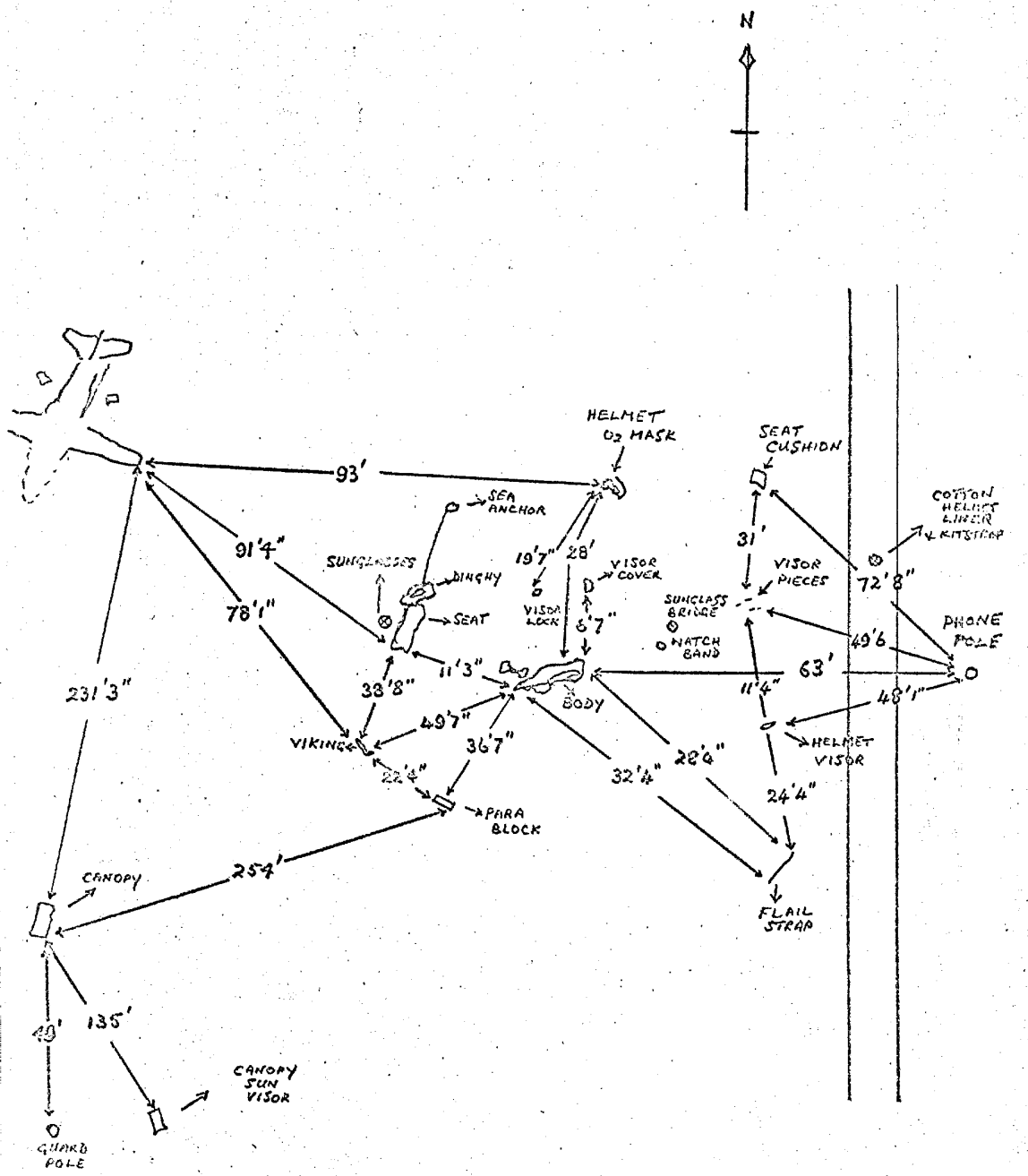
ITEM 11 ATTACHMENT 1



SECRET

ITEM 11 ATTACHMENT 2.

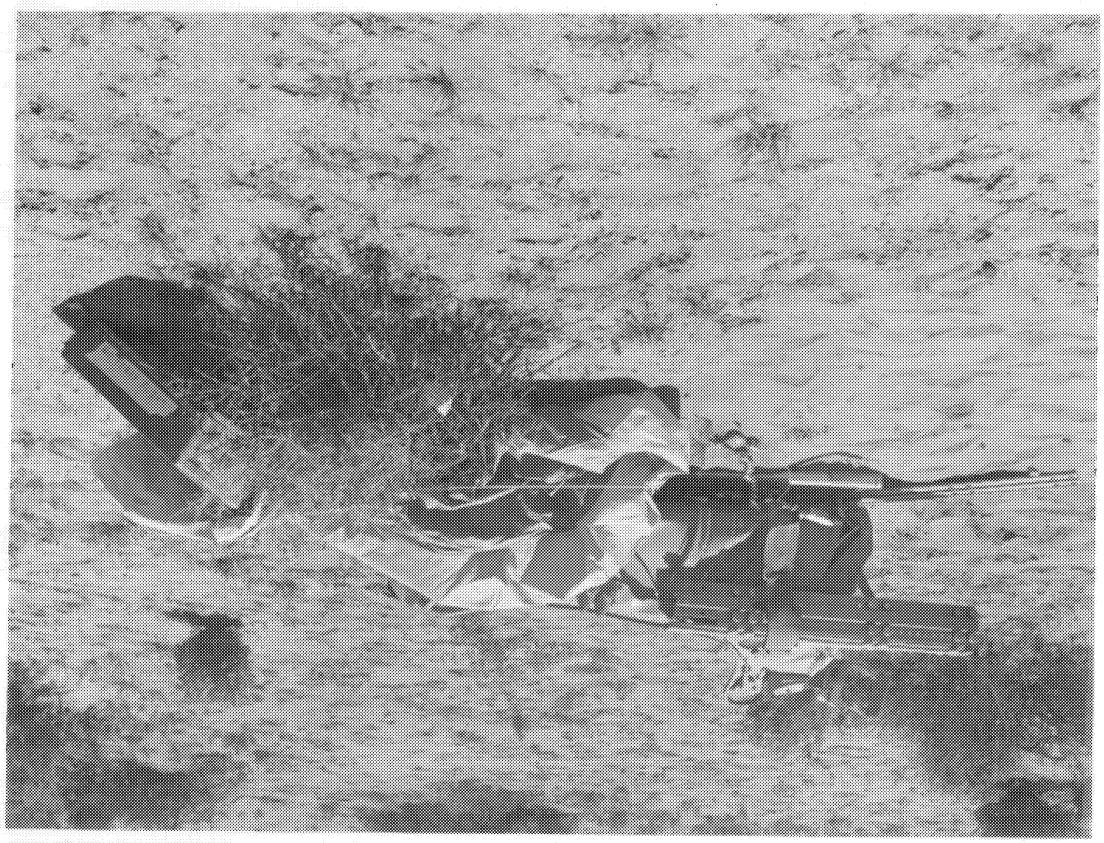
SECRET

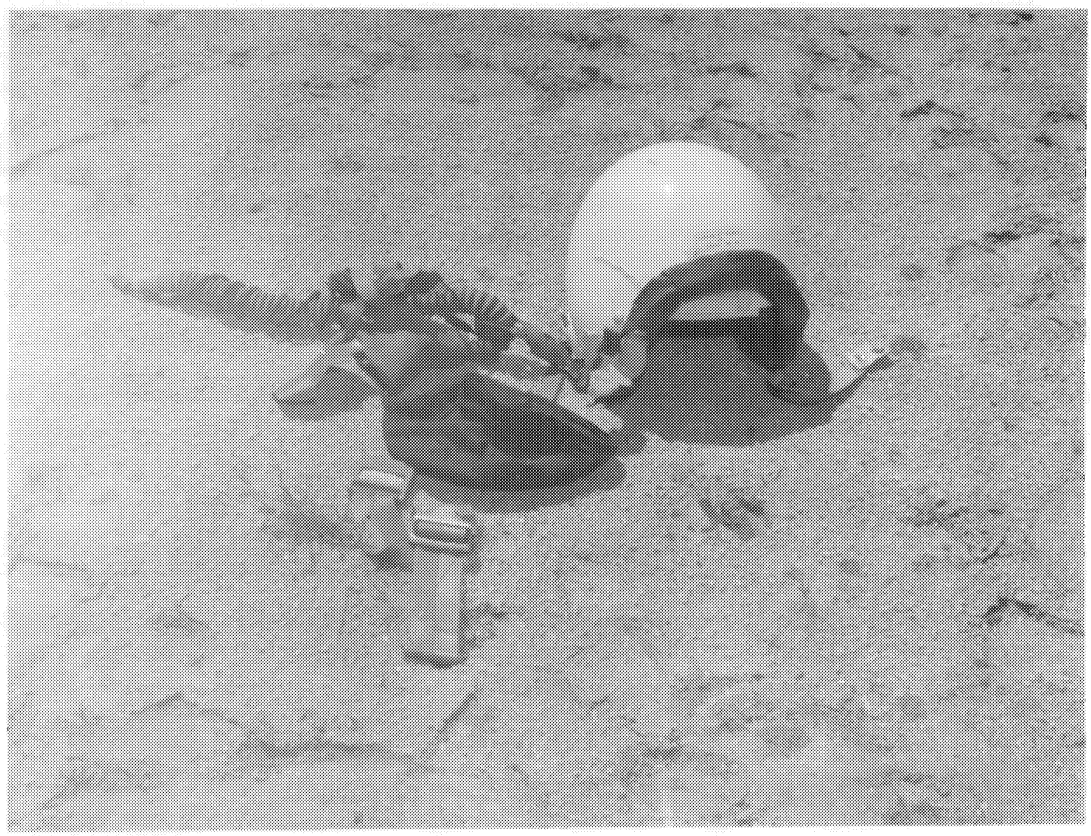


SECRET

TAB

SEAT, BODY AND [illegible] TO LEFT SIDE OF AIRCRAFT

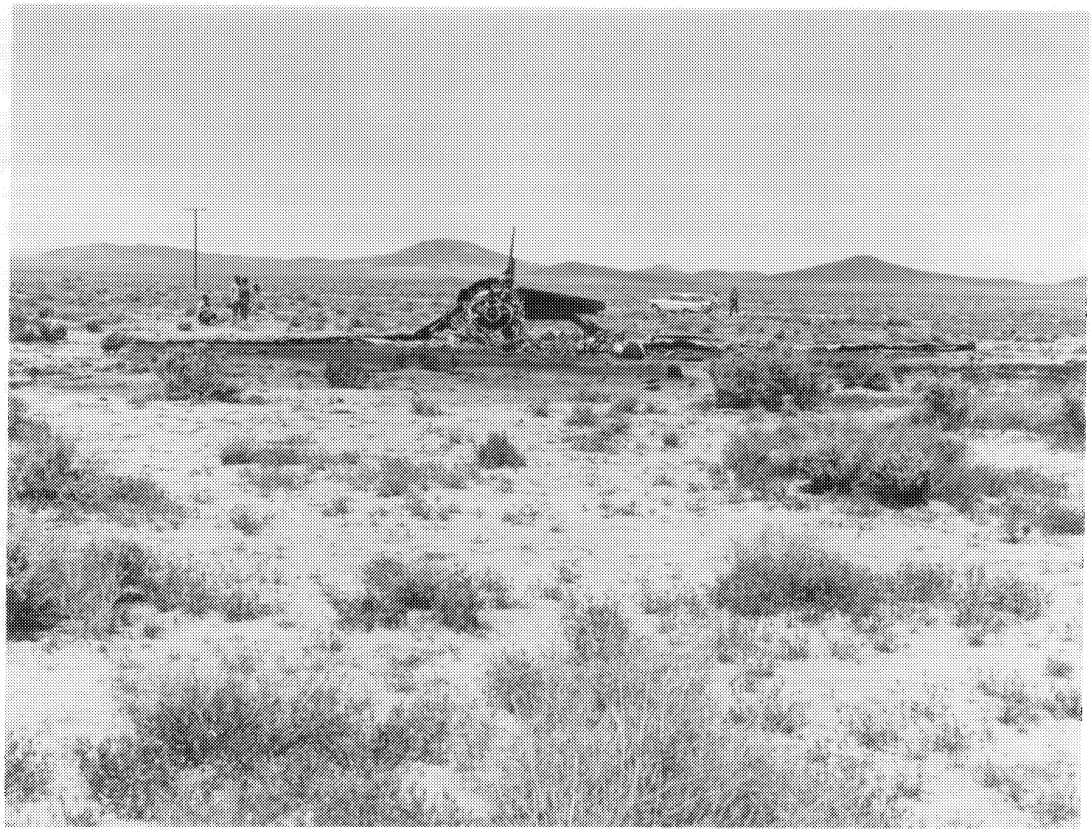


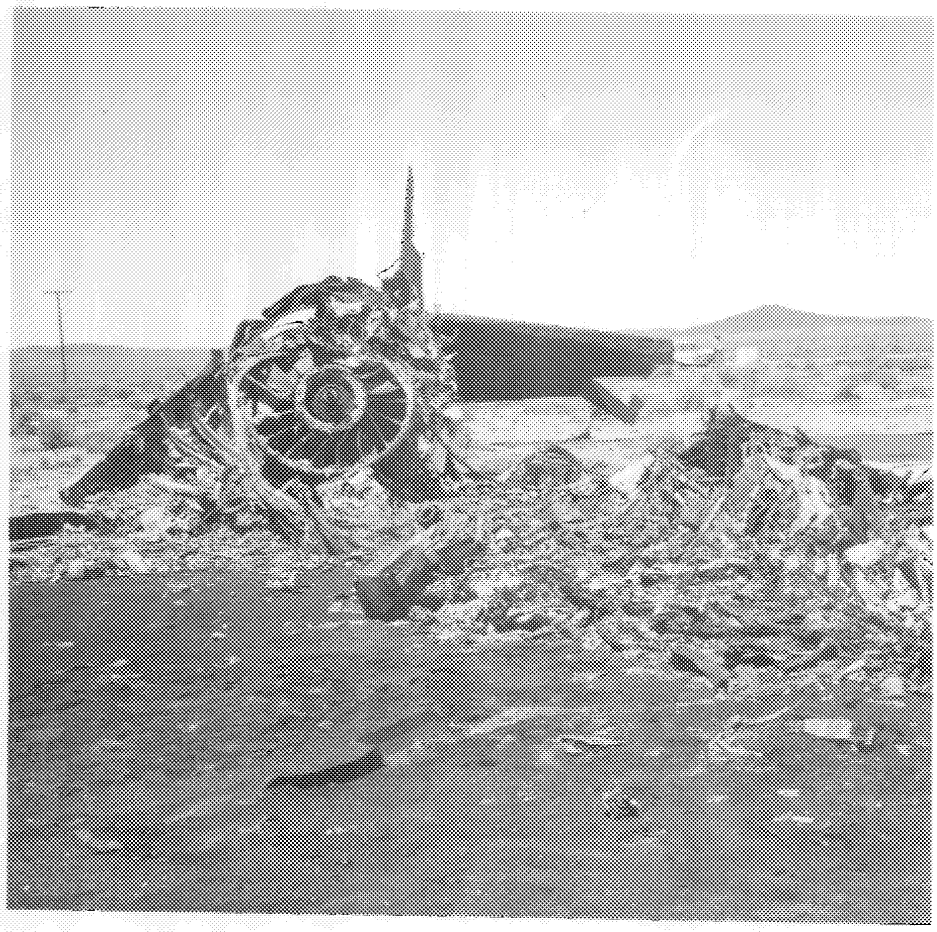


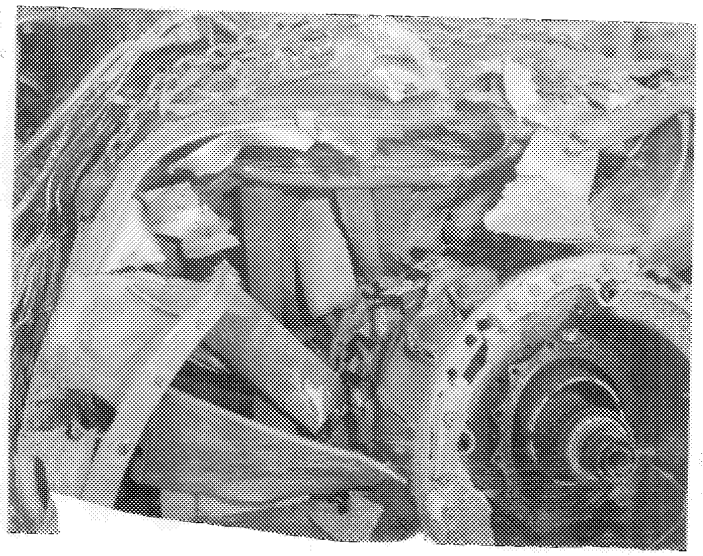
SECRET

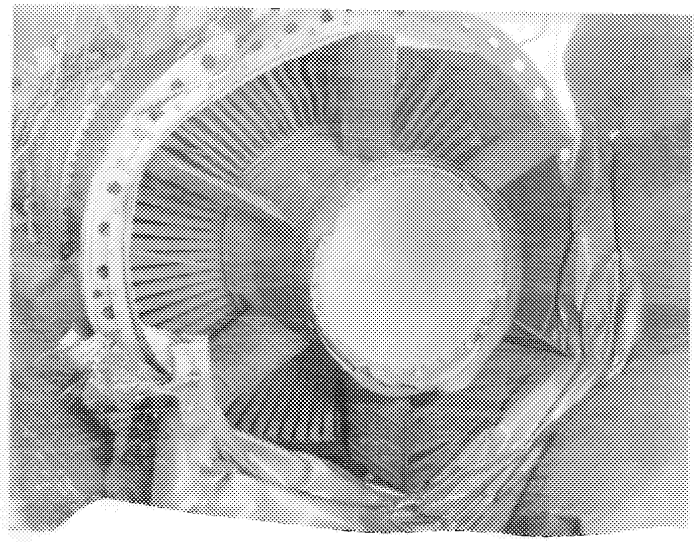
[redacted]

SECRET









[redacted] (TOP)
AFT TURBINE SECTION (BOTTOM)

NOSE, COCKPIT AND "Q" BAY AREA FIRE DAMAGE INCURRED AFTER IMPACT