AIRCRAFT ACCIDENT REPORT
OPNAV FORM 3750-1 (Rev. 12-59) PAGE 1

SPECIAL HANDLING REQUIRED *in accordance with Para 65, OPNAV INSTRUCTION 3750.6C*

OPNAV REPORT 3750-1

PART I. GENERAL

SECTION A - IDENTIFICATION

1. A/C ACCIDENT BOARD APPOINTED BY: Weapons Systems Test, NATC
2. DATE OF ACCIDENT: 16 Feb '63 — TIME (LZT): 1427R — 3. SERIAL NUMBER: 1-63
4. TO: Commander, Naval Aviation Safety Center
5. ENCLOSURES (1) (2) See attached reference sheet (3) (4) (5) (6) (7) (8) (9)
6. VIA: (1) Commander, Naval Air Test Center (2) (3) (4) (5) (6)
7. REPORTING CUSTODIAN *(if different than item 1. above)*: Same
8. ACTIVITY OPERATING A/C *(if different than item 7.)*: Same
9. KIND OF FLIGHT: 1K
10. TIME OF DAY: [ ] DAWN [X] DAY [ ] DUSK [ ] NIGHT
11. LOCATION OF ACCIDENT: 4 mi NE Atlantic City
12. ELEVATION ABOVE SEA LEVEL: 75'
13. PLACE OF LAST TAKE-OFF: NAS Patuxent River, Md.
14. CLEARED: FROM NAS PaxRiv, Md. TO NAS PaxRiv, Md.
15. TYPE CLEARANCE: [ ] IFR [X] VFR [ ] DVFR [ ] LOCAL [ ] OPERATIONAL [ ] AIRWAYS [ ] DIRECT [ ] OTHER (Specify)
16. TIME IN FLIGHT: 1 + 13
17. TYPE ACCIDENT: B3 Collision Ground Uncontrolled. C3 Abandoned Aircraft
18. PHASE OF FLIGHT: 5 Landing

A/C

19. MODEL: F-4A(F4H-1F)
20. SERIAL NO.: 146821
21. DAMAGE TO A/C: [X] A [ ] B [ ] C [ ] D [ ] E [ ] F
22. DOLLAR COST: 4,207,000
23. AIRSPEED (Kts.): 200
24. A/C WEIGHT: 34,000
25. LIST MODEL, SER NR, REPORTING CUSTODIAN AND DAMAGE CLASSIFICATION OF ANY OTHER A/C INVOLVED *(Complete an OPNAV FORM 3750-1 for each A/C involved)*

SECTION B - PERSONNEL DATA

1. NAME (Last, first and middle initials)	2. RANK RATE	FILE SER NO	DESIGNATOR	BRANCH OR SERVICE	3. AGE	4. YRS OF EXP DNA	5. BILLET	6. POSITION	7. INJURY CODE
PILOT (at controls at time of accident) EVERETT, William A.	LT	(b) (6) [redacted]	1310	USN	(b) (6) [redacted]	5	Pilot	Front Cockpit	D
~~OTHER~~ RIO VARNER, Duane L.	LCDR	[redacted]	1310	USN	[redacted]	9	RIO	Rear Cockpit	E

PERSONNEL		8. OFT - OPERATIONAL FLIGHT TRAINER AVAILABLE	8. OFT USED	9. CPT - COCKPIT PROC. TRAINER AVAILABLE	9. CPT USED	10. UNIT TO WHICH PERSONNEL ARE ATTACHED	11. TYPE INSTRUMENT CARD
PILOT	YES			X	X	Weapons Systems Test NATC Same	[X] STANDARD [ ] SPECIAL
	NO	X	X				
RIO ~~OTHER~~	YES			X	X		[X] STANDARD [ ] SPECIAL
	NO	X	X				

PILOT EXPERIENCE IN HOURS

12. ITEM		PILOT	~~OTHER~~ RIO
ALL MODELS		1405.9	3419.3
ALL MODELS IN LAST 12 MONTHS		176.9	218.9
ALL MODELS IN LAST 3 MONTHS		51.5	64.6
ALL SERIES THIS MODEL (item 19)	A/C	13.7	2.8
	OFT / CPT	0/8	0/8
ALL SERIES THIS MODEL LAST 12 MONTHS	A/C	13.7	2.8
	OFT / CPT	0/8	0/8
ALL SERIES THIS MODEL LAST 3 MONTHS	A/C	13.7	2.8
	OFT / CPT	0/8	0/8

ITEM		PILOT	RIO
CV LANDINGS DAY/NIGHT		191/79	199/3
FCLP LANDINGS DAY/NIGHT		342/235	915/83
INSTRUMENT HOURS LAST 3 MONTHS		14.7	8.7
NIGHT HOURS LAST 3 MONTHS		5.9	12.4
TOTAL HELO. HRS. (Helo. AAR Only)			
TOTAL JET HOURS (Jet AAR Only)		1065.7	2917.1
LAST FLIGHT, ALL SERIES THIS MODEL	DATE	2/7/63	2/4/63
	DURATION	0.7	1.1

OTHER PERS.

13. NAME (Last, first and middle initials)	DNA	RANK RATE	FILE/SERVICE NO.	ORG. TO WHICH ATTACHED	INJURY CODE	BILLET	POSITION
1.							
2.							
3.							
4.							
5.							

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

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C. WEATHER

1 CEILING	2 VISIBILITY	3 RELATIVE WIND (SEE INST 5)	4 TEMPERATURE	5 DEW POINT	6 ALTIMETER SETTING
Clear	15+	VNW REL / 13/22kts	OAT 24 RUNWAY	3°	30.04

7 OTHER WEATHER CONDITIONS *(winds aloft, icing levels, sea state, etc., if pertinent to accident)*

None

D. CONTRIBUTING FACTORS

✓	FACTOR	✓	FACTOR	✓	FACTOR

(b) (5)

[redacted]

E. DEPLOYMENT

FOR ACCIDENTS ABOARD DEPLOYED CARRIER *(Complete following Section on Pilot)*

1 DATE DEPLOYED	2 DAY HOURS/LANDINGS LOGGED SINCE DEPLOYED	3. DAY HOURS/LANDINGS LOGGED LAST 30 DAYS
4. INSTRUMENT HRS LOGGED SINCE DEPLOYMENT	5 NIGHT HOURS/LANDINGS LOGGED SINCE DEPLOYED	6. NIGHT HOURS/LANDINGS LOGGED LAST 30 DAYS

PART II MAINTENANCE, MATERIAL AND FACILITIES DATA

SECTION A - AIRCRAFT AND ENGINE DATA

1. A/C HISTORY

DATE OF MANUFACTURE	SERVICE TOUR	MONTHS IN THIS TOUR	TOTAL NO OF OVERHAULS	FLIGHT HRS SINCE LAST OVERHAUL	FLIGHT HRS SINCE ACCEPTANCE	TYPE CHECK LAST PERFORMED	FLIGHT HOURS SINCE LAST CHECK	NO. OF DAYS SINCE LAST CHECK
8/16/61	1	(1st 18 ext)	0	0	371.7	3rd M	114.3	116

2. ENGINE HISTORY

		ENGINE MODEL	ENGINE SERIAL NO						
1	7/23/61	J79-GE-8	401296	1	118.7	321.6	None since overhaul	114.3	-
2	8/27/61	"	401350	1	117.9	288.9		114.3	-
3									
4									

3. GENERAL

a. DID FIRE OCCUR? ☐ BEFORE ACCIDENT ☒ AFTER ACCIDENT ☐ DID NOT OCCUR

b. DID EXPLOSION OCCUR IN FLIGHT? ☐ YES ☒ NO

c. CHECK IF APPLICABLE ☐ AMP FOR SERIAL

d. HAS DIR BEEN REQUESTED? ☒ YES ☐ NO

e. COMPONENTS INVOLVED: PC Pumps & both engines

4. INSTRUMENT AND ENG. FACTORS

CHECK ITEMS PRESENT IN THIS ACCIDENT

(b) (5)

[redacted]

5. OTHER DATA

a. ALTITUDE AT MALFUNCTION	b. AIR SPEED	c. OPERATING TEMP	d. WEIGHT OF A/C	e. C.G. (% MAC)	f. KIND OF FUEL	g. FUEL PRESSURE
35000	300 Kts.	500°	34000	29.3	JP-5	26 psi

h. EVIDENCE OF FUEL CONTAMINATION: None

i. CAUSE OF ENGINE FAILURE OR FLAMEOUT: NA

j. FUEL CONTROL REGULATOR/CARBURETOR *(List stock and ser. nos., give time since new or overhauled)*: NA

k. EXTERNAL STORES ABOARD A/C: (2) 300 Gal. Fuel tanks

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 7d OF OPNAVINST P3750.6D

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PART II — MAINTENANCE, MATERIAL AND FACILITIES DATA (Cont'd)

1 GENERAL √ BASIC FACILITIES INVOLVED. DESCRIBE EFFECT ON ACCIDENT IN THE ANALYSIS SECTION OF THE REPORT

	a CLEARANCE AUTHORITY		i WATER LANDING AREA		q CRASH AND RESCUE
	b FLIGHT PLANNING INFORMATION SOURCE		j APPROACH ZONE		r SEARCH AND RESCUE
	c LANDING AIDS (GCA, CCA, ILS, etc.)		k END ZONE (Over run)		s CATAPULT
	d TRAFFIC CONTROL TOWER (Field or Ship)		l SHOULDERS		t ARRESTING GEAR (Carrier)
	e APPROACH AND ENROUTE AIDS TO NAVIGATION		m TAXIWAY		u BARRIER OR BARRICADE (Field or Ship)
	f RUNWAY WATCH		n PARKING AREA		v FLIGHT DECK
	g LANDING SIGNAL OFFICER		o EMERGENCY ARRESTING GEAR (Runway)		w MIRROR
	h RUNWAY		p A/C SERVICING, HANDLING AND DIRECTING (Field or Ship)		x OTHER (Specify)

SECTION 3—FACILITIES DATA

a EQUIPMENT INVOLVED: ☐ CATAPULT ☐ ARRESTING GEAR | b PRESSURE SETTINGS | c WIND OVER DECK | d RELATIVE HEADWIND | e APPROACH SPEED (SPN 12 READING)

f MARK NUMBER | g MODEL NUMBER | h LOCATION ON SHIP | LAUNCHING BRIDLE AND CONFIGURATION USED

i CATAPULT / ARRESTING GEAR BULLETINS OR NOMOGRAMS USED

K THIS PORTION SHALL BE COMPLETED WHENEVER (1) A MAJOR AIRCRAFT ACCIDENT INVOLVES ARRESTING GEAR, BARRIER AND/OR BARRICADE EQUIPMENT OR (2) AN AIRCRAFT ACCIDENT INVOLVES MALFUNCTIONING OF ARRESTING GEAR, BARRIER AND/OR BARRICADE EQUIPMENT. MINOR ACCIDENTS OR ROUTINE DAMAGE TO CABLES, WELDINGS AND OTHER EXPENDABLE COMPONENTS NEED NOT BE REPORTED

2 SHIPS DATA

ENGAGED	DECK RUNOUT (FT)	RAM TRAVEL (IN)	CONTROL VALVE SETTINGS: CONSTANT PRESSURE DOME (P.S.I.)	CONSTANT PRESSURE RATIO	CONSTANT RUN OUT (WT LBS)	ACCUMULATOR PRESSURE (PSI)	COMMENTS (for cable failure specify number of landings and months in service)
DECK PENDANT							
DECK PENDANT							
BARRIER							
BARRIER							
BARRICADE							

PART	SECTION	ITEM

PART III REMARKS (Continue on additional sheets)

Claim is being processed by Legal Department NAS Lakehurst. Information will be forwarded as it becomes available.

Additional Member

(b) (6)

[redacted] CAPT, USMC

Aviation Safety Officer, WST

COPY DISTRIBUTION

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1 AFPR, Evendale
1 OinC NPU ElCentro
1 NLO Norton AFB
1 PRNC
1 CONAS
1 CNATC
1 CO NAS Lakehurst
1 FT.ST.TPS.WST

COST DAMAGE TO: GOVERNMENT PROPERTY $ None | PRIVATE PROPERTY See remarks | DATE SUBMITTED TO C.O. 5 Mar 1963

PART IV - SIGNATURES OF THE BOARD

(b) (6)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

PART V. THE ACCIDENT

LT William A. EVERETT, USN, is assigned to the Maintenance Branch of the Weapons Systems Test Division, Naval Air Test Center, Patuxent River, Maryland. LCDR Duane L. VARNER is the Administrative Officer of the Weapons Systems Test Division, Naval Air Test Center, Patuxent River, Maryland.

At 1314R on 16 February 1963 LT EVERETT and LCDR VARNER took off from NAS Patuxent River on an authorized flight in F-4A BuNo. 146821 (enclosure (1)). The purpose of the flight was to support the Grumman Aircraft Engineering Corporation E-2A Data Link project. LT EVERETT occupied the pilot position and LCDR VARNER occupied the radar intercept observer (RIO) position. Maximum afterburner was used for take-off and acceleration to climb schedule; military power was used for the climb to 35,000 feet. The flight was under the positive radar control of MANGLE CONTROL and was vectored to a position about 135 miles on the 060° radial of the Atlantic City TACAN.

At about 1350R the pilot observed that the power control hydraulic system No. 2 (PC #2) pressure had dropped to 1000 psi then slowly increased to 3000 psi. The pilot advised MANGLE CONTROL that he was experiencing hydraulic difficulties and would proceed to NAS Patuxent River. While proceeding to Patuxent River, the pilot commenced dumping wing fuel and transferring external fuel in preparation for the landing. Approximately 3 to 5 minutes after establishing an inbound course to Patuxent River, the pilot noted that the PC #2 system indicated zero pressure and had failed completely. A total of 6 to 8 minutes elapsed from the initial pressure drop to complete system failure (enclosures (1) and (2)). Approximately 10 minutes later when abeam of Atlantic City, the pilot noted a fluctuation of about 500 psi pressure on the PC #1 system. The pilot advised MANGLE CONTROL that he must land immediately and requested information concerning the nearest suitable landing field. MANGLE CONTROL advised the pilot to land at Atlantic City Airport (enclosure (3)). The pilot commenced a descent in preparation for an approach to the airport, switched SIF/IFF to Mode III (Code 77) and Emergency, and selected UHF Guard Channel (243.0 mc).

The pilot advised Atlantic City Tower of his difficulties and of the necessity to land immediately. During the descent, the pilot noted that the PC #1 system pressure was fluctuating between 1500 to 2500 psi. The pilot extended the air-driven turbine (emergency hydraulic pump) and noted that such action had no apparent effect on system pressure.

NATC(WST) AAR 1-63 F-4A BUNO 146821 Pilot: EVERETT

The pilot extended landing gear and leading and trailing edge flaps at the 90° approach position. While on final approach at between 500 and 1000 feet altitude, the PC #1 system pressure was observed by the pilot to be fluctuating between 1000 and 2000 psi, and a longtudinal pitch-up developed which could not be controlled with full forward stick. The pilot selected maximum afterburner on both engines and raised the flaps & gear. During the wave-off, pitch control was regained and PC #1 pressure was observed by the pilot to be fluctuating between 0 and 1500 psi. The gauge readings and pressure drop rates were similar in both system failures.

Afterburner power was secured and a second approach was initiated utilizing a longer straight in approach than the first. During the approach a pitch-up more violent than on the first approach occurred at an altitude of about 1000 feet. Maximum afterburner on both engines was selected and the landing gear was raised. The pilot was unable to obtain normal lateral and longitudinal control and utilized engine power and rudder to control the airplane. The inability to adequately control the airplane resulted in several steeply banked high "g" turns. During the climb to altitude, both PC systems indicated essentially zero pressure.

The pilot advised the Tower of his inability to control the airplane and of his intention to eject over an unpopulated area. Ejection procedures were reviewed between the pilot and RIO while maneuvering the airplane to a clear area utilizing engine power and rudder control. The RIO ejected at about 1500 feet altitude at about 180-200 KIAS with the airplane in a nose high and wings level attitude. The pilot ejected at about the same altitude at about 145-150 KIAS. All devices apparently functioned properly in both ejections and the descents were uneventful. While descending, both the pilot and the RIO observed the airplane to roll inverted and impact the ground in a very steep dive attitude. The airplane exploded and burned upon impact. (enclosures (4) and (5)).

The RIO landed with no injury and was picked up and transported to Atlantic City Airport by a passerby. The pilot struck a tree prior to landing and suffered a slight back injury. The pilot was picked up and transported to Atlantic City Airport by a passerby.

The airplane impact area was approximately 3 miles and 060° magnetic from the Atlantic City Airport and in an heavily wooded area about one-half mile west of the Garden State Parkway. An area of about one acre of wooded terrain was burned by the ensuing fire. The fire was extinguished by a local volunteer fire company, enclosure (20).

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

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PART VI. DAMAGE TO THE AIRCRAFT

1. The aircraft crashed in heavily wooded terrain in a steep, slightly right wing down attitude. The initial impact was on a heading of approximately 030° and both wings and the tail section broke off on impact. (wreckage diagram, enclosure (13)). ALPHA damage resulted from the crash and ensuring fire. The nosewheel and cockpit section were thrown approximately 150 feet along the path of initial impact while the remainder of the wreckage came to rest within 50 feet of the point of impact. The entire fuselage forward of station 550.0 was completely destroyed by fire. ALPHA damage precluded salvage of any aircraft or engine parts.

2. All recoverable hydraulic components were removed and sent to MCAS Cherry Point O & R for bench testing. The PC #1 and PC #2 pumps were sent to the same O & R for Priority DIR. Both engines were sent to the NAS Quonset Point O & R for Priority DIR. The remainder of the wreckage is laid out in hangar No. 1 at NAS Lakehurst pending disposition by the Board.

PART VII. THE INVESTIGATION

(b) (5)

[redacted]

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

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(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

(b) (5)

[redacted]

PART VIII. THE ANALYSIS

(b) (5)

[redacted]

13

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

15

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

16

(b) (5)

[redacted]

(b) (5)

[redacted]

PART X. RECOMMENDATIONS

(b) (5)

[redacted]

STATEMENT OF LT William A. EVERETT, USN, Pilot
concerning crash of F-4A BuNo. 146821 on 16
February 1963

(b) (5)

[redacted]

Enclosure (1)

14

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

1

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

10

(b) (5)

[redacted]

W. A. EVERETT

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

STATEMENT OF LCDR Duane L. VARNER, USN, RIO
concerning accident of F-4A BuNo. 146821 on
16 February 1963

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

2

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

(b) (5)

[redacted]

D. L. VARNER

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

STATEMENT of Mr. [redacted] (b) (6) Grumman Representative (NYADS) concerning accident of F-4A BuNo. 146821 on 16 February 1963

(b) (5)

[redacted]

SPECIAL [illegible]NG REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

3

[redacted]

[redacted] (b) (6)

GAEC Representative
McGuire Air Force Base, N. J.

This witness statement considered credible.

_____

Certified to be a true copy.

[redacted] (b) (6)

_____

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

NATC(WST) AAR 1-63 F-4A BUNO 146821 16 February 1963 Pilot EVERETT

WEAPONS SYSTEMS TEST FLIGHT SCHEDULE FOR SATURDAY 16 FEBRUARY 1963

A/C BUNO	TIME	PILOT(S)	FREQ	PROJ/REMARKS	FUEL
C-54Q 501	0930-1530	MCCRIMMON/BROWN	-	NORVA TACAN	NORMAL
EC-121K 297	1000-1100	MARSHALL/CASAGRANDA	385.0	MAINT. TEST	7000
F-4A 821	1000-1200	EVERETT/VARNER	-	DATA LINK	FULL
P-3A 889	0800-1830	LILIENTHAL/RAUNIG	-	DD175 EGLIN, KEY WEST, JACKSONVILLE & RTN	NORMAL

SUBMITTED: APPROVED:

R. E. BOX J. M. BALFE

Certified to be a true copy.

(b) (6)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

Enclosure (6)

NATC(WST) AAR 1-63 F-4A BUNO 146821 16 FEB 1963 PILOT EVERETT

RESUMÉ OF FLYING EXPERIENCE FOR LT W. A. EVERETT, USN

Unit	Dates	Type	Type Acft Flown	Time
CNABATRA	8/11/56 6/4/57	Trng	T-34 T-28	51.1 93.2
NAAS Kingsville	6/14/57 12/5/57	Trng	T-28 TV-2 F9F-5	50.9 41.6 56.3
FAWTULANT Key West	1/5/58 2/19/58	Trng	F3D-2T	37.6
FASRON 5 NAS Oceana	2/24/58 3/6/58	Trng	SNB-5	1.0
VF-82 NAS Oceana	3/6/58 3/5/59	Oper	F3H-2 SNB-5 F9F-8T	139.0 6.0 16.9
VF-41 NAS Oceana	3/5/59 1/29/62	Oper	F3H-2 SNB-5 F9F-8T WF-2	703.2 2.3 24.1 5.3
Test Pilot School NATC PaxRiv,Md.	2/14/62 11/1/62	Oper	FJ-4B S2F-1 F4D-1 T2V-1 F8U-1 UF-1 F4H-1 F11F-1 T-28B	17.0 10.4 4.0 16.6 7.2 9.8 2.2 25.6 32.7
Weapons Systems Test NATC, PaxRiv, Md.	11/15/62 Present	Oper	F-4A F-8C C-131F F-8E F-3C C-47J T-1A	14.1 2.6 12.0 2.1 2.1 15.2 4.9

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

Enclosure (7)

STATEMENT of LT [redacted] (b) (6) , USN,
Assistant Maintenance Officer, concerning
accident of F-4A BuNo. 146821 on 16 Feb
1963, Pilot EVERETT

1. Following is a historical summary of the subject aircraft as reflected by the airframe/engine log book and maintenance records:

a. Aircraft:

(1) Accepted from McDonnell Aircraft Corporation by BuWepsRep St Louis on 16 August 1961. Transferred from BuWepsRep St Louis to VX-4, Point Mugu on 18 August 1961. Transferred from VX-4 to NATC Patuxent River on 2 July 1962.

(2) When transferred from VX-4 in July 1962 the airframe was in the 11th month of the first service tour. The first tour was extended three months by BuWeps speedletter. At the time of the accident the airframe was in the 18th month of the first service tour with 371.7 hours since acceptance.

(3) On 18 August 1961 the aircraft was placed in a 120 day calendar periodic inspection system by VX-4, Pt Mugu. The following inspections have been accomplished:

Date	Inspection	By
8-18-61	Acceptance	VX-4
12-7-61	Calendar Major	VX-4
3-10-62	Calendar Major	VX-4
7-5-62	Acceptance	NATC
9-20-62	Calendar Major	NATC

At time of accident the aircraft was in a 30 day deferment of inspection requirements in accordance with BuWeps speedletter FWWS/3: JWA of 29 January 1962 and as authorized by CNATC ltr 4730 ST 362 of 22 January 1963.

(4) Aircraft Service Changes not incorporated were: 3, 5, 11, 13, 15, 16A, 17, 18, 20, 22, 38, 39, 43, 46, 49, 51, 54, 56, 58, 70, 74, 75, 76, 77, 80A(1), 81, 83, 85, 85A, 86(1), 88, 89, 90, 91, 91A, 92, 95, 96, 98, 99, 101, 101A, 104, 105, 109, 110, 112, 113, 115, 116, 118, 119, 120, 122, 123, 125, 128, and 129.

At the time of the accident there were six WOWARS outstanding for incorporation of ASC's. Ihcorporation of other ASC's was deferred due to project committments.

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

(5) At the time of the accident, airframe and engine hours were:

	Since Acceptance	Since Overhaul	Since Inspectio
Aircraft	371.7	-----	114.3
Engine, Serial 401350	288.9	117.9	114.3
Engine, Serial 401296	321.6	118.7	114.3

b. General:

(1) There were no outstanding safety of flight directives due on the aircraft at the time of the accident.

(2) The aircraft was maintained by contractor support personnel from the Mc Donnell Aircraft Corporation. Engines were controlled by COMNAVAIRLANT.

(3) The daily/preflight requirements had been completed in accordance with NAVWEPS 01-245FDA-6-1 and properly indicated by signature on the "Yellow Sheet" (OpNav Form 3760-2).

c. There had been no pattern of discrepancies to indicate a possible trend that could have been a factor.in this accident. Reviewing discrepancies recorded on the "B" section of the "Yellow Sheet" over the 30 days preceeding the accident revealed no discrepancies concerning hydraulic systems. There were 20 flights during this period for a total of 38.8 flight hours.

I have been Assistant Maintenance Officer of this Unit for the past four months.

(b) (6)
[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

P R 242047Z

FROM: BUWEPS

TO: NLO EDWARDS AFB/NAF CHINA LAKE/NATC PAXRIV/BWR ST LOUIS/ NAVMISCEN PT MUGU

INFO: COMNAVAIRLANT/COMNAVAIRPAC/NAVAVSAFCEN NORVA/CNO/

/ / / / / U N C L A S / / / / /

F4H-1F/J79-GE-2 AFTERBURNER FUEL SPRAYBAR FAILURE

A. NAF CHINA LAKE 222231Z

1. REF A REPORTS PRIMARY CAUSE OF CRASH F4H-1F BUNO 143390 AS FATIGUE FAILURE AFTERBURNER FUEL SPRAYBAR TUBE. ASC 70 WHICH PROVIDES PILOT OVER HEAT WARNING DEVICES AND IMPROVED OVER HEAT PROTECTION IN AFT FUSELAGE AREA NOT INCORPORATED THIS ACFT

2. UNTIL ASC 70 INCORPORATED FOLLOWING F4H-1F AIRCRAFT RESTRICTED FROM AFTERBURNER OPERATION EXCEPT FOR EMERGENCY: 142260, 143388, 143389, 145308, 145309 145310, 145311, 145313, 145315, 146817, 146818, 146820

3. F4H-1/J79-GE-8 AIRCRAFT INCORPORATE DIFFERENT AFTERBURNER SPRAYBAR TUBE CONFIGURATION THAN THAT INVOLVED IN -2 ENGINE PROBLEM. FIX FOR -2 PROBLEM UNDER PRIORITY INVESTIGATION. PREVIOUS FAILURES -2 FUEL SPRAYBAR LINE ATTRIBUTED TO IMPROPER SECURING OF ATTACHING CLAMP. AMPLIFYING INSTRUCTIONS INSPECTION THIS CLAMP TO FOLLOW

ACTION: WST ST FT TPS AMD

INFO: OPS NRL CNATC ADMIN SUPO OOD

WU: 1366/RC/SUPVR.....

ACTION

242047Z AUG 62

SPECIAL HANDLING reqd in addord w/OPNAV Inst 3750.6D
NATC(WET) AAR 1-63 pilot EVERETT

STAMP ON BACK

ENCLOSURE (9)

P R 242047Z

FROM: BUWEPS

TO: NLO EDWARDS AFB/NAF CHINA LAKE/NATC PAXRIV/BWR ST LOUIS/ NAVMISCEN PT MUGU

INFO: COMNAVAIRLANT/COMNAVAIRPAC/NAVAVSAFCEN NORVA/CNO/

/ / / / / U N C L A S / / / / /

F4H-1F/J79-GE-2 AFTERBURNER FUEL SPRAYBAR FAILURE

A. NAF CHINA LAKE 222231Z

1. REF A REPORTS PRIMARY CAUSE OF CRASH F4H-1F BUNO 143390 AS FATIGUE FAILURE AFTERBURNER FUEL SPRAYBAR TUBE. ASC 70 WHICH PROVIDES PILOT OVER HEAT WARNING DEVICES AND IMPROVED OVER HEAT PROTECTION IN AFT FUSELAGE AREA NOT INCORPORATED THIS ACFT

2. UNTIL ASC 70 INCORPORATED FOLLOWING F4H-1F AIRCRAFT RESTRICTED FROM AFTERBURNER OPERATION EXCEPT FOR EMERGENCY: 142260, 143388, 143389, 145308, 145309 145310, 145311, 145313, 145315, 146817, 146818, 146820

3. F4H-1/J79-GE-8 AIRCRAFT INCORPORATE DIFFERENT AFTERBURNER SPRAYBAR TUBE CONFIGURATION THAN THAT INVOLVED IN -2 ENGINE PROBLEM. FIX FOR -2 PROBLEM UNDER PRIORITY INVESTIGATION. PREVIOUS FAILURES -2 FUEL SPRAYBAR LINE ATTRIBUTED TO IMPROPER SECURING OF ATTACHING CLAMP. AMPLIFYING INSTRUCTIONS INSPECTION THIS CLAMP TO FOLLOW

ACTION: WST ST FT TPS AMD

INFO: OPS NRL CNATC ADMIN SUPO OOD

WU: 1366/RC/SUPVR.....

ACTION

242047Z AUG 62

SPECIAL HANDLING reqd in addord w/OPNAV Inst 3750.6D
NATC(WET) AAR 1-63 pilot EVERETT

STAMP ON BACK

ENCLOSURE (9)

STATEMENT OF LT [redacted] (b) (6)
attached to VS-753, NARTU, NAS Lakehurst,
New Jersey concerning accident of F-4A
BuNo. 146821 on 16 February 1963

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OP[redacted]T P3750.6D

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

(b) (5)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

(b) (5)

[redacted]

(b) (6)

[redacted]

Certified to be a true copy

(b) (6)

[redacted]

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPNAVINST P3750.6D

STATEMENT OF CAPT [redacted] (b) (6) New Jersey
Air National Guard, concerning accident of
F-4A BuNo. 146821 on 16 February 1963

(b) (5)

[redacted]

(b) (6)

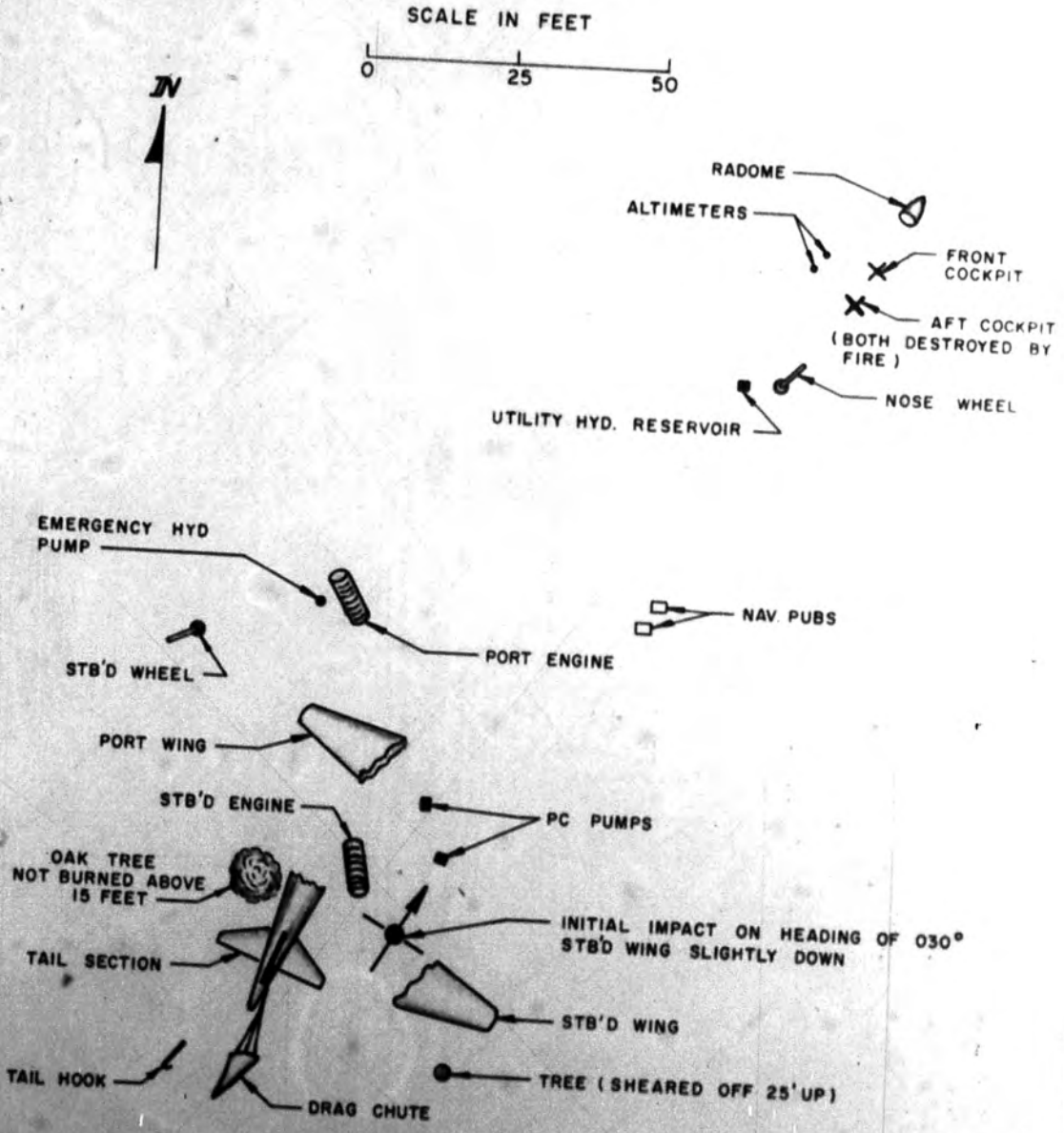
Certified a true copy [redacted] (b) (6)

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OF OPN [illegible] P3750.6D

Enclosure

NATC(WST) AAR 1-63 OF 16 FEB. 63 F4A 146821 PILOT EVERETT

WRECKAGE DIAGRAM



ENCLOSURE

F4H- 2-16-63

1. OVERHAUL ACTIVITY	REPORT NO.	3. DATE OF D/I	4. ASSEMBLY NOMENCLATURE AND PART NO.	ENGINE
MCAS, Cherry Point, N.C.	212	19Mar63	Spoiler Dual Spool Servo Valves 37400-3057-306	

5. ASSEMBLY (Model)	6. ASSEMBLY (Serial)	7. ASSEMBLY MFR	8. DATE REMOVED	9. REMOVED FROM (Eng Mod)	10. REMOVED FROM (Eng Ser)
--	57 and 48	82106	16Feb63	--	--

11. TOTAL HRS SINCE NEW	12. HRS SINCE LAST O/H	13. DATE LAST O/H	14. LAST OVERHAUL ACTIVITY	15. NO. PREV O/H'S	16. AIRCRAFT (Model)	17. AIRCRAFT (BUNO)
Unk	Unk	Unk	Unk	Unk	F-4A	146821

18. OPERATING ACTIVITY	19. FUR-EFR-AAR-1/FH/GA	20. REASON FOR REMOVAL AND CODE
NATC	AAR 1-63	A/C crash - loss of hydraulic pressure

21. FINDINGS

O [X] NO DISCREPANCY B [ ] BASIC (MFG/DESIGN) DISCREPANCY N [ ] NON-BASIC (MAINT/OPER) DISCREPANCY F [ ] FOREIGN OBJECT DAMAGE

22. PRIMARY PART FAILURE (Part No.)	COND.	ZONE
None		

23. DISCREPANT PARTS (Part No.) — COND.

None

AAR-162320Z FEB

24. PERTINENT BULLETINS, CHANGES, ETC., INCORPORATED

NUMBER	YES	NO

25. GRED 114 — APPLICABLE / INCORPORATED

26. DESCRIPTION OF FINDINGS (Include name and part no. of primary part failure)

SEE ATTACHED SHEET.

PRIORITY

27. CONCLUSIONS

SEE ATTACHED SHEET.

28. RECOMMENDATIONS

SEE ATTACHED SHEET.

Page 1 of 2

29. [X] PRIORITY DIR — REQUESTED BY: BuWepsFltReadRepLant — REFERENCE: 132108Z March 1963

[redacted] (b) (6)

31. TITLE: Supervisory Aerospace Engineer

32. DATE: 22 March 1963

DISASSEMBLY AND INSPECTION REPORT NAVWEPS FORM 4700/2 (11-61) REPORT SYMBOL BUWEPS 4700-2

PRIORITY DISASSEMBLY AND INSPECTION REPORT NO. 212

26. DESCRIPTION OF FINDINGS

Dual Spool Servo Valve P/N 37400-305, S/N 57, From Left Wing

a. Pilot input and spoiler feedback linkage was missing.

b. Shaft crank for PC1 Spool worked freely.

c. Shaft crank for PC2 Spool stuck in forward position.

d. Pressure check at 3000 PSIG hydraulic pressure revealed no leakage between PC1 system and PC2 system.

e. Disassembly revealed PC2 shaft crank (P/N 37404) ball end forced forward beyond normal travel in spoiler valve spool (P/N 37414) causing jammed condition of (c).

Dual Spool Servo Valve P/N 37400-306, S/N 48, From Right Wing

a. Pilot input and spoiler feedback linkage broken off and missing.

b. Shaft crank for PC1 Spool worked freely.

c. Shaft crank for PC2 Spool stuck in forward position.

d. Pressure check at 3000 PSIG hydraulic pressure revealed no leakage between PC1 system and PC2 system.

e. Disassembly revealed PC2 shaft crank (P/N 37404) ball end forced forward beyond normal travel in spoiler valve spool (P/N 37414) causing jammed condition of (c).

27. CONCLUSIONS

a. No internal leakage between PC1 and PC2 systems. However, due to missing and broken fittings it could not be definitely established that external return lines had not been reversed on aircraft. Such a condition could go unnoticed until one system failed for some other cause; then fluid from the remaining system would slowly be depleted to the failed system.

b. It is concluded that the jammed condition noted in each valve was caused by impact force transmitted to the shaft cranks by the linkage.

28. RECOMMENDATIONS

a. That these two valves be eliminated as a possible cause of hydraulic system failure.

1. OVERHAUL ACTIVITY: NAS QUONPT RI		2. REPORT NO. 264	3. DATE OF D/I 3/27/63	4. ASSEMBLY NOMENCLATURE AND PART NO.	
5. ASSEMBLY (Model) J79-GE-8	6. ASSEMBLY (Serial) 401350 401296	7. ASSEMBLY NPN 94791	8. DATE REMOVED 2/28/63	9. REMOVED FROM (Eng Mod)	10. REMOVED FROM (Eng Ser) ENGINE X
11. TOTAL HRS FLIGHT HRS 527.9	12. HRS SINCE LAST O/H 116.7	13. DATE LAST O/H 9/20/62 9/20/62	14. LAST OVERHAUL ACTIVITY NAS QUONPT	15. NO. PRIT Qty 1	16. AIRCRAFT (Model) F-4A (F4H-1P) 17. AIRCRAFT (BUNO) 146821
18. CURRENT ACTIVITY PAX River	19. PAR/DTR/SDR - I/FH/DA --	20. REASON FOR REMOVAL AND CODE Accident damage (4B)			

21. FINDINGS: O NO DISCREPANCY; B BASIC (MFG/DESIGN) DISCREPANCY; N NON-BASIC (MAINT/OPER) DISCREPANCY; F FOREIGN OBJECT DAMAGE

22. DESCRIPTION OF FINDINGS (Include name and part no. of primary part failure)

Encl: (1) Photo of A/B ser No. 55 - view from front
(2) Photo of A/B ser No. 25 - view from front
(3) Photo of front view of engine ser No. 401350
(4) Photo of front view of engine ser No. 401296
(5) Photo of turbine with missing blades - engine 401350
(6) Photo of turbine with missing blades - engine 401296
(7) NAS QuonPt O&R Materials Laboratory Report M10-63

NATC PAX River msg 261854Z Feb 63 requested a priority disassembly inspection of J79-GE-8 engines ser. Nos. 401296 and 401350 to determine if an engine failure had occurred which could have induced failure of the aircraft hydraulic control system.

PRIORITY

23. PRIMARY PART FAILURE (Part No.) | COND. | ZONE

24. DISCREPANT PARTS (Part No.) | COND.

AAR
162320Z FEB 63

25. PERTINENT BULLETIN, CHANGES, ETC., INCORPORATED

NUMBER	YES	NO

26. PRIORITY O/R: X
27. REQUESTED BY: NATC PAX RIVER
28. SIGNATURE: [redacted] (b) (6)
29. REFERENCE: 261854Z Feb 63
30. TITLE: DESIGN AND DEVELOPMENT SUPT.
31. DATE: 4/2/63
32. OVER 114: APPLICABLE / INCORPORATED X

DISASSEMBLY AND INSPECTION REPORT BUWEPS FORM 4730/2 (11-61) — REPORT SYMBOL BUWEPS 4730-2

Both engines had separated at the aft flange of the turbine stator casings. No. 3 bearings were in the turbine frames which were still attached to the respective A/B assemblies. Afterburner ser. No. 55 had separated in two at the approximate center of the A/B duct assembly (enclosure (1)). Afterburner ser. No. 25 was flattened in the center of the afterburner duct assembly (enclosure (2)).

DISTRIBUTION

NATSF PHILA
BUWEPS (PWAE-4)
BUWEPS (RAPP-PEE)
NAVAVSAFETYCEN
CONNAVAIRLANT
BIC NYCO
AFSD [illegible]
AFSD EVERDALE
NAS EL CENTRO
SEPTBLANT
BUWEPS (G-131)
NATC PAX RIVER
MCAS CHERRY PT (O&R)
~~NAS ATLA~~
NAS NORIS
McDONNELL AIRCRAFT CO.
~~[illegible] AIRCRAFT CO.~~
~~[illegible] AMERICAN AVIATION~~
~~[illegible] REPS~~
~~[illegible] DOUGLAS REPT~~
~~LOCAL BUSHOP REPS (8)~~
LOCAL GE REPT (2)
~~LOCAL PAR LIAISON OFFICER~~
COMFAIRNAS (4th & 5th)
NAS LAKEHURST

The stub shaft and first stage disc were torn from engine 401350 and were not received (enclosure (3)). The entire front end up to the 6th stage compressor disc was torn from engine 401296 and was not received (enclosure (4)). The turbine frames were disassembled and No. 3 scavenge pumps were found to be intact. The forward exhaust ducts were examined and all spray bars were properly installed and all clamps P/N 867C340G1 were in place although damaged by the impact. The overboard bleeds on the compressor rear frames were properly secured and the clamps on the tubes were installed and secured.

The front, transfer and rear gearboxes, horizontal drive shafts and bearing supports were not received with the engines. The engine hydraulic pump and drive gear were received with engine 401350. This gear was intact and had not failed.

Disassembly of the engines revealed that turbine shafts P/N 7054R39G2 had sheared approximately one foot forward of the first stage wheels. No. 2 and 3 bearings were examined and found free from spalling or other indications of failure. The internal oil lines supplying the bearings were in place and were not plugged. Examination of the remaining sections of the compressors revealed that all blades had bent opposite rotation or were sheared at the base of the blades on both engines.

Engine ser. No. 401350 was received with two sets of third stage turbine blades missing (enclosure (5)) and engine 401296 was received with seven sets of third stage turbine blades missing (enclosure (6)). Subsequent to receipt of the engines, seven sets of blades from engine ser. No. 401296 and three of the four blades from engine 401350 were received at this activity. These blades plus four blades from engine 401296 and eight blades from engine 401350 were examined by the Materials Laboratory. The findings are reported in enclosure (7).

27. CONCLUSIONS

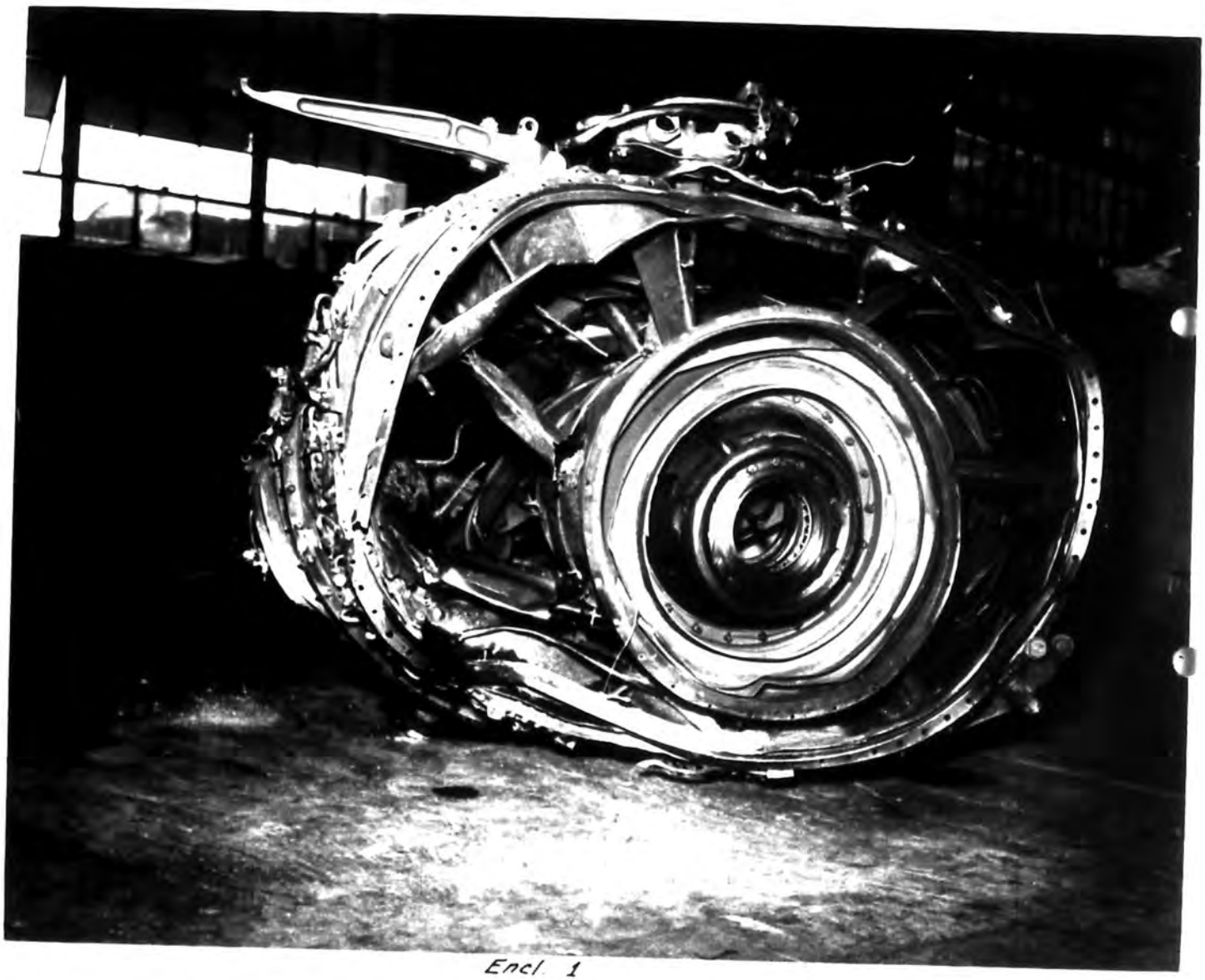
The condition of subject engines indicates that engine failure had not occurred prior to impact. The bent and sheared compressor blades, bent stator vanes, sheared turbine shaft and bent turbine blades indicate high rotational speed at time of impact on both engines. There was no evidence of fire or heat damage originating from the engine fuel nozzle area, A/B spray bars, compressor rear frames or turbine areas.

Since one turbine blade from engine 401350 was not received by this activity, the condition of this blade could not be established.

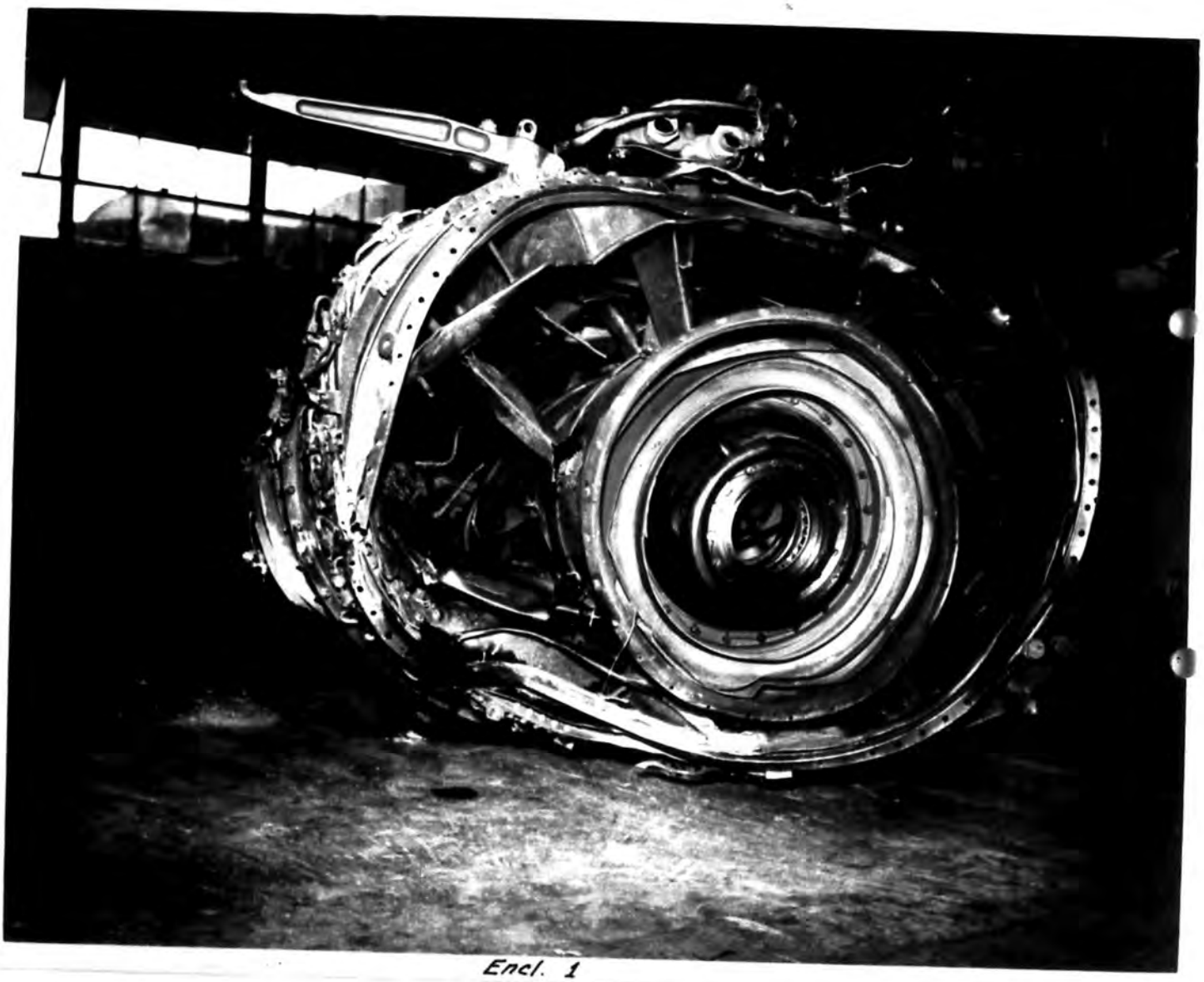
28. RECOMMENDATIONS

That a report on the condition of the missing blade from engine 401350 be obtained from the manufacturer (GE).

That components of the aircraft hydraulic system be evaluated to determine source of system failure.



Encl. 1

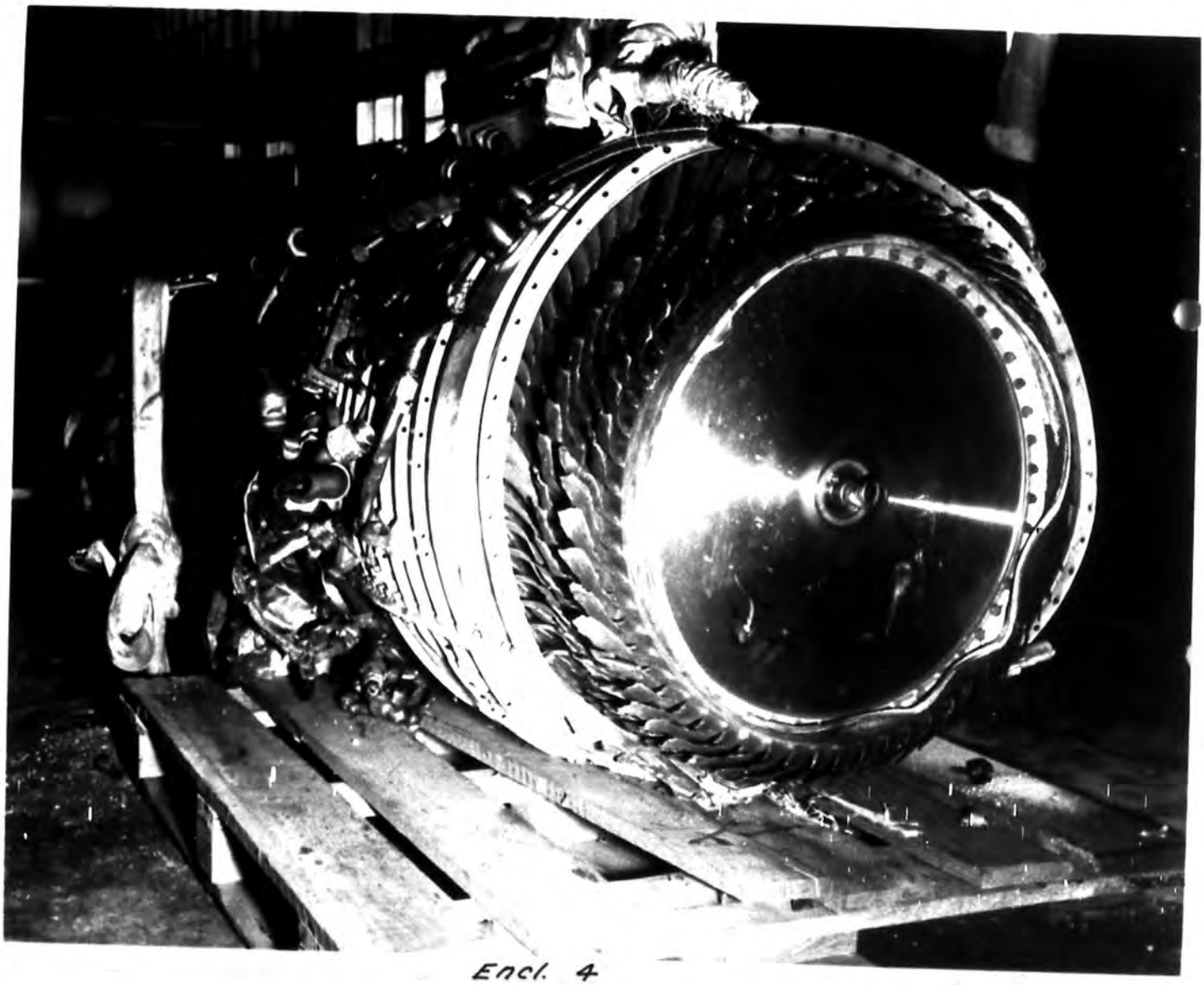


Encl. 1

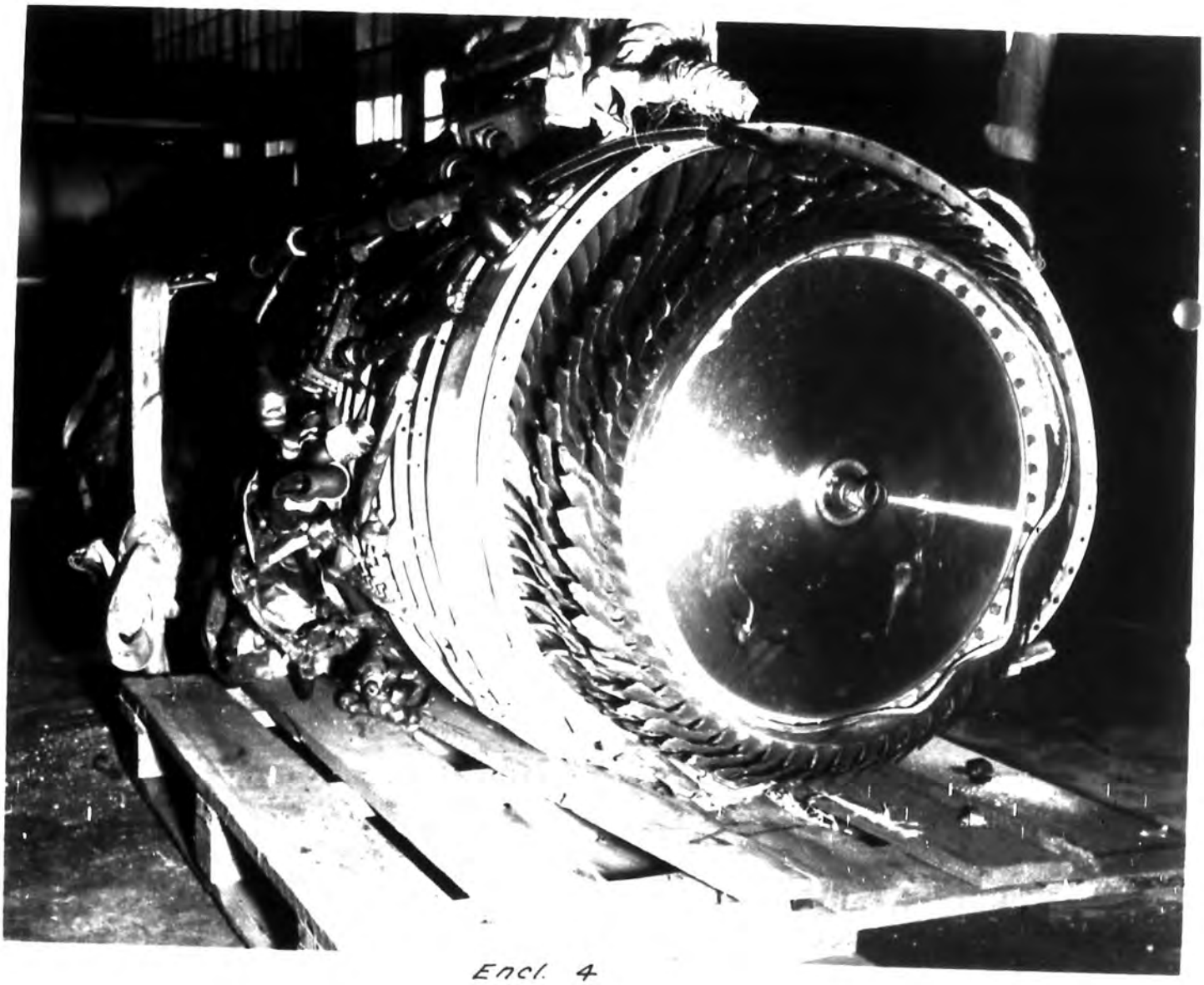
Encl. 2

Encl. 2

Encl. 3

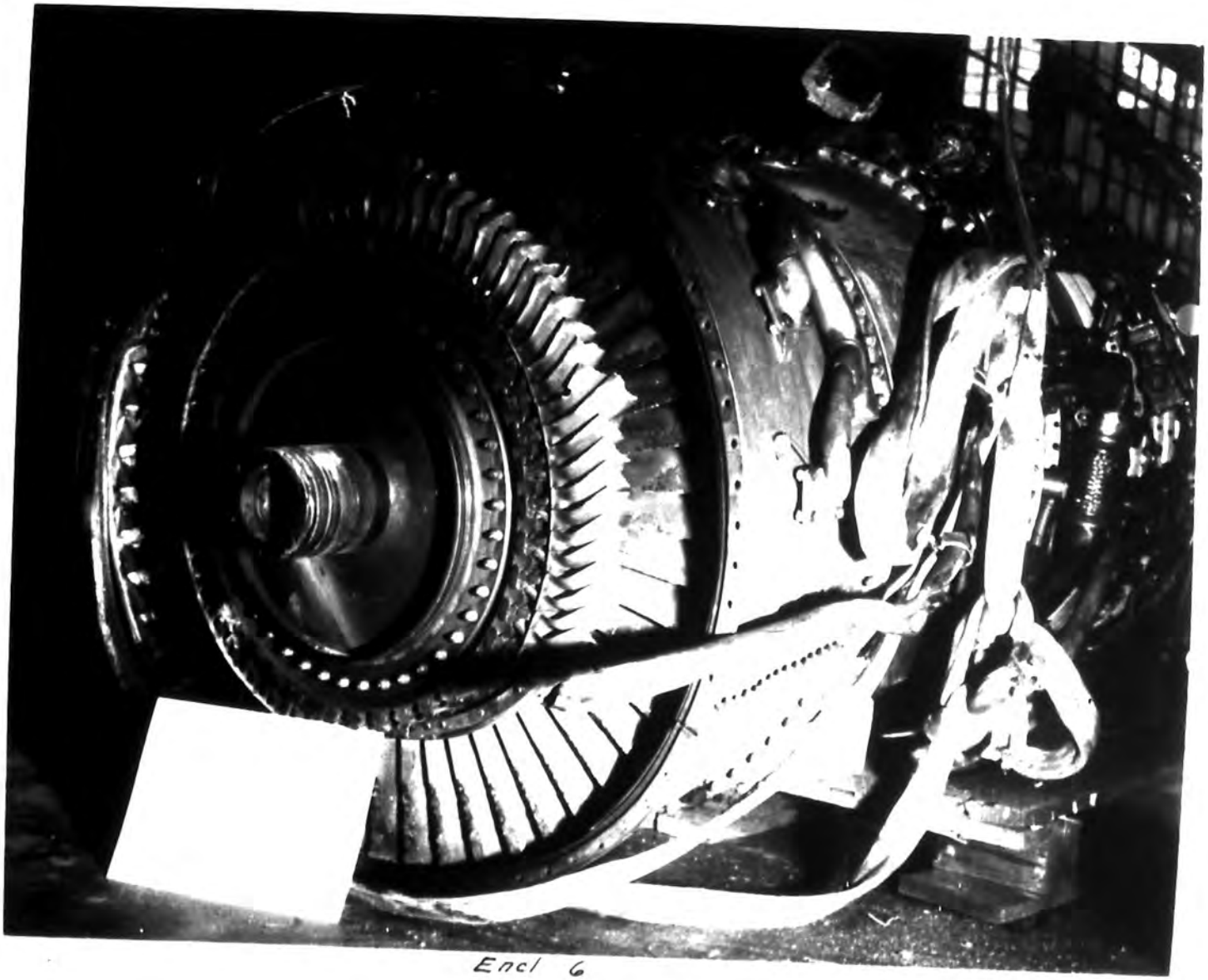


Encl. 4



Encl. 4

Encl 5



Encl 6

[illegible]

[illegible] LABORATORY REPORT
[illegible]

LAB. SERIAL NO. [illegible]

SUBJECT

[illegible] third stage turbine blades; examination of ([illegible])

HISTORY

Examination of third stage turbine blades from the two engines on crashed F-[illegible] aircraft.

SUBMITTED BY	DATE	[illegible] SERIAL NO.	[illegible]
J. Murphy ([illegible])	12 Mar 63	401[illegible] 401[illegible]	[illegible] [illegible]

EXPERIMENTAL DATA

Visual and macroscopic examination of the fractured blades.

18 blades from engine 401[illegible]
11 blades from engine 401[illegible]

CONCLUSIONS AND RECOMMENDATIONS

One blade from engine 401[illegible] appeared to have a trailing edge crack which did not progress into failure.

All of the fractures examined were the result of impact loading. There were no indications of fatigue.

PREPARED BY	DATE	APPROVED BY	DATE
R. J. [illegible]	22 Mar 63	G. [illegible]	

COPY TO

J. Murphy ([illegible]) (1); Laboratory (8) ENCLOSURE (V)

1. OVERHAUL ACTIVITY	2. REPORT NO.	3. DATE OF D/I	4. ASSEMBLY NOMENCLATURE AND PART NO. 55001	ENGINE
O&R Dept.,MCAS,Cherry Point	185	7Mar63	Variable Displace Hydraulic Pumps	

5. ASSEMBLY (Model)	6. ASSEMBLY (Serial)	7. ASSEMBLY MFR	8. DATE REMOVED	9. REMOVED FROM (Eng Mod)	10. REMOVED FROM (Eng Ser)
AP10V-2	25193 and Unk.	75250	16Feb63	J79GE-8	401350 & 401296

11. TOTAL HRS SINCE NEW	12. HRS SINCE LAST O/H	13. DATE LAST O/H	14. LAST OVERHAUL ACTIVITY	15. NO. PREV O/H'S	16. AIRCRAFT (Model)	17. AIRCRAFT (BUNO)
Unk.	Unk.	Unk.	Unk.	Unk.	F-4A	146821

18. OPERATING ACTIVITY	19. FUR-EFR-AAR-1/FH/GA	20. REASON FOR REMOVAL AND CODE
NATC	AAR 1-63	A/C crash - loss of hydraulic pressure

21. FINDINGS: O [X] NO DISCREPANCY; B [ ] BASIC (MFG/DESIGN) DISCREPANCY; N [ ] NON-BASIC (MAINT/OPER) DISCREPANCY; F [ ] FOREIGN OBJECT DAMAGE

22. PRIMARY PART FAILURE (Part No.)	COND.	ZONE
None		

26. DESCRIPTION OF FINDINGS (Include none and part no. of primary part failure)

This report covers two hydraulic pumps (PC1 and PC2) from BuNo. 146821. Verbal information indicated aircraft experienced loss of PC2 pressure followed 10-15 minutes later by loss of PC1 pressure and resultant loss of stabilator and aileron control. No engine malfunction noted and at least 25 minutes expired between loss of PC2 and time of crash.

(CONTINUED ON SHEET 2)

Encl: (1) MCAS Cherry Point Photo No. 115-1 dtd 7 March 1963 (Pump after test stand "dry" run)

23. DISCREPANT PARTS (Part No.) — COND.

(Indicated in findings)

AAR 162320Z FEB

24. PERTINENT BULLETINS, CHANGES, ETC., INCORPORATED

NUMBER	YES	NO

27. CONCLUSIONS

(SEE SHEET 3)

PRIORITY

30. RECOMMENDATIONS

That these two pumps be eliminated as a possible cause of hydraulic system failure.

29.	REQUESTED BY	REFERENCE	25. GREB 114	
[X] PRIORITY DIR	NATESTCEN PAXRIV	261854Z February 1963	APPLICABLE	
			INCORPORATED	

[redacted] (b) (6)

31. TITLE	32. DATE
Supervisory Aerospace Engineer	8 March 1963

DISASSEMBLY AND INSPECTION REPORT NAVWEPS FORM 4730/2 (11-61) REPORT SYMBOL DUWEPS 4730-2

26. DESCRIPTION OF FINDINGS - Continued

Pump Serial No. 25193

a. Pump suffered slight impact damage.

b. Both internal (P/N 55435) and external (P/N 55456) drive shafts slightly bent.

c. Outer race of ball bearing P/N 105A cracked.

d. Slight hanger (P/N 55452) bind.

e. Heavy wear marks on both rate piston (P/N 55400) and stroking piston (P/N 55409) where they contact the cam following bearings (P/N 4NBF614YJ).

f. The fitting in the pressure port was loose but bound tightly when removal was attempted.

g. Two small pieces of hard, black rubber material found in the surge suppressor at the pressure port.

h. All internal parts were bright, free of scoring and free from heat discoloration. Clean hydraulic oil was found throughout pump.

i. Pump rotated freely.

Pump Serial No. Unknown (Data Plate Missing)

a. Pump sustained heavy impact damage.

b. The compensator valve assembly was missing.

c. The front housing (P/N 55410) was crushed in the area of the rate piston.

d. Pump was still attached to gear box flange which was broken away from gear box.

e. Several 3/32 inch long pieces of safety wire were in cavity between gear box pad and pump.

f. Slight hanger (P/N 55452) bind.

g. Cam following bearings (P/N 4NBF614YJ) galled on inner race.

h. Pump contaminated with sand.

26. DESCRIPTION OF FINDINGS - Continued

i. All internal parts bright, free of scoring and free from heat discoloration. Clean hydraulic oil was found throughout pump.

j. Pump rotated freely.

27. CONCLUSIONS

Pump Serial No. 25193

a. Crash impact damage.

b. Crash impact damage.

c. Crash impact damage.

d. Hanger could be rotated by finger pressure and the rate spring (P/N 55462) pressure would have been sufficient to insure full stroke position.

e. This wear is not unusual and is not significant.

f. The fitting in the pressure port apparently sustained a blow during the crash in a loosening direction which caused thread damage.

g. These two rubber particles bore metal braid imprint indicating they were hose material. No other such particles were found and no conclusion was reached as to their source.

h., i. It is concluded that the pump was in an operating condition when received and had not been operated for a sustained period without a fluid supply. It could not be determined which engine this pump was installed on. To determine the results of operation without oil the following check was accomplished:

(1) Pump Serial No. 25193 was reassembled using a new internal drive shaft, a new ball bearing, and a new external drive shaft.

(2) The pump was installed on a test stand and run to confirm its capability. The pump performed satisfactorily. However, full compensation (minimum stroke) condition was not reached due to heavy leakage from damaged pressure port fitting which caused discontinuation of the test without reaching maximum RPM.

(3) The inlet port, drain port and pressure port were then opened to atmosphere and an eleven PSI check valve was installed in the pressure port, (no oil to pump). The pump was run at 80% RPM (3000 RPM

27. CONCLUSIONS - Continued

drive pad speed). After five minutes there was a sudden increase in torque from the normal 12 amperes to approximately 25 amperes. The torque immediately dropped to 18 amperes. The run was continued for a total of 17 minutes at which time slight torque fluctuations of one to two amperes were noted and the stand was shut down.

(4) Disassembly revealed that all internal parts were discolored by heat, the small amount of oil remaining in the pump was black, and all piston shoes had separated from the pistons. The shoes were still held against the wear plate by the shoe retainer plate and the piston ball ends had been rotating across the shoes (see enclosure (1)). The pistons were frozen in their cylinder barrel bores. The pump was completely contaminated with metal from the shoes. The shoes and their retainer plate still rotated freely on the wear plate.

(5) It was concluded that internal failure occurred at the five minute point when high torque was noted and was caused by the pistons binding in their bores due to heat and pulling out of the shoes. This indicates that internal damage and probable heat discoloration would be evident after approximately five minutes of run without oil.

Pump Serial No. Unknown

a.,b.,c.,d. Impact damage was heavy on the front housing.

e. These pieces of safety wire were evidence of careless maintenance at some level but were not related to this accident.

f. Hanger could be rotated by finger pressure and the rate spring pressure would have been sufficient to insure full stroke position.

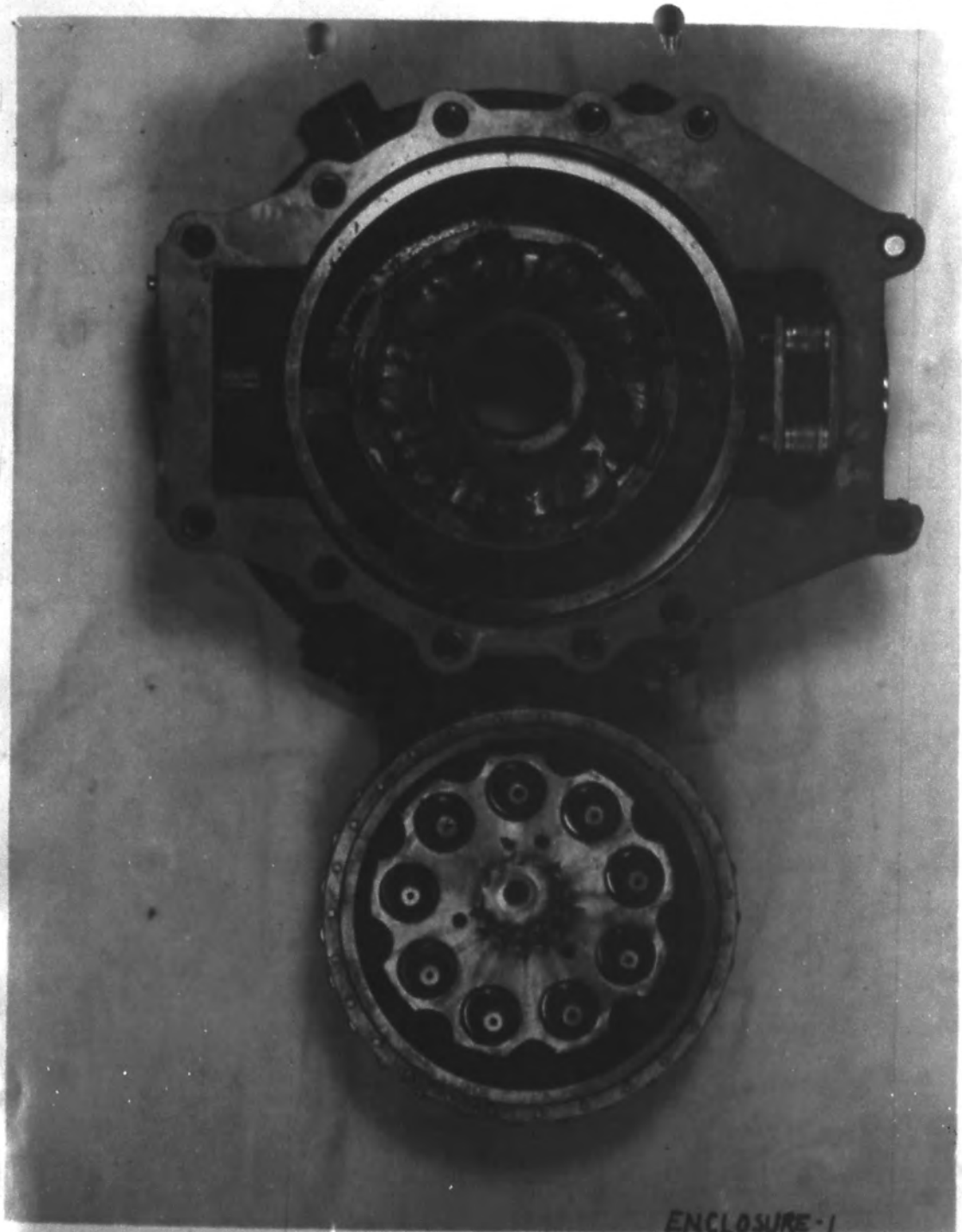
g. Galling not unusual.

h. Sand was inducted through broken housing at impact.

i.j. It was concluded that the pump was probably in operating condition at impact and had not been operated for a sustained period without a fluid supply. It could not be determined which engine this pump was installed on.

Additional Information

A small sample of hydraulic oil was obtained from one of the aileron cylinders and laboratory revaled it to be MIL-H-5606A hydraulic fluid, free of contamination other than microscopic organic particles. Also, the ram air driven hydraulic pump was disassembled to the extent required to confirm that it was in operating condition, was not scored or discolored, and contained some clean hydraulic fluid.



ENCLOSURE-1

LABORATORY ANALYSIS REPORT
MCAS 4121/2

Date Submitted
26 February 1963

Submit in Triplicate

Material Submitted (Include Specification no., Stock No., date of mfg, or other identification)

Hydraulic Stabilizer, Actuator from F-4A Aircraft, Bureau Number 146821.

Information Desired

Does foreign matter on actuator contain carbon black which could have possibly resulted from fire?

Reason For Test

Aircraft was involved in strike accident on 16 February 1963. Test requested to assist in Aircraft Accident Investigation.

Material Submitted By	Organization	Telephone
LCdr. [redacted] (b) (6)	WST NACT, Patuxent River, Md.	Vo-3-3111 Ext. 401

Report

Microscopic examination of solvent washings from the forward section of hydraulic stabilizer actuator body assembly, revealed the residue to contain oil, grease, dirt, lint and a small amount of carbon black. No carbon black was detected in the foreign matter removed from other sections of the actuator.

Action

The hydraulic stabilizer actuator body assembly contained small amounts of carbon black which could have possibly resulted from fire.

Lab. No.		Title	Date
131-63	[redacted] (b) (6)	Chemical Branch Supv.	27 Feb 1963
[redacted] (b) (6)	Title Mat'l Engr Div Supt	[redacted] (b) (6)	Title Aero Engr Grp Supt

LABORATORY ANALYSIS REPORT
MCAS 4121/2

Date Submitted: 27 February 1963

Submit in Triplicate

Material Submitted (Include Specification no., Stock No., date of mfg, or other identification)

Vent Boom and portions of the Vertical Fin removed from Model F-4A Aircraft, Bureau Number 146821.

Information Desired

Examine burned areas on starboard side and splash marks on port side to determine temperatures, duration, fluid type (JP-5 or hydraulic fluid), flow pattern and any other factors to determine if a fire occurred in flight or on the ground.

Reason For Test

For submittal with AAR

Material Submitted By	Organization	Telephone
LCdr. [redacted] (b) (6)	WST, NATC, Patuxent River, MD	VO-3-3111 Ext. 401

Report

1. Paint system in this area is acrylic.
2. Temperature in this area exceeded 750°F and was not a flash heat but of a constant source.
3. Highly carbonized areas which show evidence of volatilized JP-5 fuel indicate the heat was of static nature and would also indicate this heat was generated after the aircraft crashed.
4. The splash marks on port side were caused by a low volatile fluid, Military Specification MIL-H-5606, Hydraulic Fluid or Military Specification MIL-L-7808, engine oil. This fluid was splashed or slung aginst this surface before this surface reached the high temperature specified above. The evaporation of the volatile material in this fluid kept the surface beneath cooler than the surrounding surface, therefore, a difference in surface color resulted in the splash marks. Laboratory analysis of this surface was unable to determine conclusively whether the above fluid was MIL-H-5606 Hydraulic Fluid or MIL-L-7808 oil because there were only carbonaceous deposits left after evaporation.
5. Hardness of skins
   Heat affected RB58
   Non-affected RB93

Warpage of aluminum skin indicates that temperature reached the range of 1100°F - 1250°F.

Lab. No.	Conducted by	Title	Date
145-63	[redacted] (b) (6)	Metallurgist, Supv. Chemist	5 March 1963
[redacted] (b) (6)	Title: Mat'l Engr Div Supt	[redacted] (b) (6)	Title: Aero Engr Grp Supt

LABORATORY ANALYSIS REPORT
MCAS 4121/2

Date Submitted: 27 February 1963

Submit in Triplicate

Material Submitted (Include Specification no., Stock No., date of mfg, or other identification)

Vent Boom and portions of the Vertical Fin removed from Model F-4A Aircraft, Bureau Number 146821.

Information Desired

Examine burned areas on starboard side and splash marks on port side to determine temperatures, duration, fluid type (JP-5 or hydraulic fluid), flow pattern and any other factors to determine if a fire occurred in flight or on the ground.

Reason For Test

For submittal with AAR

Material Submitted by	Organization	Telephone
LCdr. [redacted] (b) (6)	WST, NATC, Patuxent River, MD	VO-3-3111 Ext. 401

Report

1. Paint system in this area is acrylic.
2. Temperature in this area exceeded 750°F and was not a flash heat but of a constant source.
3. Highly carbonized areas which show evidence of volatilized JP-5 fuel indicate the heat was of static nature and would also indicate this heat was generated after the aircraft crashed.
4. The splash marks on port side were caused by a low volatile fluid, Military Specification MIL-H-5606, Hydraulic Fluid or Military Specification MIL-L-7808, engine oil. This fluid was splashed or slung aginst this surface before this surface reached the high temperature specified above. The evaporation of the volatile material in this fluid kept the surface beneath cooler than the surrounding surface, therefore, a difference in surface color resulted in the splash marks. Laboratory analysis of this surface was unable to determine conclusively whether the above fluid was MIL-H-5606 Hydraulic Fluid or MIL-L-7808 oil because there were only carbonaceous deposits left after evaporation.
5. Hardness of skin:
   Heat affected RB58
   Non-affected RB93

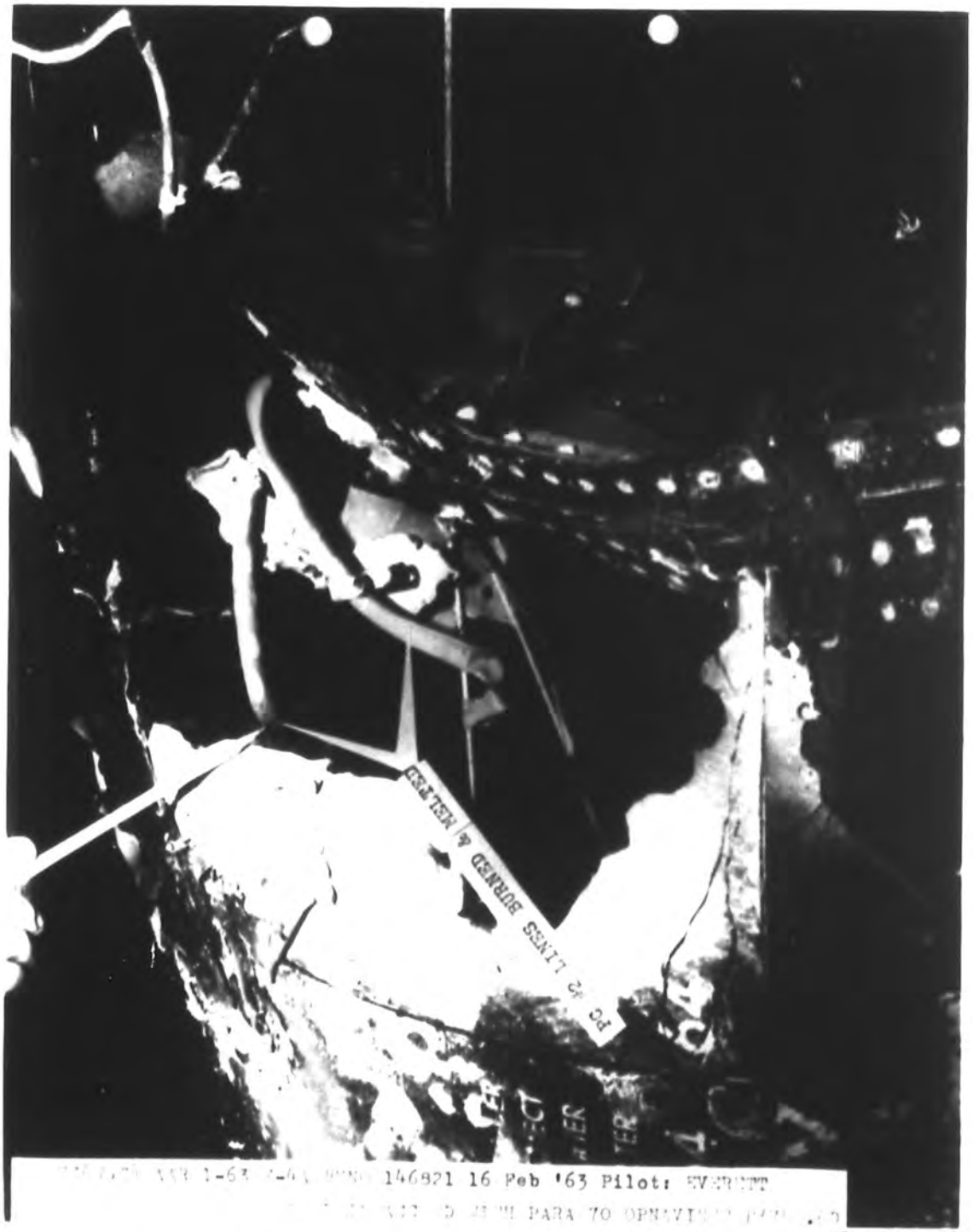
Warpage of aluminum skin indicates that temperature reached the range of 1100°F - 1250°F.

Lab. No.	Author	Title	Date
145-63	[redacted] (b) (6)	Metallurgist, Supv. Chemist	5 March 1963
[redacted] (b) (6)	Title: Mat'l Engr Div Supt	[redacted] (b) (6)	Title: Aero Engr Grp Supt

RUDDER (SEVERELY BURNED)
STBD SIDE BURNED AREA
STARBOARD ENGINE

ENCL (17)

STBD ENGINE AREA BURNED & DISCOLORED



146821 16 Feb '63 Pilot: EVERETT

ENCL (16)

NATC(WST) AAR 1-63 F-4A BUNO 146821 16 Feb '63 Pilot: EVERETT
SPECIAL HA[illegible] REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

ENCL (16)

NARC(WST) AAR 1-63 F-4A BUNO 146821 16 Feb '63 Pilot: EVERETT
SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

ENCL 17

(VIT) AAR 1-63 F-4A BUNO 146821 16 Feb '63 Pilot: EVERETT

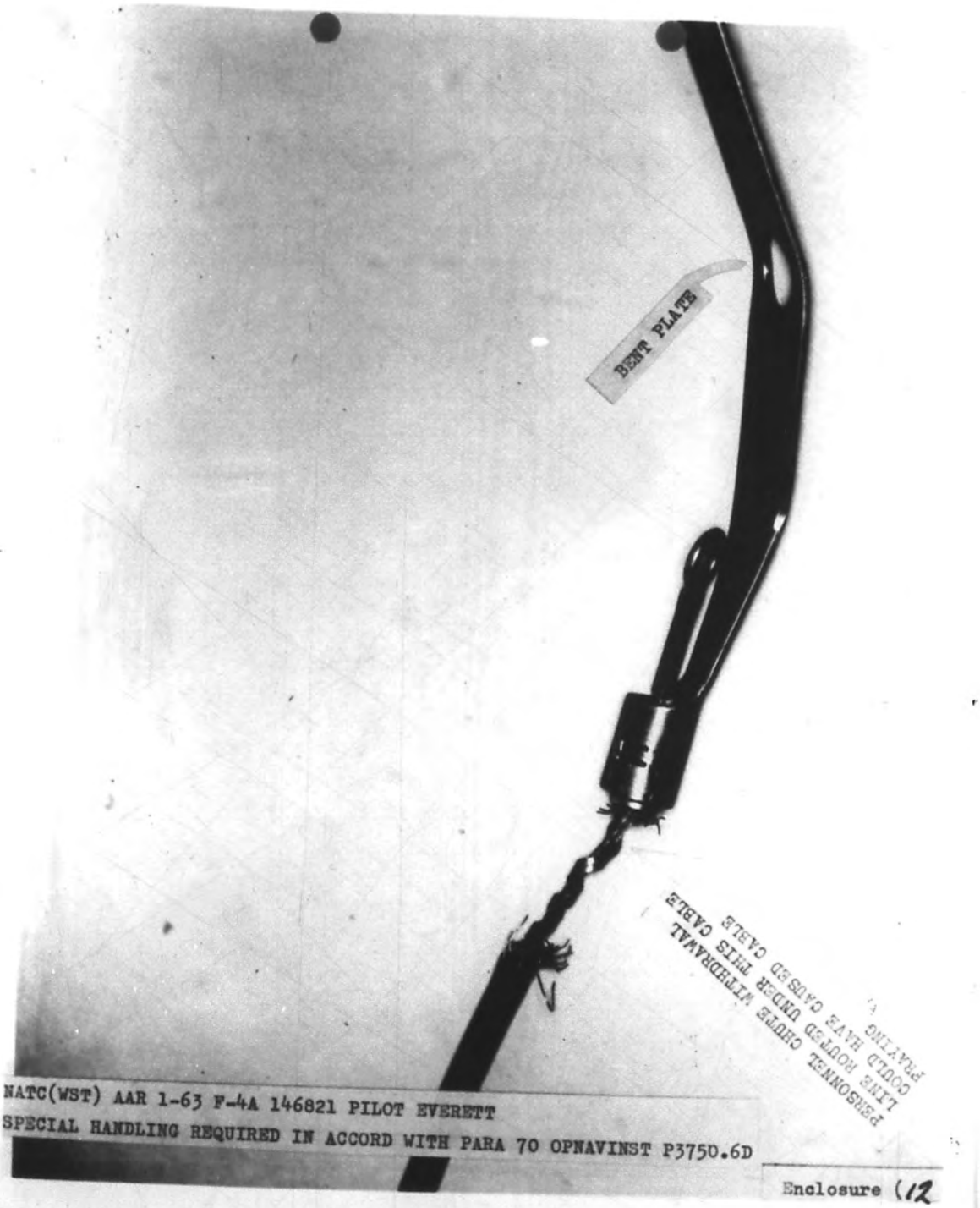
ACCORD WITH PARA 70 OPNAVINST P3750.6D

ENCL 18

(U) AAR 1-63 F-4A BUNO 146821 16 Feb '63 Pilot: EVERETT

IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

ENCL 18



NATC(WST) AAR 1-63 F-4A 146821 PILOT EVERETT

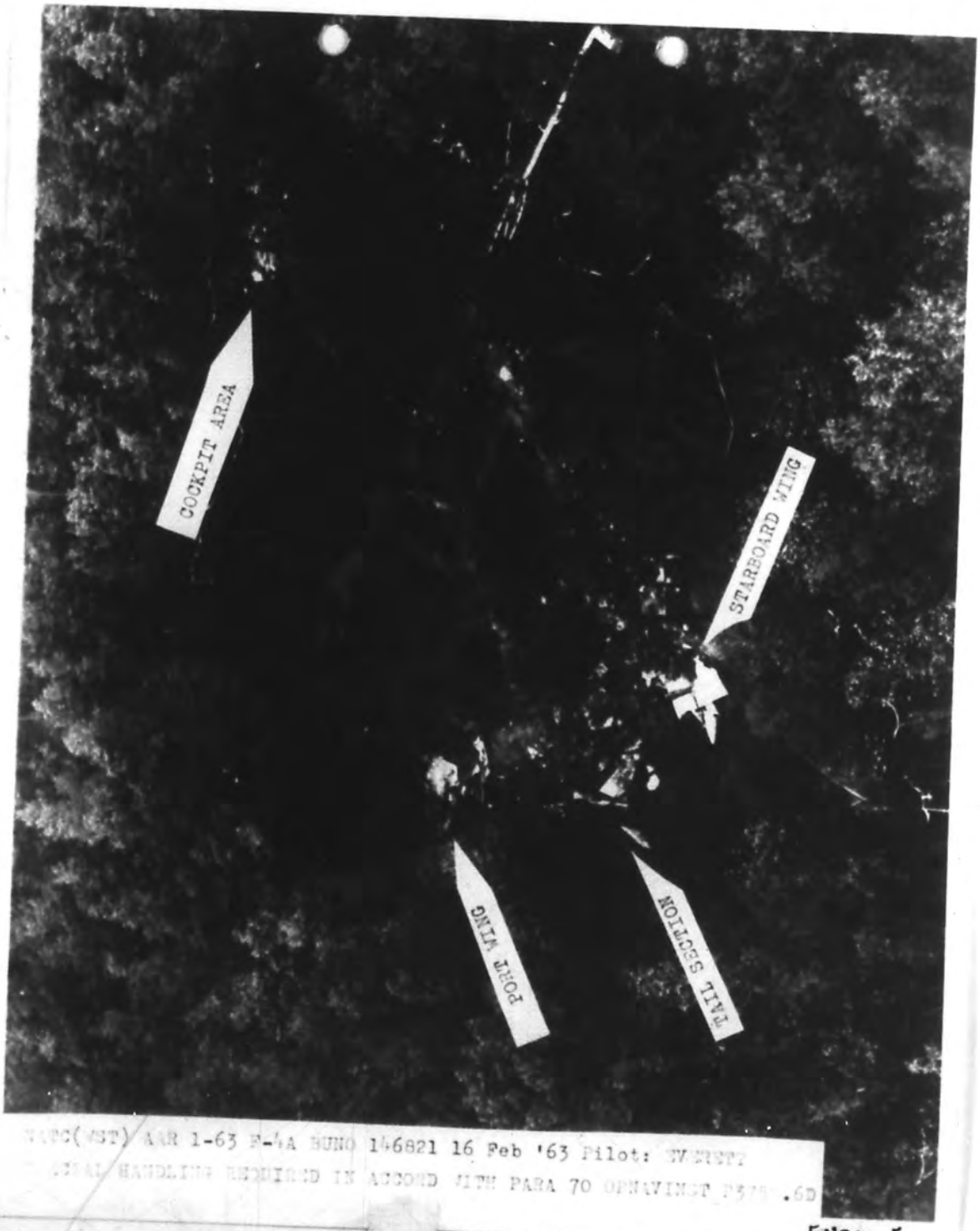
SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

Enclosure (12

(USS) AAR 1-63 F-4A BUNO 146821 16 Feb '63 Pilot: WARRETT
SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST P3750.6D

ENCL 4

4



NAFC(WST) AAR 1-63 F-4A BUNO 146821 16 Feb '63 Pilot: [illegible]
SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 70 OPNAVINST [illegible] .6D

ENCL 5

(NATC(WST) AAR 1-63 F-4 BUNO 146821 16 FEB 1963 PILOT EVERETT

FIRE INCIDENT REPORT

(Use an 8 x 10½ sheet of paper if additional space is necessary)

☒ AEROSPACE VEHICLE
☐ REAL PROPERTY

1. TYPE OF REPORT: PRELIMINARY [ ] X SUPPLEMENTAL [ ] FINAL

2. DATE OF INCIDENT: 16 February 1963

3. DATE OF REPORT: 26 February 1963

4. INSTALLATION, STATION, ORGANIZATION AND LOCATION:
177TH TACTICAL FIGHTER GROUP
New Jersey Air National Guard
NAFEC, Atlantic City, New Jersey

5. COMMAND/SUBCOMMAND:
NATIONAL GUARD BUREAU
New Jersey Department of Defense
108TH TACTICAL FIGHTER WING, NJANG

I. DAMAGE AND MONETARY LOSS

ITEM NO	MONETARY LOSS TO	VALUE (At risk) A	AF LOSS B	NON AF LOSS C	AF LOSS RECOVERED D	SOURCE OF RECOVERY E
6.	BUILDING					
7.	CONTENTS					
8.	OTHER					
9.	AEROSPACE VEHICLE	UNK	-	UNK	-	
10.	TOTAL					11. RESTITUTION MADE

II. RESCUE

ITEM NO	PERSONNEL	NUMBER INVOLVED A	ESCAPED UNAIDED B	RESCUED ALIVE C	INJURIES: BURNS D	INJURIES: PHYSICAL E	FATALITIES F	REMOVED DEAD G	RECOVERED DEAD H	18. METHOD USED IN RESCUE
12.	A/C CREW	2	1	2		UNK				Aircrews ejected
13.	A/C PASS									
14.	BUILDING OCCUPANTS									
15.	FIRE-FIGHTERS									
16.	OTHER									
17.	TOTAL									

III. FIRE DEPARTMENT RESPONSE

ITEM NO	PERSONNEL: FIRE-FIGHTERS	ON DUTY	ON CALL	NUMBER RESPONDED
19.	MILITARY			0
20.	CIVILIAN (FAA) NAFEC			5
21.	AUXILIARY/VOLUNTEER Civ			15/15
22.	TOTAL			35

23. EXPLAIN EXCESSIVE APPARATUS DOWN TIME (Cause, supply action, current status, etc.)

APPARATUS 24. RESPONDING (Only): TYPE	NUMBER AVAILABLE	FIRST ALARM	SECOND ALARM	25. OUT OF SERVICE (Only): TYPE	REASON	DAYS
1 Walther						
1 Forest Fire(Water)						
2 jeeps fire-fight equipped						
6 civilian fire trucks						
10 Total						

IV. MUTUAL AID

26. MUTUAL AID ESTABLISHED: YES	NO	AGREEMENT	27. MUTUAL AID USED: YES	NO	NO. OF VEHICLES	NO. OF FIREMEN	28. TIME FACTOR: CALLED	ARRIVED

SPECIAL HANDLING REQUIRED IN ACCORD WITH PARA 7G OF OPNAVINST P3750.6D

AF FORM OCT. 61 278 REPLACES AF FORM 278, MAR 58 AND AF FORM 282, MAR 58. PREVIOUS EDITIONS OF THESE FORMS ARE OBSOLETE.

Enclosure (20)

20

V. REAL PROPERTY AND MATERIEL FIRE INCIDENT

REPORT NO.

A. BUILDING AND PROPERTY INVOLVED

29. TYPE OF BUILDING *(Hospital, hanger, etc.)*

30. FACILITY CODE

31. OCCUPANCY AND USE *(If under construction give name of construction agency)*

32. ADDRESS *(Building No. and street or location)*

33. SIZE — WIDTH | LENGTH | STORIES

34. HEIGHT — FEET

34. TOTAL FLOOR AREA *(Feet)*

35. CATEGORY OF CONSTRUCTION: ☐ PERMANENT ☐ SEMI-PERMANENT ☐ TEMPORARY

37. TYPE OF CONSTRUCTION: ☐ COMBUSTIBLE ☐ FIRE RESISTANT ☐ SEMI-FIRE RESISTANT ☐ LIGHT NON-COMBUSTIBLE

38. STRUCTURAL ELEMENTS AND MATERIALS

A. EXTERIOR WALLS | B. INTERIOR WALLS | C. INTERIOR FINISH | D. FLOOR | E. ROOF

39. CONTENTS

40. OTHER THAN BUILDING AND CONTENTS *(Specify)*

B. CAUSE AND EXTENT OF FIRE

41. CAUSE OF FIRE

42. CONTRIBUTORY FACTORS *(Defects of design, etc.)*

43. POINT OF ORIGIN *(Room, process, or materials initially ignited, etc.)*

44. EXTENT OF FIRE *(Describe physical extent and estimate percent destroyed)*

C. ALARM

45. METHOD: ☐ VERBALLY ☐ SPRINKLER ALARM ☐ FIREPHONE/ALARM BOX ☐ ADMINISTRATIVE PHONE ☐ AUTOMATIC ALARM SYSTEM ☐ OTHER

46. FIRE DETECTED BY *(Name, grade, and title)*

47. ALARM RECEIVED BY *(Name, grade, and title)*

48. TIME FACTOR

A. FIRE STARTED | B. FIRE DETECTED | C. ALARM RECEIVED | D. APPARATUS ARRIVED | E. FIRE UNDER CONTROL | F. APPARATUS DEPARTED

49. EXPLANATION OR REASON FOR ANY DELAY IN RECEIVING, TRANSMITTING OR RETRANSMITTING OF ALARM

D. BUILDING PROTECTION

ALARM SYSTEM

50.

	SPRINKLER A	AUTO-MATIC B	MANUAL/ TELEGRAPH C	WATCHMAN/ PATROL D	OTHER (Specify) E	REMARKS (By watchman/security patrol)
EQUIPPED WITH						
OPERATED AT FIRE						
CONNECTED TO ALARM SYSTEM						

SPRINKLER SYSTEM

51. TYPE: WET | DRY | DELUGE | LOCAL HAZARD | COMPLETE

52. PROTECTED AREA OF BUILDING: PARTIAL (Specify area covered)

53. NO. OF HEADS OPENED

54. PROTECTION RESTORED: TIME | DATE

55. OPERATED AT FIRE: YES | NO

56. PERFORMANCE SATISFACTORY: YES | NO

57. EFFECT ON FIRE: HELD IN CHECK | EXTINGUISHED FIRE | NONE (Explain)

PORTABLE FIRE EXTINGUISHERS

58. TYPE AVAILABLE: CO^2 | FOAM | WATER PUMP | SODA ACID | OTHER (Specify)

59. TYPES USED | 60. NO | 61. SIZE

62. EFFECT ON FIRE: HELD IN CHECK | EXTINGUISHED FIRE | NONE (Explain)

OTHER SYSTEMS

63.

A. SPECIFY TYPES AND GIVE PERTINENT INFORMATION

B. INDICATE CORRECTIVE ACTION TAKEN

E. FIRE PREVENTION

64. INSPECTIONS (Dates and deficiencies found)

65. INDICATE CORRECTIVE ACTION TAKEN

F. CONTROL

66. PRINCIPLE CONTROL METHOD

67. HOSE LINES AND NOZZLES

SIZE	NO. A	LENGTH B	DIA-TIPS C	AGENT D	AMOUNT USED E
BOOSTER					
1 1/2					
2 1/2					
OTHER					

68. SOURCE: DRAFT | NO. OF HYDRANTS

69. PUMPERS: NO. USED | NO. WORKING

70. HYDRANT PRESSURE: STATIC | RESIDUAL

71. LADDERS: NO. USED | TOTAL FOOTAGE

72. MASKS: NO. USED | TYPE | LENGTH OF TIME

73. VENTILATION PROCEDURES

74. TYPE OF RESCUE AND SALVAGE OPERATIONS CONDUCTED

75. DELAYS IN RESPONSE AND/OR GETTING INTO OPERATION

VI. AEROSPACE VEHICLE FIRE INCIDENT

REPORT NO.

A. AEROSPACE VEHICLE INVOLVED

76. AGENCY: Navy

77. MISSION: UNK

78. TYPE: F-4H

79. MODEL: UNK

80. SERIAL NO.: UNK

81. TYPE OF ENGINE NO

	JET		RECIPRO-CATING		TURBO PROPS
X					

OTHER (Specify)

82. FUEL ON BOARD

TYPE	AMOUNT (Lbs)
UNK	

83. TYPE OF CARGO CARRIED: UNK

B. LOCATION OF ACCIDENT/INCIDENT

OFF BASE

84. PLACE OF ACCIDENT (State, county, nearest town, and distance from installation)

New Jersey, Atlantic County, 4.2 NM on 63° Rad of Atlantic City NAFEC, Approach Control Radar Site.

ON BASE

85. AIRFIELD

	RUNWAY		OTHER (Specify)
	TAXIWAY		
	APRON		

86. TYPE ACCIDENT (Incident)

	TAKE-OFF		LANDING		TAXIING		OTHER (Specify)
X	INFLIGHT		MAINTENANCE		FUELING		
	STARTING/STOPPING		PARKED		DEFUELING		

87. CAUSE OF ACCIDENT/INCIDENT: UNKNOWN

C. TERRAIN

88. TYPE

	CONCRETE
	MACADAM
	DIRT
	LEVEL

89. OTHER (Specify)

Swampy, Pine tree wooded, uninhabited area.

90. EXPLANATION IF TERRAIN PREVENTED EFFICIENT FIRE CONTROL

Not a significant factor in this mishap because of limited brush type fire, however, area was inaccessible to motorized fire fighting equipment.

D. FIRE

	BEFORE INCIDENT	X	ON IMPACT		AFTER IMPACT		START AND RUN UP		STOPPING		NO FIRE

91. LOCATION ON OR IN AEROSPACE VEHICLE

UNKNOWN

92. CAUSE OF FIRE

UNKNOWN

E. ALARM

93. METHOD

	PRIMARY EMERGENCY INTER COMMUNICATION		EMERGENCY PHONE	X	TWO WAY RADIO	X	FIRE DEPT VEHICLE ON STANDBY (Runway)	OTHER Observed and by telephone

94. TIME

A. ACCIDENT/INCIDENT OCCURRED	B. ALARM RECEIVED	C. APPARATUS ARRIVED	D. FIRE UNDER CONTROL
1428E 16 Feb 63	1428E	Unknown in crash area in approx 20 min.	Small numerous brush fires in 30 min.

95. REASON FOR DELAY IN RESPONSE

No delay in response
Delay in actual crash site due to inaccessibility of site.

F. WEATHER

96. GENERAL	97. WIND VELOCITY (MPH)	98. WIND DIRECTION	99. TEMPERATURE (°F)
VFR 0 10	10-15 K	NW	40

100. EXPLANATION IF WEATHER DELAYED RESPONSE OR FIRE CONTROL

NO

G. PHYSICAL EXTENT OF DAMAGE TO AEROSPACE VEHICLE

101. EXPLANATION OF DAMAGE RESULTING FROM FIRE AND MONETARY LOSS

UNKNOWN

102. EXPLANATION OF DAMAGE RESULTING FROM IMPACT AND MONETARY LOSS

UNKNOWN

H. CONTROL

103. EXTINGUISHING AGENTS USED

WATER (Gals)	FOAM LIQUID (Gals)	CO^2 GAS (Lbs)	DRY POWDER (Lbs)	CB (Lbs)	OTHER (Specify)
Approx 300					

104. DESCRIPTION OF FIRE CONTROL AND EXTINGUISHING METHODS EMPLOYED

NAFEC (FAA) responded with 1 Walther fire truck; 1 Forest fire water truck; and 2 jeep carryall's, fire equipped; A total of 5 Men.
Pomona and Bayview volunteer fire Co's (Civilian) Each responded with 3 trucks and 15 men. Both contingencies used only water to extinguish small brush type fires at crash scene.

105. EXPLANATION OF OPERATING DEFICIENCIES (Inadequate rescue equipment, clothing, etc.)

UNKNOWN

106. ACTION TAKEN AND RECOMMENDATIONS MADE TO PREVENT SIMILAR DEFICIENCIES

N/A

VII. DESCRIPTION OF INCIDENT OPERATION

107. DETAILS OF INCIDENT *(Attach sketch of area and operations)*

N/A

VIII. RECOMMENDATIONS AND ACTION TAKEN TO PREVENT SIMILAR INCIDENTS

108. INSTALLATION

109. SUBCOMMAND

110. MAJOR AIR COMMAND

DATE 26 Feb 63	PREPARED BY *(Typed name and title)* [redacted] (b) (6) Captain Flight Safety Off.	SIGNATURE [redacted] (b) (6)
DATE	APPROVED BY *(Typed name, grade, and title)*	SIGNATURE
DATE	INTERMEDIATE REVIEW BY *(Typed name and grade)*	SIGNATURE
DATE	MAJOR COMMAND REVIEW BY *(Typed name and grade)*	SIGNATURE

Medical Officer Report.

Withheld in its entirety under exemptions (b)(5) and (b)(6).