AVBAVA-SE (15 June 71) 2nd Ind
SUBJECT: Technical Report of Army Aircraft Accident, CH-47A, 64-13116, 243D ASHC, 10th CAB, Occurring 31 May 1971, Pilot: Moree

DA, HEADQUARTERS, 243D ASSAULT SUPPORT HELICOPTER COMPANY, APO 96377, 21 Jun 71

TO: Commanding Officer, 10th Combat Aviation Battalion, APO 96377

1. The 243D ASHC concurrs with the accident investigation board's cause factors and recommendations with the following exceptions:

[redacted]

2. The following corrective actions have been taken:

a. All unit aviators have been briefed on the circumstances surrounding this accident.

b. Safety classes have been conducted to re-emphasize the board's findings on the CH-47A autorotative corridor, wind direction factors, and single engine characteristics.

c. The importance of good preflights and post-flights have been re-emphasized to all aviators and crewmembers. Maintenance personnel have been reminded to prevent FOD when performing maintenance on aircraft.

d. Prior to aircraft refueling, the flight engineer will show the aircraft commander the fuel sample taken from that particular fuel source. Also, an effective SOP for inspection of fuel sources is being written.

AVBAVA-SE (15 June 71) 2nd Ind
SUBJECT: Technical Report of Army Aircraft Accident, CH-47A, 64-13116
243D ASHC, 10th CAB, Occurring 31 May 1971, Pilot: [redacted]

Frank T. Peterlin

FRANK T. PETERLIN
MAJ, FA
COMMANDING

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AVBAV-CO (15 Jun 71) 4th Ind
SUBJECT: Technical Report of Army Aircraft Accident, CH-47 SN 64-13116, 243rd ASHC, 10th CAB, Occurring 31 May 1971, Pilot: MOREE

DA, HEADQUARTERS, 17TH COMBAT AVIATION GROUP, APO SF 96316, 9 JUL 71

TO: Commanding General, 1st Aviation Brigade, ATTN: AVTASA, APO SF 96384

1. Concur with the findings and recommendations of the Accident Investigation Board except as follows: DA Form 2397, item 2: add flight surgeons recommendations from DA Form 2297-8.

2. Corrective action taken is deemed adequate and appropriate.

3. A Collateral Investigation is being conducted.

4. Messages have been sent from this Headquarters:

A. Requesting a factory assistence team from ARADMAC, HAMILTON STANDARD or LYCOMING, thru 1st Aviation Brigade, to inspect all fuel controls on this type of aircraft.

B. Directing that units discuss and conduct Ground Safety Classes on HEIGHT-VELOCITY Diagrams in their monthly safety meetings.

C. Directing that units forward a copy of their Safety and Standards SOP to this Headquarters. (Ref DA Form 2397, item #2, recommendation #5.)

James H. Merryman

JAMES H. MERRYMAN
Colonel, FA
Commanding

THIS MARKING IS CANCELLED upon removal from the enclosure bearing a classification marking.

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Analysis deleted Exh. 5, Form

AVBASA (15 Jun 71) 5th Ind
SUBJECT: Army Aircraft Accident Report, CH-47A, SN 64-13116, 31 May 71, Pilot: MORELL

DA, Headquarters, 1st Aviation Brigade, APO 96384 18 JUL 1971

TO: Commanding General, USARV, ATTN: AVHAV-S, APO 96375

1. Concur with the findings and recommendations of the investigating board as amended by the 4th indorsement with the following changes.

[redacted]

2. Corrective action appears adequate.

FOR THE COMMANDER:

F. M. Mc CULLAR
Colonel, Infantry
Deputy Brigade Commander/Admin

1 Incl
nc

Copy Furn:
CO, 17th CAG
CO, 10th CAB
CO, 243d ASHC

This marking is CANCELLED when separated from the material bearing a protective marking.

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AIRCRAFT ACCIDENT REPORT CHECK LIST
(AR 95-5)

Aircraft Type, Model, Series	Serial Number	Date of Accident
CH-47A	64-13116	31 May 1971

Reports	Inclosed	Not Applicable	See Remarks
TAB A - Findings and Recommendations (DA Form 2397)	X		
TAB B - Narrative of Accident (DA Form 2397-3)	X		
TAB C - General Information (DA Form 2397-1 & 2)	X		
TAB D - Witness Statements (DA Form 2397-4)	X		
TAB E - Wreckage Distribution (DA Form 2397-5)	X		
TAB F - Failure or Malfunction (DA Form 2397-6)	X		
TAB G - Flight Surgeon Analysis and Recommendations (DA Form 2397-8)	X		
TAB H - Flight Surgeon'S General Information (DA Form 2397-7)	X		
TAB I - Copy of DD Form 1322 (Autopsy Report)			X
TAB J - Copy of A/C Records (DA Form 2408-12, 13, 14)	X		X
TAB K - Copy of A/C Clearence (DD Form 175 or 1080)	X		

REMARKS:

TAB I - Autopsy Report will be forwarded upon receipt.

TAB J - The Aircraft Logbook with the current DA 2408-12,-13,-14, and -18 was destroyed by fire. The previous day's DA2408-13 is enclosed. No other copies of the DA 2408-14, and -18 were available.

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USARV Form 397-1 (R) (31 Mar 67)

SUMMARY OF TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

For use of this form, see AR 95-5 and DA PAM 385-40; the proponent agency is Office of Chief of Staff for Force Development.

REPORTS CONTROL SYMBOL CSFOR-5(R1)

FINDINGS AND RECOMMENDATIONS

1. FINDINGS

a. ESTABLISHED CAUSE FACTORS

1. Material Failure: The N1 governor driveshaft in the #2 engine fuel control unit boost pump was excessively worn, causing fuel control unit failure and the failure of the #2 engine.
2. Operation: The aircraft was outside of the flight envelope for successful recovery from a single engine failure at the point of the #2 engine failure.

b. PROBABLE OR SUSPECTED CAUSE FACTORS

1. PROBABLE: Material Failure: The #1 engine failed due to an instantaneous power demand that was beyond the capabilities of the engine to deliver.
2. SUSPECTED: The instructor pilot was unable to manipulate the cyclic and thrust controls after both engines had failed due to the combination of feedback forces caused by excessively low rotor rpm, declining hydraulic pressure, and the loss(CONT'D)

c. NONRELATED FACTORS

1. Operation: The departure route of the aircraft was downwind from the reported prevailing winds. The importance of the prevailing winds in assisting recovery from a single engine failure is indicated in TM 55-1520-209-10, pg. 14-38, fig. 14-28.
2. Inspections: The presence of non-related foreign objects in several areas of the aircraft on a pre-flight inspection indicates a failure of maintenance personnel(CONT'D)

2. RECOMMENDATIONS (*Recommended Corrective Actions in Order of Importance*)

The Board recommends that:

1. Command action be taken to initiate a one-time inspection of all fuel control boost pump N1 governor driveshafts (FSN 2915-963-0978, P/N 02-13920) installed on CH-47 aircraft in this command in order to prevent a recurrence of this type of failure.
2. All CH-47 aviators be rebriefed on the height-velocity diagrams for safe landing after a single engine failure and the single engine landing and autorotative corridor, with special emphasis on avoidance areas.
3. All CH-47 aviators be briefed on the importance of wind direction to the (CONT'D)

BOARD MEMBERS (*Signature, Grade, Branch and Rating*)

PRESIDENT JOHN L. SHANAHAN JR., CPT, AR, ARAV	MEMBER CHARLES S. FERBER, CW3, AVN, SRARAV
ADDRESS AND TELEPHONE NUMBER 92nd AHC, APO 96377, Dong Ba Thin 185	MEMBER WILFORD J. SHELTON, CW2, AVN, ARAV
RECORDER THOMAS E. WRIGHT, WO1, AVN, ARAV	MEMBER
ADDRESS AND TELEPHONE NUMBER 92nd AHC, APO 96377, Dong Ba Thin 185	MEMBER
MEMBER CLIFFORD C. HUDSON, CPT, FC/AMO	MEMBER

REVIEWING OFFICIAL

STATEMENT OF REVIEWER WILL INCLUDE CONCURRENCE, NON-CONCURRENCE AND CORRECTIVE ACTIONS TAKEN

1. Concur with the findings and recommendations of the accident investigation board.
2. This headquarters has taken the following steps to preclude recurrence of a similar mishap.
   a. This accident will be discussed at the monthly Battalion Safety Council meeting at which all unit commanders will be present.
   b. A letter has been sent to all units placing increased command emphasis on each individual aviator knowing the flight envelope for his particular type of aircraft.
3. A collateral investigation is being conducted.
4. Corrective actions taken by the unit commander to preclude recurrence are considered appropriate.

DATE	GRADE, BRANCH, RATING & ORGANIZATION	SIGNATURE
20 June 71	JAMES O. HEGDAHL, LTC, IN Commanding, 10th Cbt Avn Bn	James O. Hegdahl

APPROVAL AUTHORITY

REMARKS OF APPROVING AUTHORITY

1. The findings and recommendations of the accident investigation board, as amended by the 2nd, 4th and 5th indorsements, are approved with the following amendments to the 5th indorsement: [redacted]

[redacted]

DATE	GRADE	SIGNATURE
29 Jul 71	Brigadier General USA	JACK W. HEMINGWAY, Aviation Officer

Ex. 5

DA FORM 1 JUN 66 2397

REPLACES DA FORM 2397, 1 APR 61, WHICH IS OBSOLETE FOR OFFICIAL USE

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1. FINDINGS (CONT'D)

b. Probable or Suspected cause factors

2. (Cont'd) of power to the SAS system upon generator power failure below 204 rotor rpm and blade separation at initial impact.

c. Nonrelated factors

2. (Cont'd) to inspect their work areas and possibly a failure to properly perform the previous post-flight inspection.

3. Supervision: The failure of the crew to consistently remember how fuel samples were taken and checked prior to each refueling indicates a lack of an effective SOP to insure a complete check of POL facilities prior to each refueling.

2. RECOMMENDATIONS (CONT'D)

3. (Cont'd) recovery of single engine failures.

4. FOD inspections be re-emphasized at all supervisory levels.

5. An effective SOP be developed for checking each individual fuel source prior to each refueling of CH-47 aircraft to prevent the possibility of partial fuel cell contamination and assure positive inspection procedures.

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DA FORM 1 JUN 66 2397-3 REPLACES DA FORM 2397-3, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67
☆ GPO: 1966 O — 248-780/103

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT PART I (Continuation)	REPORTS CONTROL SYMBOL CSFOR-5 (R1)
For use of this form, see AR 385-40 and AR 95-5; the proponent agency is Office of the Assistant Chief of Staff for Force Development.	
SECTION G - NARRATIVE OF ACCIDENT	

DA Form 2397 Approval Authority, (Continued)

[redacted] Ex. 5

2. Corrective actions are adequate.

JACK W. HEMINGWAY
Brigadier General
Aviation Officer

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)

REPORTS CONTROL SYMBOL CSFOR-5(R1)

For use of this form, see AR 385-40 and AR 95-5; the proponent agency is Office of the Assistant Chief of Staff for Force Development.

SECTION G - NARRATIVE OF ACCIDENT

NARRATIVE ACCOUNT OF INVESTIGATION (Use format shown in "Reporting Procedures", AR 95-5. Use continuation sheets as necessary.)

1. GENERAL:

The president of the accident investigation board received notification from the 10th Combat Aviation Battalion Safety Officer at 1600 hours, 31 May 1971, to investigate the facts and circumstances surrounding the accident of Army aircraft CH-47A, serial number 64-13116, assigned to the 243rd Assault Support Helicopter Company, APO 96377, located at Dong Ba Thin, RVN. The board consisted of CPT John L. Shanahan, Jr., president; WO1 Thomas E. Wright, recorder; and CPT Clifford C. Hudson, MC/AMO. After a briefing by the 10th Combat Aviation Battalion Safety Officer, the board departed DBT, at 1700 hours, 31 May 71, and after making an aerial survey of the crash site at the 28th Regiment, 9th MOKA (White Horse) Infantry Division RCT, Phu Heip, RVN, arrived at approximately 1810 hours at Headquarters, 17th Combat Aviation Group, Tuy Hoa, AAF, RVN to receive further briefing from the 17th Combat Aviation Group Safety Officer. The 17th CAG Safety Officer had already initiated a fuel contamination check of the Tuy Hoa POL point, recovery of deceased personnel, security of the site by a Military Police detail, and had also obtained preliminary witness statements from the crew, who had already returned to DBT. Because of impending darkness and the totally burned wreckage, the board decided to postpone the ground investigation until the following day, which would allow additional members and technical consultants to be present. The board arrived at the accident site at 0900 hours, 1 Jun 71 accompanied by CW2 Milford J. Shelton, board member, and USAAVSCOM technical representatives, Robert J. Heady, a CH-47 airframe and airframe equipment specialist and George D. Simpson, a T-55 engine equipment specialist. After surveying the wreckage and completing the preliminary investigation at the site, the board determined that neither engine had been developing power at impact, without apparent cause. Because of the nearly simultaneous engine failure, and the negative report of fuel contamination, it was the opinion of the board and the technical consultants that further investigative assistance should be requested from USAAMRDL, Fort Rucker, Alabama. This request was forwarded through the 17th CAG but was denied by the 1st Aviation Brigade and USARV Safety offices on the grounds that sufficient technical assistance was available at the scene and through the teardown and analysis program. The board then returned to DBT and initiated a check of maintenance records. The board interviewed the crew members individually on 2 Jun 71 at DBT and continued its check of the maintenance records. Returning to Phu Heip on 3 Jun 71, the board acquired CW3 Charles S. Ferber as an additional member, and completed final investigation and disassembly of the wreckage. The parts selected for teardown and analysis were removed and secured at the 79th Maintenance Company (DS) at Tuy Hoa AAF, RVN. The crewmembers were interviewed collectively on 4 June 1971 and after a final check of the maintenance records, the aircraft was released to the Commanding Officer of the 243rd ASHC on 7 Jun 71 for turn-in of parts and disposal of the wreckage.

2. IDENTIFICATION:

a. Aircraft involved: CH-47A, serial number 64-13116

b. Personnel involved:

NAME	RANK	SSAN	DUTY	INJURIES
[redacted]	CW2	[redacted]	IP	Minor
Rex A. Scheib	WO1	479 58 5741	P	Minor
Steven J. Kearns	SP5	[redacted]	FE	Fatal

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)

REPORTS CONTROL SYMBOL CSFOR-5(R1)

For use of this form, see AR 385-40 and AR 95-5; the proponent agency is Office of the Assistant Chief of Staff for Force Development.

SECTION G - NARRATIVE OF ACCIDENT

NARRATIVE ACCOUNT OF INVESTIGATION (Use format shown in "Reporting Procedures", AR 95-5. Use continuation sheets as necessary.)

d. Time and Date: 1300(H) local, 31 May 1971

3. DESCRIPTION:

On 31 May 1971, at 0818 hours, Army aircraft CH-47A, serial number 64-13116 departed DFT enroute to Phu Hiep, RVN on a routine re-supply mission in support of the 28th Regiment, 9th ROKA Infantry Division. Upon stopping at the 9th Division Pad in Ninh Hoa, a squeal was noted in the SAS system, but after recycling the system the squeal disappeared, and the aircraft on-loaded 15 passengers. Aircraft #116 continued its flight to Tuy Hoa AF, dropped off two passengers and refueled at the CH-47 POL point. Returning to the 28th RCT, the aircraft discharged 15 passengers, picked up the Korean liason NCO, and began its mission. After hauling five slingloads of supplies, aircraft #116 returned to the Tuy Hoa POL point for refueling, and then carried an additional five slingloads. Returning to Tuy Hoa at approximately 1230 hours, the aircraft was again refueled from the same POL point, and the crew prepared to return to Phu Hiep to carry the last two loads of the day. With WO1 Scheib at the controls, a hover check was made which indicated approximately 440 lbs of torque, and WO1 Scheib then deaprted to the South enroute to Phu Hiep. WO1 Scheib made an approach to a hover in alignment with the landing strip at the RCT (160) and hovered left to the resupply pad to pick up the load. The load consisted of several boxes of supplies (unmarked) a loaded fuel bladder, and a large water container in three separate slings, weighing a total of approximately 6000 lbs. After lifting the three slings (approximately 30' long) 40 - 50 feet clear of the ground, WO1 Scheib made a right pedal turn to align the aircraft with the takeoff heading and make a hover check. The hover check indicated that #1 engine had 90.5% N_1 at 540 lbs of torque. WO1 Scheib then began the takeoff by making a slight cyclic/pedal turn to the right and then to the left to align the aircraft with the cleared path (240°) which is normally used for takeoff to avoid buildings in case of a dropped load. As the aircraft entered translational lift at approximately 20 - 30 knots and 100', the #2 engine failed, causing the rotor rpm to drop and the aircraft began to settle. CW2 [redacted] took control of the aircraft, noted that the #2 engine N_1 decreased through 55%, and instructed the flight engineer to release the load (WO1 Scheib also activated his cyclic release button at this time). The load dropped approximately 30 feet to the ground, causing the fuel and water container to burst. At load release (approximately 60' altitude), CW2 [redacted] noted the #1 engine reach 780 lbs of torque and then decrease rapidly. The aircraft lurched slightly forward and assumed a nose high attitude. CW2 [redacted] was unable to lower the thrust control and states that the cyclic traveled rearward in three short, rapid movements to the full aft position against his control pressures. With rotor rpm continuing to deteriorate, the aircraft struck a 9' high sand berm which was covered with concertina wire. The left aft gear dug an 18" hole in the berm, causing the gear strut upper attaching point to fail. Simultaneously, the aft rotor system contacted two fence posts on the berm, causing two 9' 6" sections from separate aft blades to separate from the aircraft. The aft section of the aircraft again became airborne and pivoted counter-clockwise around the forward rotor system, which was already in contact with the ground. The fuselage of the aircraft impacted vertically on its right side on the inner perimeter fence of the 28th RCT, detonating at least one claymore mine and two trip flares. Fire was instantaneous on impact of the aft section. The pilot exited through the right cockpit jettisonable door which had opened on impact, followed by the instructor pilot and the crewchief. The gunner exited either through this door or the right chin bubble. The flight engineer, who was in the vicinity of the bottom hatch, and the Korean liason NCO, who was sitting in a troop seat beside the hatch, were thrown towards the rear of the aircraft when it entered the nose-high configuration, and were not seen by any member of the crew after impact. After clearing the aircraft, the instructor pilot immediately went to a phone and notified 268th Aviation Battalion operations and procured medevac assistance. The fire consumed the entire aircraft within five minutes/

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DA FORM 2397-3 JUN 68

REPLACES DA FORM 2397-3, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67.

☆ GPO: 1968 O—343-780/193

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)

REPORTS CONTROL SYMBOL CSFOR-5 (R1)

For use of this form, see AR 385-40 and AR 95-5; the proponent agency is Office of the Assistant Chief of Staff for Force Development.

SECTION G - NARRATIVE OF ACCIDENT

NARRATIVE ACCOUNT OF INVESTIGATION (Use format shown in "Reporting Procedures", AR 95-5. Use continuation sheets as necessary.)

4. Investigation:

a. The investigation of this accident was conducted as follows:

1. 1 June 1971- Initial site and wreckage investigation.
2. 2 June 1971- Individual crewmember interviews.
3. 3 June 1971- Final site and wreckage investigation.
4. 4 June 1971- Collective crewmember interview.
5. 1-4 June 1971- Maintenance check.
6. 4 June 1971-Aircraft released to the 243rd ASHC for turn in of parts tear-down/analysis and disposition of wreckage.

b. General: Prior to the arrival of the board, the following actions were completed:

1. Fuel sample from Tuy Hoa AAF was turned in for contamination analysis by the 17th CAG Aviation Safety Officer.
2. Crew was examined and released by 8th Army Field Hospital, Tuy Hoa AAF.
3. Fatally injured personnel were removed from the wreckage by the graves registration section, 8th Army Field Hospital.
4. Initial witness statements were taken by the 17th CAG Aviation safety officer.
5. Site security by a U.S. militaty police/infantry detail was provided by the 17th CAG safety officer.

c. Initial site and wreckage investigations:

1. No reliable map or diagram of the mined perimeter area did exist; after the immediate area was cleared by an EOD team, it was determined from parts and markers and pieces of fuselage that at least one claymore mine and two trip flares were detonated by the aircraft impact and were a factor in the resultant fire.

2. All wreckage was located and suitably diagrammed; 99% of the aircraft was located at the point of main impact.

3. No witnesses to the accident were found; no english -speaking witnesses existed; and no Korean-speaking personnel could relate a coherant account which would indicate that they actually observed the accident sequence.

4. The aircraft fuselage impacted vertically on its right side.

5. The slingload showed very little evidence of forward speed and impacted vertifally on a hard surface, bursting the fuel and water containers; the supply boxes were unmarked and their contents had already been removed.

6. The intense fire after impact burned aluminum and magnesium parts and caused severe material and structural deformation; no evidence of fire prior to impact was found or reported.

7. No remains of the aircraft log book could be found.

8. The remains of all weapons reported to be on board were found and recovered.

9. Both engines were intact and inspection indicated that neither was developing power at impact: #2 engine was not operating; #1 engine showed possible evidence of very very low or no turbine RPM at impact; #1 engine fuel control actuators: n1-full open, n2-76%; #2 engine fuel control actuators: n1-full open, n2-72%.

10. All blade structures were in the immediate area of the impact and suffered extensive damage; all blades indicated very low rotor RPM at impact. The front rotor system stopped turning first and the aft blades seperated from the rotor head at the attaching points; no evidence of blades colliding or striking the fuselage was found; the position of the two seperated aft 9' 6" blade sections indicated that they seperated from the rotor system in the vicinity of the first impact prior to the main impact of the aircraft.

11. All main drive train gears and couplings that remained showed no evidence of failure; the second forward drive shaft section showed a torque failure,

☆ GPO: 1968 O—345-780/108

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)

REPORTS CONTROL SYMBOL CSFOR-5 (R1)

For use of this form, see AR 385-40 and AR 95-5; the proponent agency is Office of the Assistant Chief of Staff for Force Development.

SECTION G - NARRATIVE OF ACCIDENT

NARRATIVE ACCOUNT OF INVESTIGATION (Use format shown in "Reporting Procedures", AR 95-5. Use continuation sheets as necessary.)

Caused by the sudden stoppage of the front rotor system at impact; the aft rotor head shorn of blades, continued to turn after impact; there was a three foot deep hole dug by the aft rotor head.

12. The fuel system crossfeed valve was found in a closed position; the #2 engine fuel shutoff valve was found in the open position; only the motor for the #1 engine fuel shutoff valve was found.

d. Individual crew member interviews:

1. Some confusion existed amoung the crew as to the crash/impact sequence, due to their respective locations, division of attention, and the rapidity of impact after the initial failure.

2. The parts (3/8 bolt, nut, pieces of shrapnel, rivets, cotter keys, washers) found on preflight were not identifiable as coming from the section of the aircraft in which they were found or any other specific area. It was determined that these foreign objects did not contribute to this mishap.

3. [redacted]

4. [redacted]

5. [redacted]

6. [redacted]

7. [redacted]

8. [redacted]

9. CW2 Moree [redacted]

10. CW2 Moree [redacted]

From confidential witness statements deleted IAW Ex. 5, FOIA

DA FORM 1 JUN 66 2397-3

REPLACES DA FORM 2397-3, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67.

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TECHNICAL REP[illegible] OF U.S. ARMY AIRCRAFT ACCIDENT[illegible]
PART I (Continuation)

REPORTS CONTROL SYMBOL CSFOR-5 (R1)

For use of this form, see AR 385-40 and AR 95-5; the proponent agency is Office of the Assistant Chief of Staff for Force Development.

SECTION G - NARRATIVE OF ACCIDENT

NARRATIVE ACCOUNT OF INVESTIGATION (Use format shown in "Reporting Procedures", AR 95-5. Use continuation sheets as necessary.)

d. 11. [redacted]

12. [redacted]

13. [redacted]

14. [redacted]

e. Final site and wreckage investigation:

1. The aircraft data plate and the data plates of both engines were recovered. #1 engine data plate indicated n1 topping 97.2% and #2 engine data plate indicated n1 topping at 95.4%

2. Most fuel system components in the right fuel tank were recovered in good condition and were set aside for tear down/analysis

3. As the #2 engine was being removed from the wreckage, the fuel control unit, which had significant fire damage, became partially disassembled. Close inspection of the unit indicated that the n1 governor driveshaft (FSN 2915-963-0978, P/N 02-13920) showed excessive wear on the small gear splines. Although this shaft showed no indication of heat or fire damage or dynamic failure, the gear splines were worn nearly smooth on the shaft to a degree sufficient to cause booster pump failure, apparently through normal wearfactors. The unit was set aside for teardown/analysis.

4. #1 engine was largely intact and showed no apparent external cause or effect of failure.

5. Both engines and several other components (listed in TAB 10, Aircraft Release) were removed from the wreckage at this time and secured at the 79th Maint Co (DS) at Tuy Hoa AAF for turn-in for teardown and analysis.

f. Collective Crewmember interviews:

1. [redacted]

2. [redacted]

3. [redacted]

g. Maintenance Records check:

1. All prior oil and hydraulic samples were normal.

2. All prior D.E.R. checks were normal.

DA FORM JUN 66 2397-3

REPLACES DA FORM 2397-3, 1 APR 61 WHICH IS OBSOLETE. EFFECTIVE 1 JAN 67.

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)

REPORTS CONTROL SYMBOL CSFOR-5(R1)

For use of this form, see AR 385-40 and AR 95-5; the proponent agency is Office of the Assistant Chief of Staff for Force Developme nt.

SECTION G - NARRATIVE OF ACCIDENT

NARRATIVE ACCOUNT OF INVESTIGATION (Use format shown in "Reporting Procedures", AR 95-5. Use continuation sheets as necessary.)

g. (continued)

3. The DA 2408-14 forms and DA 2408-19 forms for the aircraft were in the log-book which was burned in the aircraft .

4. Fuel control unit, SN: 52257, was installed on #1 engine (SN: LEO 4957) and had 1898 hours since it was new with no overhauls.

5. Fuel control unit, SN: 41441, was installed on #2 engine (SN: LEO 4918) and had 911 hours since overhaul. It is known that the unit was only overhauled once but time since new is unknown due to a missing DA 2404-5 form.

6. The part number of the aft transmission was 114D 2200-5.

h. Other:

1. The upper flight control boost actuators on both rotor heads were found intact in the wreckage and measurements of all actuators were taken. On 2 June 1971, mr Robert Heady, AVSCOM representative and the 243rd ASHC maintenance officer attempted to duplicate the measured upper boost extensions on a CH-47A SN: 65-8021, in order to determine relative cockpit control positions. The following is the best approximation obtained:

64-13116:		simulated 65-8021:	
Forward piveting actuator (rt	4 1/4"	Extension	4 3/4"
Forward pivioting actuator (lt)	8 7/8"	Extension	9 1/4"
AFT pivioting actuator (lt)	6 1/2"	Extension	5 3/4"
AFT piviotioting (swivel) (rt)	9 16/32"	Extension	9 16/32"

From these dimensions, the cockpit controls were found to be:

a. Cyclic- 2 1/2" forward (trim indicator)
b. Thrust- centered (7 1/2" up)
c. Pedals 3 3/8" rt (c/l to c/l)

2. The lower flight control boost actuators were found burned but intact in the wreckage, but no identification was possible from their position only the pitch actuator could be identified by serial number from historical records. By matching the remaining actuators, these substantiate the positions in 4h/1 above, with two exceptions. The actuator which is thought to be the roll actuator indicates a full right cyclic position, and the identified pitch actuator indicates an aft cyclic position.

3. No useable information could be determined from the cockpit controls or instruments due to crash damage and fire.

4. The results of the fuel contamination sample from Tuy Hoa AAF were negative and no aircraft reported contamination problems from this POL point on this date.

5. Analysis:

[redacted]

Enclosure deleted IAW Ex. 5, FOIA

DA FORM 1 JUN 68 2397-3 REPLACES DA FORM 2397-3, 1 APR 67, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67.

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I
(AR 95-5 and AR 385-40)

☒ MAJOR ☐ MINOR

REPORTS CONTROL SYMBOL CSFOR-5 (R1)

TO: (Headquarters of Approval Authority)
Commanding General
HQ, USARV
APO 96375

THRU: (Organization of Reviewing Official)
Commanding Officer
10th CAB
APO 96377

FROM: (Organization Submitting Accident Report)
Commanding Officer
243rd ASHC
APO 96377

SECTION A - LOCATION AND TIME

1. a. DATE OF ACCIDENT	b. TIME OF ACCIDENT (Local)	2. DISTANCE AND DIRECTION FROM NEAREST MILITARY INSTL
31 May 1971	1300 (H)	at the 28th ROKA RCP, Phu Hiep, RVN

3. PLACE OF ACCIDENT (State, Foreign Country, Town, Distance and Direction)
48P CQ 2523 Phu Hiep, RVN

4. ACCIDENT OCCURRED
☐ DAWN ☒ DAY ☐ DUSK ☐ NIGHT

SECTION B - AIRCRAFT

1. TYPE, MODEL AND SERIES	2. AIRCRAFT SERIAL NUMBER	3. INSTL WHERE AIRCRAFT ASSIGNED
CH-47A	64-13116	243rd ASHC, Dong Ba Thin, RVN

4. ORGANIZATION UNDER WHOSE CONTROL THE AIRCRAFT WAS OPERATING
243rd ASHC, APO 96377

5. WHAT WAS MISSION?
☐ SERVICE ☒ COMBAT ☐ TRAINING ☐ TEST FLIGHT ☐ OTHER (Specify)

SECTION C - WEATHER

WEATHER ☐ WAS ☒ WAS NOT CONSIDERED A FACTOR IN THIS ACCIDENT.
A WEATHER REPORT IS INCLUDED UNDER TAB. 3

SECTION D - AIRPORT AND/OR AIRWAY FACILITIES

(Use this section if the airport, its facilities, or airway facilities were a factor or contributing factor in the accident.)

BRIEF EXPLANATION OF CIRCUMSTANCE

N/A

"FOR OFFICIAL USE ONLY"

SECTION E - PERSONNEL INVOLVED

	MILITARY	CIVILIAN
1. NUMBER OF AIRCRAFT OCCUPANTS INVOLVED	5 US 1 ROKA	0
2. NUMBER OF BYSTANDERS INVOLVED	0	0

3. NUMBER OF PEOPLE INJURED (By type classification shown)	NO INJURY	MINOR	MAJOR	FATAL	UNKNOWN	MISSING
a. MILITARY OCCUPANTS OF AIRCRAFT	0	4 US	0	1US, 1ROKA	0	0
b. OTHER OCCUPANTS OF AIRCRAFT	0	0	0	0	0	0
c. MILITARY BYSTANDERS	0	0	0	0	0	0
d. OTHER BYSTANDERS	0	0	0	0	0	0

DA FORM 1 JUN 66 2397-1

REPLACES DA FORM 2397-1, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67.

FPO-Japan

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)
(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL CSFOR-5(R1)

SECTION F - OPERATOR

(If additional space is required, use a blank sheet and identify it as Part I, Section F.)

1. NAME (Last, First, Middle Initial)		2. GRADE/RANK	3. SERVICE NO.
[redacted]		CW 2	[redacted]
4. BRANCH OF SERVICE (Army, Navy, National Guard, etc.)	5a. PRESENT AERONAUTICAL RATING	b. DATE RECEIVED	6. CREW DUTY AT TIME OF ACCIDENT
Army	ARAV	15 Jul 69	IP
7a. TYPE INSTRUMENT RATING	b. EXPIRATION DATE	8. TIME AT CONTROLS THIS FLIGHT	12a. NO. OF PREVIOUS ACCIDENTS
R/W TAC	8 Jun 72	3.5	0
9. NO. LANDINGS THIS FLIGHT	10. NO. DUTY HOURS LAST 24 HOURS	11. NO. HOURS FLOWN LAST 24 HOURS	b. DATES
6	13.0	3.5	

13. OPERATOR'S FLYING EXPERIENCE (List all flight time to nearest hour)	PILOT	CO-PILOT	INSTRUMENT PILOT	TOTAL HOURS
a. TOTAL FLYING HOURS (Army, Student, Accredited Time)				
FIXED WING HOURS				
LAST 6 MONTHS				
LAST 30 DAYS				
ROTARY WING HOURS				
LAST 6 MONTHS				
LAST 30 DAYS				
b. HOURS THIS TYPE MODEL AIRCRAFT				
LAST 6 MONTHS				
LAST 30 DAYS				
c. WEATHER/HOOD HOURS (All aircraft)				
LAST 6 MONTHS				
LAST 30 DAYS				
d. NIGHT HOURS (All aircraft)				
LAST 6 MONTHS				
LAST 30 DAYS				

14. AVIATION SCHOOLS ATTENDED AND DATE GRADUATED

NORWAC 15 Jul 69

CH 47 PTC 16 Sept 69

IPQTC CH 47 4 Feb 71

"FOR OFFICIAL USE ONLY"

15. INITIAL TRAINING THIS TYPE, MODEL AIRCRAFT (List date of training, organization and number of flight hours)

In country orientation - 24 Feb 71, 3.4 hrs., 243 ASHC

A/C checkride - 26 Feb 70, (IP check), 1.4 Hrs., 243 ASHC

90 day stan. ride - 7 May 71, 2.4 hrs, 243 ASHC

NOTE: If other pilots were logging time on this flight, complete individual sheets for each pilot.

PERSONAL DATA

INSTRUCTIONS: *For each aircraft accident, complete for each aviator at the controls of the aircraft involved. Information provided by this form is to be used for an interim study pending revision of regulations. It replaces information of Section E, Crew Experience, USARV Form 232, dated 16 September 66, and items 6 through 8 and 10 through 13 of DA Form 2397-2, dated July 1966. Forward as per instructions pertinent to USARV Form 232 and DA Form 2397.*

1. ROLE OF THIS INDIVIDUAL IN THE CAUSE OF THE MISHAP:

A. PRIMARY ROLE — 1 - DEFINITE ☐ 2 - PROBABLE ☐ 3 - POSSIBLE ☐ | B. CONTRIBUTORY ROLE — 4 - DEFINITE ☐ 5 - PROBABLE ☐ 6 - POSSIBLE ☒ 0 - NONE ☐ 9 - UNK ☐

2. FLYING EXPERIENCE	ROTARY WING	FIXED WING
A. TOTAL FLYING HOURS (*include Army, student and other accredited time*)	1492	480
B. ALL AIRCRAFT, TOTAL HOURS (*military only*)	1492	
1ST PILOT	481	
INSTRUCTOR PILOT	156	
AIRCRAFT COMMANDER	598	
WEATHER INSTRUMENT, HOOD	67	
NIGHT	46	
LAST 30 DAYS	59.6	
LAST 90 DAYS	191.8	
C. THIS MODEL, INCLUDE 1ST PILOT, INSTRUCTOR PILOT, AND AIRCRAFT COMMANDER HOURS FLOWN:	59.6	
LAST 30 DAYS	191.2	
LAST 90 DAYS	1260	
D. TOTAL HOURS, THIS MODEL	448	
E. THIS MODEL, HOURS FLOWN AS:		
1ST PILOT	156	
INSTRUCTOR PILOT	598	
AIRCRAFT COMMANDER	26	
WEATHER INSTRUMENTS, HOOD	26	
NIGHT	30 May 71	
F. DATE OF MOST RECENT FLIGHT, THIS MODEL PRIOR TO THIS MISHAP	0.5	
G. DURATION OF MOST RECENT FLIGHT, THIS MODEL PRIOR TO THIS MISHAP	7 May 71	
H. DATE OF LAST PROFICIENCY CHECK, THIS MODEL		

3. INDICATE INSTRUMENT FLIGHT QUALIFICATIONS:

A. ☒ R/W TACTICAL — B. ☐ R/W STANDARD — C. ☐ R/W SPECIAL — D. ☐ F/W STANDARD — E. ☐ F/W SPECIAL — F. ☐ EXAMINER — G. ☐ EXPIRED-E.G. RVN WAIVER — H. ☐ NONE

4. COMBAT AREA EXPERIENCE

A. THIS TOUR, NUMBER OF MONTHS IN COUNTRY 3.5
B. TOTAL HRS FLOWN THIS TOUR 253 R/W ____ F/W
C. TOTAL COMBAT FLYING HRS 1137 R/W ____ F/W

5. BACKGROUND DATA

A. DATE OF BIRTH [redacted]
B. DATE LAST LEAVE ENDED 31 Nov 70
C. DAYS DURATION LAST LEAVE 30
D. TYPE OF LAST LEAVE TAKEN
1. ORDINARY ☒
2. EMERGENCY ☐
3. REENLISTMENT ☐
4. GRADUATION ☐
5. SICK OR CONVALESCENT ☐
6. DELAY EN ROUTE ☒
7. REST & RELAXATION (R&R) ☐
9. UNKNOWN ☐

E. DATE OF LAST AIRCREW DUTY 30 May 71
F. HOURS FLOWN IN LAST 24 HOURS 4.0
G. HOURS FLOWN IN LAST 48 HOURS 4.0
H. FLIGHTS/SORTIES FLOWN LAST 24 HRS 2/10
I. FLIGHTS/SORTIES FLOWN LAST 48 HRS 2/10
J. HOURS WORKED IN LAST 24 HOURS 13.0
K. HOURS WORKED IN LAST 48 HOURS 21.0
L. HOURS SLEPT IN LAST 24 HOURS 7.5
M. HOURS SLEPT IN LAST 48 HOURS 15.0
N. HOURS CONTINUOUS DUTY PRIOR TO MISHAP 7.0

O. HOURS CONTINUOUSLY AWAKE PRIOR TO MISHAP 7.0
P. HOURS DURATION OF LAST SLEEP PERIOD 7.5
Q. TIME IN COCKPIT PRIOR TO FLIGHT: 00+15 HOURS*
R. DURATION THIS FLIGHT: 3.5 HOURS*
S. DUTY HOURS REMAINING THIS DAY, HAD NOT ACCIDENT OCCURRED 5.0

**Hours to nearest tenth*

6. NUMBER AND TYPE OF PRIOR MISHAPS (*for past 12 months*)

	F/W	R/W
A. MAJOR ACCIDENT	N/A	N/A
B. MINOR ACCIDENT		
C. INCIDENT		
D. FORCED LANDING		
E. PRECAUTIONARY LANDING		3
F. UNKNOWN		

G. DATE OF MOST RECENT OCCURRENCE 22 DAY Apr MO 71 YR AND TYPE: A. ☐ B. ☐ C. ☐ D. ☐ E. ☒

7. LIST REMARKS OR CONTINUATION OF ABOVE:

NAME/RANK	SERIAL/SSA NUMBER	DUTY ABOARD AIRCRAFT
[redacted]	[redacted]	IP

USABAAR FORM 23 (2 JANUARY 1968)

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

PART I (Continuation)
AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL
CSFOR-5(R1)

SECTION F - OPERATOR

(If additional space is required, use a blank sheet and identify it as Part I, Section F.)

1. NAME (Last, First, Middle Initial)	2. GRADE, RANK	3. SERVICE NO.
Scheib, Rex A.	W01	479-50-5741

4. BRANCH OF SERVICE (Army, Navy, National Guard, etc.)	5a. PRESENT AERONAUTICAL RATING	b. DATE RECEIVED	6. CREW DUTY AT TIME OF ACCIDENT
Army	ARAV	26 Jan 71	Pilot

7a. TYPE INSTRUMENT RATING	b. EXPIRATION DATE	8. TIME AT CONTROLS THIS FLIGHT	9a. NO. OF PREVIOUS ACCIDENTS	b. DATES
R/W IAC	22Jan 72	3.5	0	

9. NO. LANDINGS THIS FLIGHT	10. NO. DUTY HOURS LAST 24 HOURS	11. NO. HOURS FLOWN LAST 24 HOURS
6	13.0	4.0

13. OPERATOR'S FLYING EXPERIENCE (List all flight time to nearest hour)	PILOT	CO-PILOT	INSTRUMENT PILOT	TOTAL HOURS
a. TOTAL FLYING HOURS (Army, Student, Accredited Time)				
FIXED WING HOURS				
LAST 6 MONTHS				
LAST 30 DAYS				
ROTARY WING HOURS				
LAST 6 MONTHS				
LAST 30 DAYS				
b. HOURS THIS TYPE MODEL AIRCRAFT				
LAST 6 MONTHS				
LAST 30 DAYS				
c. WEATHER/HOOD HOURS (All aircraft)				
LAST 6 MONTHS				
LAST 30 DAYS				
d. NIGHT HOURS (All aircraft)				
LAST 6 MONTHS				
LAST 30 DAYS				

14. AVIATION SCHOOLS ATTENDED AND DATE GRADUATED

WOAC 26 Jan 1971 and Transition

OH 47 ADC 24 Mar 1971

"FOR OFFICIAL USE ONLY"

15. INITIAL TRAINING THIS TYPE, MODEL AIRCRAFT (List date of training, organization and number of flight hours)

In country check ride - Due after first 25 hours with IP.
In country orientation- 17 May 71, 4.0 hrs, 243 AHC
A/C check ride- N/A
90 day stan. ride- N/A

NOTE: If other pilots were logging time on this flight, complete individual sheets for each pilot.

DA FORM 1 JUN 66 2397-2

PREVIOUS DA FORM 2397-2, 1 APR 61, WHICH IS OBSOLETE

PPC-Japan

PERSONAL DATA

INSTRUCTIONS: *For each aircraft accident, complete for each aviator at the controls of the aircraft involved. Information provided by this form is to be used for an interim study pending revision of regulations. It replaces information of Section F, Crew Experience, USARV Form 232, dated 16 September 66, and items 6 through 8 and 10 through 13 of DA Form 2397-2, dated July 1966. Forward as per instructions pertinent to USARV Form 232 and DA Form 2397.*

1. ROLE OF THIS INDIVIDUAL IN THE CAUSE OF THE MISHAP:

A. PRIMARY ROLE — 1 - DEFINITE ☐ 2 - PROBABLE ☐ 3 - POSSIBLE ☐

B. CONTRIBUTING ROLE — 4 - DEFINITE ☐ 5 - PROBABLE ☐ 6 - POSSIBLE ☒ 0 - NONE ☐ 9 - UNK ☐

2. FLYING EXPERIENCE

	ROTARY WING	FIXED WING
A. TOTAL FLYING HOURS (Include Army, student and other accredited time)	284	7
B. ALL AIRCRAFT, TOTAL HOURS (military only)	277	
1ST PILOT	44	
INSTRUCTOR PILOT	---	
AIRCRAFT COMMANDER	---	
WEATHER INSTRUMENT, HOOD	46.5	
NIGHT	20.0	
LAST 30 DAYS	8.0	
LAST 90 DAYS	55.0	
C. THIS MODEL, INCLUDE 1ST PILOT, INSTRUCTOR PILOT, AND AIRCRAFT COMMANDER HOURS FLOWN:	8.0	
LAST 30 DAYS	32.6	
LAST 90 DAYS	72.0	
D. TOTAL HOURS, THIS MODEL	32.6	
E. THIS MODEL, HOURS FLOWN AS:		
1ST PILOT	---	
INSTRUCTOR PILOT	---	
AIRCRAFT COMMANDER	---	
WEATHER INSTRUMENTS, HOOD	6.0	
NIGHT	30 May 71	
F. DATE OF MOST RECENT FLIGHT, THIS MODEL PRIOR TO THIS MISHAP	0.5	
G. DURATION OF MOST RECENT FLIGHT, THIS MODEL PRIOR TO THIS MISHAP	17 May 71	
H. DATE OF LAST PROFICIENCY CHECK, THIS MODEL		

3. INDICATE INSTRUMENT FLIGHT QUALIFICATIONS:

A. ☒ R/W TACTICAL — D. ☐ F/W STANDARD — G. ☐ EXPIRED-E.G. RVN WAIVER
B. ☐ R/W STANDARD — E. ☐ F/W SPECIAL — H. ☐ NONE
C. ☐ R/W SPECIAL — F. ☐ EXAMINER

4. COMBAT AREA EXPERIENCE

A. THIS TOUR, NUMBER OF MONTHS IN COUNTRY 1
B. TOTAL HRS FLOWN THIS TOUR 8.0 R/W ____ F/W
C. TOTAL COMBAT FLYING HRS 8.0 R/W ____ F/W

5. BACKGROUND DATA

A. DATE OF BIRTH 22 Jul 50
B. DATE LAST LEAVE ENDED 1 Apr 71
C. DAYS DURATION LAST LEAVE 22
D. TYPE OF LAST LEAVE TAKEN
1. ORDINARY ☒
2. EMERGENCY ☐
3. REENLISTMENT ☐
4. GRADUATION ☐
5. SICK OR CONVALESCENT ☐
6. DELAY EN ROUTE ☒
7. REST & RELAXATION (R&R) ☐
9. UNKNOWN ☐

E. DATE OF LAST AIRCREW DUTY 30 May 71
F. HOURS FLOWN IN LAST 24 HOURS 4.0
G. HOURS FLOWN IN LAST 48 HOURS 4.0
H. FLIGHTS/SORTIES FLOWN LAST 24 HRS 2/10
I. FLIGHTS/SORTIES FLOWN LAST 48 HRS 2/10
J. HOURS WORKED IN LAST 24 HOURS 13.0
K. HOURS WORKED IN LAST 48 HOURS 21.0
L. HOURS SLEPT IN LAST 24 HOURS 9.0
M. HOURS SLEPT IN LAST 48 HOURS 13.5
N. HOURS CONTINUOUS DUTY PRIOR TO MISHAP 7.0

O. HOURS CONTINUOUSLY AWAKE PRIOR TO MISHAP 7.0
P. HOURS DURATION OF LAST SLEEP PERIOD 6.0
Q. TIME IN COCKPIT PRIOR TO FLIGHT: 00+15 HOURS*
R. DURATION THIS FLIGHT: 3.5 HOURS*
S. DUTY HOURS REMAINING THIS DAY, HAD NOT ACCIDENT OCCURRED 5.0

*Hours to nearest tenth

6. NUMBER AND TYPE OF PRIOR MISHAPS *(for past 12 months)*

	F/W	R/W
A. MAJOR ACCIDENT	N/A	N/A
B. MINOR ACCIDENT		
C. INCIDENT		
D. FORCED LANDING		
E. PRECAUTIONARY LANDING		2
F. UNKNOWN		

G. DATE OF MOST RECENT OCCURRENCE 9 DAY Mar MO 71 YR
AND TYPE: A. ☐ B. ☐ C. ☐ D. ☐ E. ☒

7. LIST REMARKS OR CONTINUATION OF ABOVE:

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NAME/RANK	SERIAL/SSA NUMBER	DUTY ABOARD AIRCRAFT
Scheib, Alex A.	[redacted]-5741	Pilot

USABAAR FORM 23 (2 JANUARY 1968)

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I *(Continuation)*
(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL
CSFOR-5(R1)

SECTION H - WITNESS STATEMENT

NAME OF WITNESS	OCCUPATION	AGE
[redacted]	Instructor Pilot	31

ADDRESS *(Include ZIP Code)*	TELEPHONE NUMBER	DATE OF ACCIDENT
243D Assault Support Helicopter Company APO 96377	Dong Ba Thin 243, 175	31 May 1971 DATE STATEMENT MADE 2 June 1971

AVIATION EXPERIENCE AND BACKGROUND	INTERVIEWER
16 Months in country	CPT John L. Shanahan, Jr.

THIS STATEMENT MAY NOT BE USED AS EVIDENCE OR TO OBTAIN EVIDENCE IN DETERMINING LINE OF DUTY STATUS OF ANY PERSONNEL; AS EVIDENCE BEFORE EVALUATION BOARDS; AS EVIDENCE TO DETERMINE LIABILITY IN CLAIMS AGAINST THE GOVERNMENT; OR AS EVIDENCE TO DETERMINE PECUNIARY LIABILITY. THE SOLE PURPOSE OF THIS STATEMENT IS TO AID IN THE PREVENTION OF ACCIDENTS. *(Reference Section I, Paragraph 4, AR 385-40)*

Having been advised by CPT John L. Shanahan, Jr, Aircraft Investigating Officer that he has no authority to compel me to give a statement regarding my knowledge of the aircraft accident of 31 May 1971, involving the US Army aircraft 64-13116 and having been advised that I may elect to make a statement which will be used only by the Department of the Army Safety Personnel for the sole purpose of accident prevention. I elect to make a statement in confidence. Without this promise I would not make this statement. I understand that this confidential status of this statement means that it will not be used as evidence to obtain evidence to determine misconduct or line of duty status, as evidence before flight evaluation boards, or to determine pecuniary liability in claims involving the government or any other party.

[redacted]

[redacted]

Confidential witness statement deleted FAW Ex. 5, FOIA

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DA FORM 1 JUN 66 2397-4

REPLACES DA FORM 2397-4, 1 APR 61, WHICH IS OBSOLETE

PPC-Japan

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)
(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL CSFOR-5(R1)

SECTION H - WITNESS STATEMENT

NAME OF WITNESS	OCCUPATION	AGE
Schieb, Rex A.	Pilot	20

ADDRESS (Include ZIP Code)	TELEPHONE NUMBER	DATE OF ACCIDENT
243rd Assault Support Helicopter Company APO 96377	Dong Ba Thin 243, 175	31 May 1971 DATE STATEMENT MADE 2 June 1971

AVIATION EXPERIENCE AND BACKGROUND	INTERVIEWER
284 hours	CPT John L. Shanahan, Jr.

THIS STATEMENT MAY NOT BE USED AS EVIDENCE OR TO OBTAIN EVIDENCE IN DETERMINING LINE OF DUTY STATUS OF ANY PERSONNEL; AS EVIDENCE BEFORE EVALUATION BOARDS; AS EVIDENCE TO DETERMINE LIABILITY IN CLAIMS AGAINST THE GOVERNMENT; OR AS EVIDENCE TO DETERMINE PECUNIARY LIABILITY. THE SOLE PURPOSE OF THIS STATEMENT IS TO AID IN THE PREVENTION OF ACCIDENTS. (Reference Section I, Paragraph 4, AR 385-40)

Having been advised by CPT John L. Shanahan, Jr., Aircraft Investigating officer that he has no authority to compel me to give a statement regarding my knowledge of the aircraft accident of 31 May 1971, involving US Army aircraft 64-13116 and having been advised that I may elect to make a statement which will be used only by the Department of the Army Safety Personnel for the sole purpose of accident prevention. I elect to make a statement in confidence, without this promise I would not Make this statement. I understand that the confidential status of this statement means that it will not be used as evidence before flight evaluation boards, or to determine pecuniary liability in claims involving the government or any other party.

Rex A. Schieb

Rex A. Schieb

On the morning of 31 May, I got up at 0600 hours, went and ate, and then into operations at 0645. I filled out the 1080 and CW2 Moree and I went to the aircraft (116) for our preflight. We made a very through pre-flight. I say this because I found some old rivets laying in the forward pylon where the driveshaft is and I also found a nut lying between some hydraulic lines under the first tunnel cover. I showed them to CW2 Moree and he personnaly inspected everything under the tunnel cover and he found a bolt about 3/4" long. This didn't make us very happy and we knew we would have to pull a very through pre-flight. Then we went into the cockpit and went through our run-up and everything was OK. We took-off at approximately 0815 with a crew of five and two Red Cross workers. We stopped at division pad in Ninh Hoa and picked up some more passengers and started our sling load missions. All morning everything was fine and I did not detect anything wrong. We refueled at Tuy Hoa everytine and at approximately 1230 hours we refueled for the last time. We proceeded back to RCP for 3 more sling loads and then we would be through with our mission. I was flying the aircraft and picked up a sling load about 30' from the bottom of the aircraft. I turned in the direction of take-off and CW2 Moree read off the power readings. Approximately 600 lbs of torque and I think 90 or 91% on each engine. I then proceeded with my take-off down a little dirt road in the compound and approximately 75 or 100' off the ground when the #2 engine quit. CW2 Moree took the controls and told the flight engineer who was in the hole to punch the load. At almost the same time CW2 Moree took control of the aircraft the #1 engine quit. I think the load dragged on the ground for a second before we could get it punched off. I also punched my button after the chief punched his just to make sure it released. At this time we were about 25' feet off the ground. The aircraft attitude was almost level then we seemed to pitch forward and then back. By this time we hit the ground tail low and I thought I saw a berm or a built up area which I thought hit the belly and then we rolled to the right. The rotor blades started beating themselves on the ground and the aircraft felt like it was going to break into pieces. Sometime during all this my door broke out and there was a hole on my side. The ship was laying on its right side and a after everything stopped I unbuckled my seat belt and crawled out through my door. CW2 Moree was right behind me, then Martin and Hood. When I got out I ran around the front of the aircraft to see if I could get to the back to see if the other guys were getting out. The bottom of the aircraft was all in flames from the hole on back so I knew there nothing I could do and we all ran from the aircraft in fear if it blowing up and that was the end. The whole ship was soon engulfed in flames and ammunition started exploding. The flight engineer, SP5 Kearns and a Korean were left in the aircraft.

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Witness Statement of WO1 Rex A. Schieb continued

Q. How much fuel did you have after refueling at Tuy Hoa? A. 4000 lbs.

Q? Before the accident was the aircraft operating normally? A. Yes.

Q. What were the hover check readings at Tuy Hoa? A. About 400 lbs torque.

Q. What did you do with your hands after punching the release? A. I braced them against the windshield crossmembers and grabbed the bar on the door.

Q. Did you see any warning lights or remember any instrument readings after the #2 engine failed? A, No, I was looking at the ground ahead of the aircraft.

Q. How low was the rotor RPM? A. I don't know, but I could see by the blades that it was declining rapidly and was very low.

Q. Do you have any knowledge of flight control problems? A. Not other than what CW2 Moree said: I wasn't at the controls.

Q. Did you see what position the controls were in? A. No I was looking outside.

Q. Did you know if there was a ny fire before impact? A. No, I don't know of any.

Q. Did you hear any explosions at or after impact? A. No, Just the sound of the aircraft hitting the ground and breaking up.

Q. Could you tell if the parts found on the preflight came from amy specific area? A. No, they were just left laying there.

Q. Did you have any other problems with the aircraft? A. Only a squeal in the SAS system at Ninh Hoa; we recycled the SAS system and made a full check and it went away.

Q. Were any movements of the cyclic or thrust made after impact or while exiting the aircraft? A. I don't rember. END

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I (Continuation)
(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL
CSFOR-5(R1)

SECTION H - WITNESS STATEMENT

NAME OF WITNESS	OCCUPATION	AGE
[redacted]	Crew Chief	21

ADDRESS (Include ZIP Code)	TELEPHONE NUMBER	DATE OF ACCIDENT
243rd Assault Support Helicopter Company APO 96377	Dong Ba Thin 243, 175	31 May 1971 DATE STATEMENT MADE 2 June 1971

AVIATION EXPERIENCE AND BACKGROUND	INTERVIEWER
13 months as crewchief/Flight engineer	CPT John L. Shanahan Jr.

THIS STATEMENT MAY NOT BE USED AS EVIDENCE OR TO OBTAIN EVIDENCE IN DETERMINING LINE OF DUTY STATUS OF ANY PERSONNEL; AS EVIDENCE BEFORE EVALUATION BOARDS; AS EVIDENCE TO DETERMINE LIABILITY IN CLAIMS AGAINST THE GOVERNMENT; OR AS EVIDENCE TO DETERMINE PECUNIARY LIABILITY. THE SOLE PURPOSE OF THIS STATEMENT IS TO AID IN THE PREVENTION OF ACCIDENTS. *(Reference Section I, Paragraph 4, AR 385-40)*

Having been advised by CPT John L. Shanahan Jr., Aircraft Investigating officer that he has no authority to compel me to give a statement regarding my knowledge of the aircraft accident of 31 May 1971, involving US Army aircraft 64-13116 and having been advised that I may elect to make a statement which will be used only by the Department of the Army Safety Personnel for the sole purpose of accident prevention. I elect to make a statement in confidence, without this promise I would not make this statement. I understand that the fonfidential status of this statement means that it will not be used as evidence before flight evaluation boards, of to determine pecuniary liability in claims involving the government or any other party.

[redacted]

Confidential U.S. Army Statement dated 1 Jun 71

"FOR OFFICIAL USE ONLY"

DA FORM 1 JUN 66 2397-4

REPLACES DA FORM 2397-4, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67.

FPC-Japan

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART I *(Continuation)*
(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL CSFOR-5 (R1)

SECTION H - WITNESS STATEMENT

NAME OF WITNESS	OCCUPATION		AGE
[redacted]	Gunner		20
ADDRESS (Include ZIP Code)	TELEPHONE NUMBER	DATE OF ACCIDENT	
243rd Assault Support Helicopter Company APO 96377	Dong Ba Thin 243, 175	31 May 1971	
		DATE STATEMENT MADE	
		2 June 1971	
AVIATION EXPERIENCE AND BACKGROUND	INTERVIEWER		
2 and one half months	CPT John L. Shanahan Jr.		

THIS STATEMENT MAY NOT BE USED AS EVIDENCE OR TO OBTAIN EVIDENCE IN DETERMINING LINE OF DUTY STATUS OF ANY PERSONNEL; AS EVIDENCE BEFORE EVALUATION BOARDS; AS EVIDENCE TO DETERMINE LIABILITY IN CLAIMS AGAINST THE GOVERNMENT; OR AS EVIDENCE TO DETERMINE PECUNIARY LIABILITY. THE SOLE PURPOSE OF THIS STATEMENT IS TO AID IN THE PREVENTION OF ACCIDENTS. *(Reference Section I, Paragraph 4, AR 385-40)*

Having been advised by CPT John L. Shanahan Jr, Aircraft investigating officer that he has no authority to compel me to give a statement regarding my knowledge of the aircraft accident of 31 May 1971, involving US Army Aircraft 64-13116 and having been advised that I may elect to make a statement which will be used only by the department of the Army Safety Personnel for the sole purpose of accident prevention. I elect to make a statement in confidence, without this promise I would not make this statement. I understand that the confidential status of this statement means that it will not be used as evidence before flight evaluation boards, or to determine pecuniary liability in claims involving the government or any other party.

[redacted]

Confidential witness statement deleted FAA EX. 5 FOIA

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

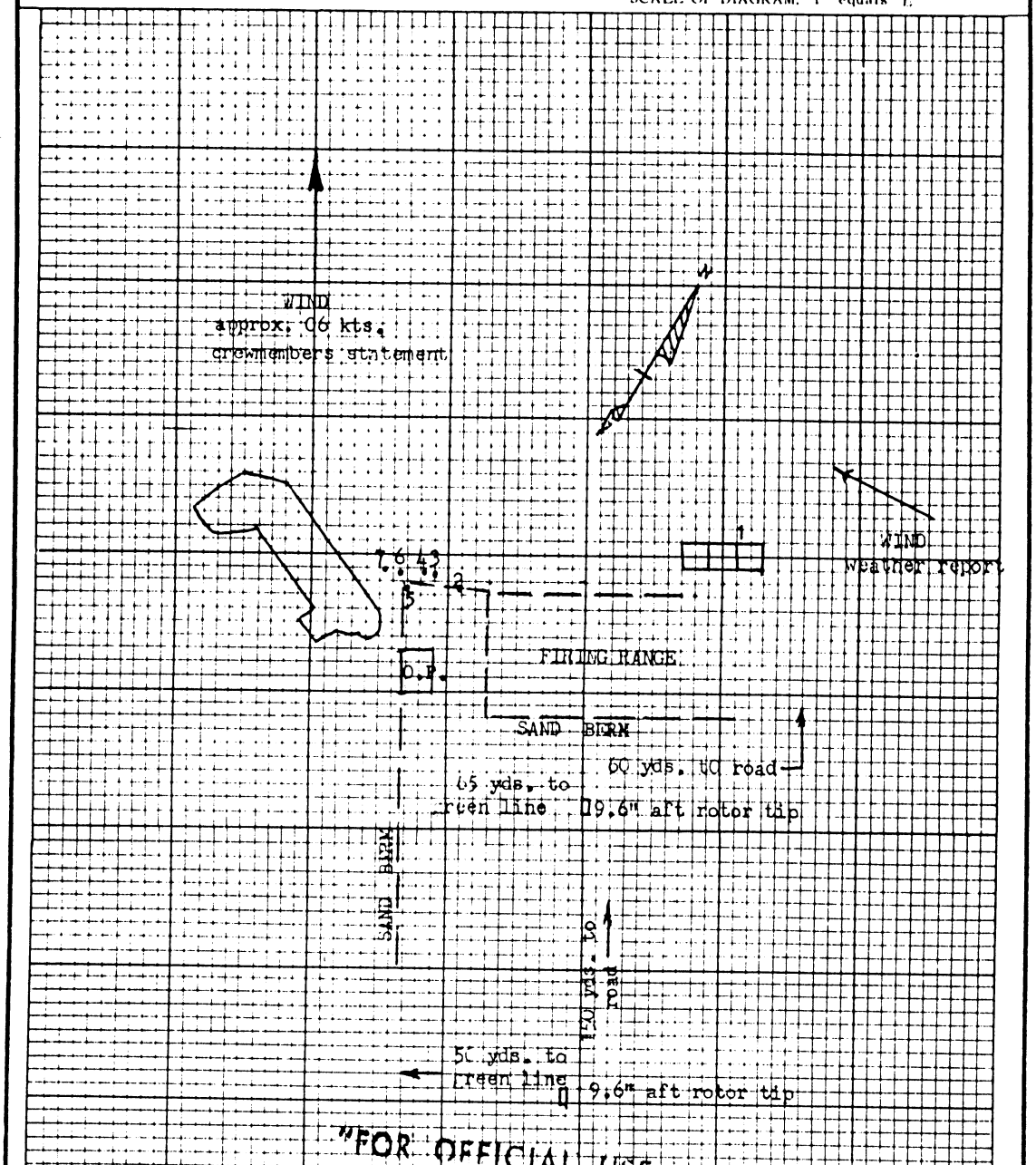
PART I (Continuation)
(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL
CSFOR-5(R1)

SECTION I - WRECKAGE DISTRIBUTION

Show principal ground impact points and distribution of wreckage. Indicate distance, direction of north, direction of wind, wind velocity, position of witnesses, etc.

SCALE OF DIAGRAM: 1" equals 40 yds.



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1. external cargo
2. blade struck fence post
3. A/C left aft wheel impact (18" hole)
4. piece of left aft gear strut, upper attaching point
5. actuator shaft, rescue hatch lower door
6. first aid kit
7. fire bottle holder

DA FORM 1 JUN 66 2397-5

REPLACES DA FORM 2397-5, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67

PPC-Japan

DA FORM 1 JUN 66 2397-5

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

PART II - MAINTENANCE AND ENGINEERING

(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL CSFOR-5(R1)

SECTION A - FAILURE OR MALFUNCTION

(Use this Section if accident involved inadequacy, malfunction or failure of material.) (Attach Photo(s))

1. WERE COMPONENTS OR FLUIDS SENT TO LAB FOR ANALYSIS? (If "Yes" explain in item 5h) [X] YES [ ] NO

2a. EIR CONTROL NUMBER: E53230/E53231

b. DATE: 6 June '71

3. WAS FUEL, OIL OR HYDRAULIC SYSTEM A FACTOR? (If "Yes" explain in item 5h) [ ] YES [X] NO

4. FAILURE/MALFUNCTION OF ENGINE(S) (Explain circumstances)

Suspected failure of the N1 gov. driveshaft in #2 Engine fuel control followed bb failure of #1 Engine.

ENGINE(S) MODEL	ENGINE SERIAL NO.	HR SINCE LAST OVERHAUL	OVERHAUL FACILITY	DATE	TOTAL ENGINE HR TO DATE
(#1) T55-L7	LE0-4957	26	ARADMAC	18 Nov 71	1434
(#2) T55-L7	LE0-4918	17	ARADMAC	18 Nov 69	1494

5a. COMPONENT NOMENCLATURE: FUEL CONTROL

b. COMPONENT FSN: 2915-761-0002

c. PART NUMBER: 592964L13

d. TIME SINCE LAST OVERHAUL: 14

e. OVERHAUL FACILITY: ARADMAC

f. DATE: UNK

g. TOTAL TIME: 570

h. FAILURE/MALFUNCTION OF COMPONENT(S) (Statement as to why failure or malfunction occured)

1. Awaiting return of teardown/analysis reports

5. (#1) T55-L7, LE0-4957,
   a. Engine, aircraft, turbo-prop.
   b. FSN: 2840-950-6875
   c. 2-000-030-18
   d. Hr. since last overhaul: 26
   e. Overhaul facility: ARADMAC
   f. Date: 18 NOv. 71
   g. Total time: 1434
   h. (1) Fuel Control: Failure of N1 gov. driveshaft, FSN 2915-963-0972 Part no. 02-13920, due to excessively worn small splines.

      (2) #1 Engine/Failure: Awaitnig return of teardown/analysis report.

6. STATEMENT OF MAINTENANCE OFFICER, MECHNIC AND OTHERS AS TO WHAT FAILED AND PROBABLE REASONS. (If maintenance or inspection error is known or suspected, indicate where maintenance was performed (field, garrison, etc.); weather condition, day or night, and experience level and training of the mechanic or inspector. Make recommendations to prevent this type error and/or failure.)

To the best of my knowledge there was no mechanical defects on Army Helicopter 64-13116 when it departed the company on 31 May 71. We were not notified of any suspected or developing problems prior to the accident.

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7. DID FIRE OCCUR? (If "Yes", attach sheet and describe in detail) (See Chapter 14, AR 95-5 for instructions) [X] YES [ ] NO

8. DID SEAT FAILURE OCCUR? (If "Yes", attach sheet and describe in detail) (See Chapter 14, AR 95-5 for instructions) [ ] YES [X] NO

TYPED NAME, GRADE AND STATION OF MAINTENANCE OFFICER: LARRY K. MARTIN CPT TC

SIGNATURE: Larry K Martin

DA FORM 1 JUN 66 2397-6

REPLACES DA FORM 2397-6, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67.

PPC-Japan

PPC-Japan

DA Form 2397-6

6 June 71

Item 7:

(1) Post crash fire occurred.

(2) Fire was caused by impact and detonation of Claymore Mine and trip flare.

(3) Fire was not extinguished due to nonavailability of fire fighting equipment.

(4) Detecting and extinguishing equipment not available at time of crash.

"FOR OFFICIAL USE ONLY"

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

PART III (Continuation)
(AR 95-5 and AR 385-40)

REPORTS CONTROL SYMBOL
CSFOR-5(R1)

SECTION B - TRAUMA INFORMATION

(Complete on all individuals with physical, psychological or physiological trauma. Give detailed injury description to include exact location and extent. Under Item 4 include equipment failure and phase of accident, if applicable.)

	1a. LAST NAME	b. SERVICE NUMBER	2. TRAUMA DESCRIPTION	3. CAUSE OF DEATH YES	3. CAUSE OF DEATH NO	4. METHOD AND AGENTS OF PRODUCTION
1.)	SCHEIB	479-58-5741	Barbed wire scratch (L) leg		N/A	Caused by running through wire to clear burning ship
2.)	[redacted]	[redacted]	[redacted]		N/A	Unclear; possibly caused by striking door or while climbing out.
3.)	[redacted]	[redacted]	[redacted]		N/A	1) Struck back on hoist drum. 2) ? Struck by gun mount.
4.)	[redacted]	[redacted]	[redacted]		N/A	Injuries result of being tossed around during impact.
5.)	KEARNS	[redacted]	[redacted]	YES		Trapped in burning wreckage; possibly knocked unconscious by impact.

5. AUTOPSY
☐ YES (Report Attached)
☒ NO (Will be forwarded when available)
Autopsy pending

6. BLOOD OR TISSUE SPECIMENS
☐ YES (Report Attached)
☒ NO (Will be forwarded when available)

SECTION C - FLIGHT SURGEON'S ANALYSIS AND RECOMMENDATIONS

6.)	KOREAN PASSENGER	Unkown	4th degree burns over 100% of body.	YES	Trapped in burning wreckage.

[redacted]

Deleted IAW EO 13526

RECOMMENDATIONS: A seat allowing free movement while at the same time securing and protecting the doorgunner and crewchief should be designed and instituted in the Chinook. At present the doorgunner and crewchief usually pile up ammunition boxes and sit on them. Also some study should be given to the pretection and restraining of the flight engineer in his very vulnerable position lying over the load hatch (hole). I am informed this position is essential to the correct performance of his duties.

DATE OF REPORT	FLIGHT SURGEON'S TYPED NAME AND GRADE	SIGNATURE
4 Jun 1971	CLIFFORD C. HUDSON, CPT, MC/AMO	Clifford C. Hudson

DA FORM 1 JUN 66 2397-8

REPLACES DA FORM 2397-8, 1 APR 61, WHICH IS OBSOLETE EFFECTIVE 1 JAN 67.

PPC-Japan

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART III - FLIGHT SURGEON

For use of this form, see AR 95-5 and AR 385-40; the proponent agency is Office of the Assistant Chief of Staff for Force Development.

REPORTS CONTROL SYMBOL CSFOR-5(R1)

SECTION A - GENERAL INFORMATION

1. WAS ACCIDENT SURVIVABLE? *(If "No" check one of the boxes in Item 2)* ☐ YES ☐ NO ☒ PARTIALLY

2. ☐ DECELERATIVE FORCES ☐ STRUCTURAL COLLAPSE ☐ FIRE

3. LIST PERSONS INVOLVED

LAST NAME	SERVICE NUMBER	DUTY/STATUS	INJURY CODE*
SCHEIB	479-58-5741	Pilot	2
[redacted]	[redacted]	A/C	2
[redacted]		Crewchief	2
[redacted]		Gunner	2
KEARNS		Flight engineer	4
[redacted]	Unknown	Passenger	4

4. HUMAN FACTORS CONTRIBUTING TO CAUSE OF ACCIDENT *(Indicate "Yes", "No" or "Suspected")*	PRESENT	CONTRIBUTED
a. PRE-EXISTING PATHOLOGICAL CONDITIONS *(From Medical records)*	No	No
b. PHYSIOLOGICAL FACTORS *(Alcohol, CO, Fatigue, etc.)*	No	No
c. PSYCHOLOGICAL FACTORS *(Pre-occupation, Fear, etc.)*	No	No
d. SUPERVISORY PROBLEMS	No	No
e. FAULTY PRE-FLIGHT TECHNIQUE	No	No
f. INEXPERIENCE OR TRAINING FACTORS	No	No
g. DESIGN INADEQUACIES *(Instrumentation, Switches, etc.)*	No	No
h. COMMUNICATION PROBLEMS	No	No
i. ENVIRONMENTAL FACTORS *(Glare, Smoke, Cold, etc.)*	No	No

5. IF "YES" OR "SUSPECTED" WAS ENTERED IN ITEM 4, EXPLAIN CIRCUMSTANCE AND/OR CONDITIONS *(Use additional sheets as required)*

6. INJURY FACTORS *(Indicate "Yes", "No" or "Suspected")*	PRESENT	CONTRIBUTED TO INJURY	NO. OF PERSONS INJURED	CONTRIBUTED TO FATALITY	NO. OF FATALITIES
a. TIE-DOWN CHAIN FAILURE *(Shoulder Harness, Safety Belt)*	No	No	—	—	—
b. SHOULDER HARNESS, SEAT BELT NOT WORN BY CREW MEMBERS	Yes	Yes	3	1	1
c. HELMETS, BOOTS, GLOVES, FIRE RETARDANT CLOTHING NOT WORN BY CREW MEMBERS *(Circle appropriate word(s))*	No	No	—	—	—
d. HELMET LOSS	No	No	—	—	—
e. FIRE	Yes	Yes	2	2	2
f. RESTRAINT DEVICES NOT WORN BY PASSENGERS	No	No	—	—	—
g. RESCUE DIFFICULTIES	No	No	—	—	—
h. POST CRASH SURVIVAL DIFFICULTIES	No	No	—	—	—
i. SURVIVAL EQUIPMENT INADEQUACIES	No	No	—	—	—
j. ESCAPE FROM AIRCRAFT DIFFICULTIES	Suspected	Yes	2	2	2
k. BAILOUT	No	No	—	—	—
l. EJECTION	No	No	—	—	—

7. IF ANY FACTOR LISTED IN ITEM 6 WAS PRESENT AND CONTRIBUTED TO INJURY, EXPLAIN AND PROVIDE PICTURES, DIAGRAMS AND EQUIPMENT DESIGNATIONS; ALSO IDENTIFY INDIVIDUALS CONCERNED. *(Use additional sheets as required)*

b.) Flight engineer, crewchief and gunner were not restrained. The injuries of the crewchief and gunner were directly related to this, and this may have contributed directly to the death of the flight engineer.
e.) The flight engineer and Korean passenger were profoundly burned in the post-accident fire, and this was the most probable cause of their death.
j.) The flight engineer and Korean passenger were possibly trapped in the wreckage, though this is unclear.

*INJURY CODE: 1-NONE 2-MINOR 3-MAJOR 4-FATAL 5-MISSING 6-UNKNOWN

DA FORM 2397-7 JUN 66 — EDITION OF 1 APR 61 WHICH IS OBSOLETE

1. DATE	2. MODEL	3. SERIAL NUMBER	4. ORGANIZATION	5. STATION

6. LAST NAME - FIRST INITIAL - GRADE - SERVICE NUMBER

[redacted]

A. ENTER DUTY SYMBOL IN UPPER LEFT BOX
B. ENTER FLIGHT SYMBOL IN UPPER RIGHT BOX
C. ENTER HOURS FLOWN ON LINE THEREUNDER

7	8	9	10	11

12. FLIGHT DATA

a. MISSIONS		b. TIME
TO		
TO		
FROM		
MISSION SYMBOL	LANDINGS	
TO		
TO		
FROM		
MISSION SYMBOL	LANDINGS	
TO		
TO		
FROM		
MISSION SYMBOL	LANDINGS	
SUBTOTAL (Enter on Reverse Side)		

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13. OTHER

DA FORM 2408-12, 1 JAN 64

For use of this form, see TM 38-750; the proponent agency is Office of the Deputy Chief of Staff for Logistics.

ARMY AVIATOR'S FLIGHT RECORD

1. DATE	2. MODEL	3. SERIAL NO.	4. NAME OF CREW CHIEF/MECHANIC	5. STATION	6. PAGE NO	6a. NO. OF PAGES
30 May 71	[illegible]	64-3116	[illegible]	[illegible]		2

7. STATUS TODAY						8. AIRCRAFT TIME		9. NEXT INSPECTION DUE	
AIRCRAFT			ELECTRONIC	ARMAMENT	OTHER				
1	X	4				TIME TO DATE	[illegible]	INTMED NO. [illegible]	[illegible]
2	X	5				TIME TODAY	06:10	P.E. NO. 13	[illegible]
3		6				TOTAL TIME	[illegible]	OTHER	

10.	HOT STARTS		LANDINGS	OTHER
	NO. 1 ENGINE	NO. 2 ENGINE		
PREVIOUS	0	0	15	[illegible]
TODAY	0	0	11	[illegible]
TOTAL	0	0	[illegible]	[illegible]

11. FUEL (Gals or Lbs)				12. OIL (Quarts)						13. OXYGEN (PSI)	14. ANTI-ICING FLUID (Gals)	15. SERVICED	
SERVICE NO	GRADE	ADDED	TOTAL IN TANKS	GRADE	ADDED NO 1 ENG	TOTAL IN TANKS	ADDED NO. 2 ENG	TOTAL IN TANKS	APU			BY	STATION
1	[illegible]	---	[illegible]	[illegible]	---	[illegible]	---	[illegible]	[illegible]			[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	---	[illegible]	[illegible]			[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	---	[illegible]	[illegible]			[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	---	[illegible]	[illegible]			[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	---	[illegible]	[illegible]			[illegible]	[illegible]
6													
7													
TOTAL		[illegible]			---		---						

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Certified to be a true copy
John L. Sharahan

16. STATUS	17. FAULTS AND/OR REMARKS	18. ACTION TAKEN	19. SIGNATURE
K	[illegible]	[illegible] 30 71	[illegible]
—	[illegible]	[illegible]	[illegible]
X	[illegible]	[illegible]	[illegible]
	[illegible]		
	[illegible]		

DA FORM 2408-13, 1 DEC 66 REPLACES EDITION OF 1 JAN 64, WHICH WILL BE USED

(TM 38-750) AIRCRAFT INSPECTION AND MAINTENANCE RECORD
For use of this form, see TM 38-750; the proponent agency is Office of The Deputy Chief of Staff for Logistics.

16. STATUS SYMBOL	17. FAULTS AND/OR REMARKS	18. ACTION TAKEN	19. SIGNATURE
X	(5 [illegible] 74) [illegible]	[illegible]	[illegible]
	[illegible]		
	[illegible]		
	[illegible]		
	[illegible]		
✓	([illegible] 74) [illegible]	[illegible]	[illegible]
	([illegible] 74) [illegible]	"	"
	([illegible] 74) [illegible]	"	"
	[illegible]		
	([illegible] 74) [illegible]	"	"
✓	" [illegible]	[illegible]	"
	[illegible]		
✓	([illegible] 74) [illegible]	[illegible]	"
✓	" [illegible]	[illegible]	"
✓	" [illegible]	[illegible]	"
X	([illegible] 74) [illegible]	[illegible]	"
	[illegible]		
✓	[illegible]	[illegible]	[illegible]
	[illegible]		

USEL

INTE
0; the p
for Lo

1. DATE	2. MODEL	3. SERIAL NO.	4. NAME OF CREW CHIEF/MECHANIC	5. STATION	6. PAGE NO	6a. NO OF PAGES
May 71	CH 47A	64-13116	Reams/[redacted]	AZO 96377	2	2

7. STATUS TODAY								8. AIRCRAFT TIME		9. NEXT INSPECTION DUE	
AIRCRAFT				ELECTRONIC	ARMAMENT	OTHER					
1		4						TIME TO DATE	:	INTMED NO.	:
2		5						TIME TODAY	:	P E NO	:
3		6						TOTAL TIME	:	OTHER	:

10.	HOT STARTS		LANDINGS b	OTHER c
	NO. 1 ENGINE	NO. 2 ENGINE		
PREVIOUS				
TODAY				
TOTAL				

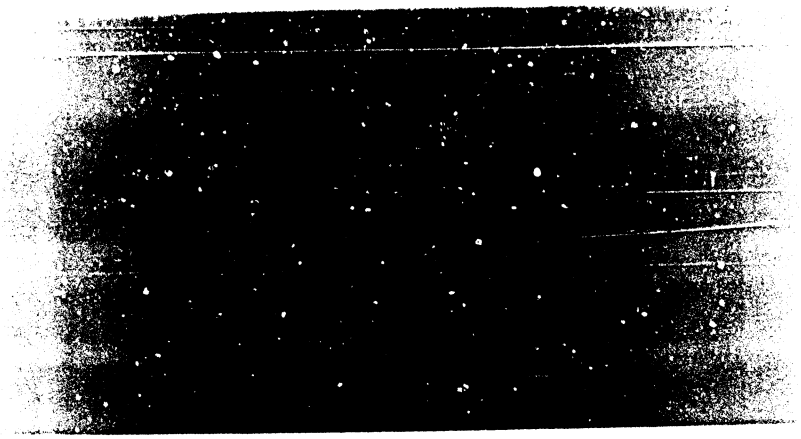
11. FUEL (Gals or Lbs)				12. OIL (Quarts)						13.	14.	15. SERVICED	
SERVICE NO	GRADE	ADDED	TOTAL IN TANKS	GRADE	ADDED NO 1 ENG	TOTAL IN TANKS	ADDED NO 2 ENG	TOTAL IN TANKS	APU	OXYGEN (PSI)	ANTI-ICING FLUID (Gals)	BY	STATION
1													
2													
3						WORK	SHEET						
4													
5													
6													
7													
TOTAL													

Certified to be a true copy
Julia L. Hanahan
John L. Hanahan

"FOR OFFICIAL USE ONLY"

16. STATUS	17. FAULTS AND/OR REMARKS	18. ACTION TAKEN	19. SIGNATURE
X	(5 May 71) mwo 55-1500-210-2022 install self	mwo insp ok/ac/ac complied with	G Vance
	retaining bolts in pas dual extendible links	14 May 71	
	n/c/w daily insp due on rod end bolts upon		
	recpt of mwo kit A/C stats will be up graded		
	to red x		

16. STATUS SYMBOL	17. FAULTS AND/OR REMARKS	18. ACTION TAKEN	19. SIGNATURE
—	(14 Jan 70) 55-1520- 209- 20/62 istall check hydr. valve	not requ. on A/C	S Kearns
—	(14 Jan 70) 55-1500-210-20/2 provisions for XM-41	not requ. on A/C	"
—	(14 Jan 70) 55-1520-209-30/66 protect blade tie-down hole from erosion	not requ. on A/C	"
—	(14 Jan 70) 55-1520-209-30/34 hinge kit closet arror	not requ. on A/C	"
—	(14 Jan 70) 55-1520-209-30/118 insp of hyd. check valve	not requ. on A/C	"
/	(15 May 71) aft xmsn oil lvl. lt. wires broken	requ. lt. and connected wires	"
/	" aft xmsn oil lvl lt lens covr rmvd.	not requ. on A/C	"
X	removed speed trim amp. box s/n C4016 A Nichols	J. Turnbow insp ok repl. with amp bow s/n 10027	A Nichols
	flt #1 ok D Boynton		
B	post flt insp due D Boynton	Comp. 30 May 71	D Boynton



LOCAL FLIGHT CLEARANCE

Thln 243 Avn. Co.		DATE 31 May 1971
A/C	A/C NO. 64-13116	MISSION Phu Hiep

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

NAME AND INITIALS	GRADE	SERVICE NO.	HOME STATION
[redacted]	CW 2		DET
Scheib, R.	WO 1		"
Kearns, S.	SP/5		"
[redacted]	SP/5		"
[redacted]	SP/4		"
[redacted]	Civ.		" A.C.S. *
[redacted]	Civ.		" " " *

Certified to be a true copy

CPT John L. Shanahan Jr.

SITE (Home base) SPOC	HOURS OF FUEL, 4+45 MILITARY BASE	FIRST INTENDED LANDING Tuy Hoa
"F" FILED AT ...ons.	DATE FILED (DAY, MONTH) 1 Mar. 1971	

...ER IS FORCAST TO REMAIN VFR FOR THE DURATION OF THIS FLIGHT. I AM ...AR WITH ALL CURRENT REGULATIONS AFFECTING THIS FLIGHT AND THIS FLIGHT ...E CONDUCTED IN ACCORDANCE WITH SUCH REGULATIO...

...CE AUTHORITY AR 95-1	PILOTS SIGNATURE Rex A. Scheib
... DEPARTURE 0615	ACTUAL ARRIVAL 1330

REMARKS V1-V3 Dorm C4 223 350 * One way only. D/O Tuy Hoa

...D FORM 1080 REPLACES A FORM 11, 1 NOV 51, WHICH MAY BE USED.
1 JAN 53

"FOR ... USE ONLY"

[redacted] [redacted]

ARMY AIRCRAFT ACCIDENT REPORT CHECK LIST
(AR 95-5)

Aircraft Type, Model, and Series	Serial Number	Date of Accident
CH-47A	64-13116	31 May 1971

Exhibits	Inclosed	Not Applicable	See Remarks
TAB 1 - Copy of Crash Facts Message	X		
TAB 2 - Copy of Orders Appointing Investigating Board of Officers	X		
TAB 3 - Weather Reports	X		
TAB 4 - Certificate of Damage	X		
TAB 5 - Copy of Equipment Improvement Record (DA Form 2407)	X		
TAB 6 - Special Technical Reports and Laboratory Analysis			X
TAB 7 - Weight and Balance (DD Form 365F)	X		
TAB 8 - Copy of Directive, Regulation, etc.		X	
TAB 9 - Diagrams and/or Photograph	X		

TAB 10 - Other (List)

a. Copy of Aircraft Release
b. Letter, Request for Assistance from USABAAR, 17th CAG Safety Officer.
c. Report, George D. Simpson, T-55 Representative, USAAVSCOM
d. Report, Robert J. Heady, CH-47 Representative, USAAVSCOM
e. Performance Charts, TM 55-1520-209-10

REMARKS:

TAB 6 - ~~Fuel Contamination Report will be forwarded upon receipt.~~
Teardown/Analysis Reports will be forwarded upon receipt.

"FOR OFFICIAL USE ONLY"

USARV Form 379-2(R) (31 Mar 67)

W
PP AAANHA
DE AAANHAE 1689 /1520230
ANR UUUU
P 010030 Z MAY 71
FM: CO 10 TH CAB DBT RVN
TO: AAANHA/ CO 17 TH CBT AVN GP TUY RVN
ZEN/ ACSFOR DQ
ZEN/CSA WASH DC
AEN/ DIR USAVSCOM ST LOUIS MO
ZEN/CINCUSARPAC HAWAII
ZEN/CG USARV LBN RVN
ZEN/CO 34 TH GEN SPT GP SGN RVN
ZEN 243 RD ASH CO COURIER
BT
UNCLAS 6-1 F O U O
AVBAVA-SE DIR FOR ARMY AVN CINCUSARPAC FOR GPOP- AV
USARV FOR AVHAV- S.
SUBJECT: ARMY AIRCRAFT MAJOR ACCIDENT CRASH FACT S MESSAGE
REPORT RCS CSGPA-459.
1. 31 MAY 71, 1300(H) LOCAL, DAY
2. PHU HIEP, 10 MILES SOUTH OF TUY HOA, RVN; CQ 252 345
3. CH-47A SN: 64-13116
4. 243RD ASSAULT SUPPORT HELICOPTER COMPANY, APO 96377
5. MAJOR ACCIDENT; TOTAL LOSS

PAGE TWO (2) UNCLASS AAANHAE 1689 F O U O
6. INSTRUCTOR PILOT: [redacted]., CW2, [redacted]
243 RD ASSAULT SUPPOTR HELICOPTER COMPANT, APO 96377, NO INJURIES
7. PILOT: SCHEIG, REX A., WO1, 479-58-5741, 243RD ASSAULT
SUPPORT HELICOPTER DOMPANY, APO 96377, ON INJURIES. CE:
[redacted] SP5, [redacted] 243 RD ASSAULT SUPPORTHELICOPTER
COMPANY. APO 96377, NO INJURIES. FE: KEARNS, STEVEN J., SP5,
[redacted], 243RD ASSAULT SUPPOTR HELICOPTER COMPANY, APO
96344, FATAL INJURIES. GUNNER: [redacted] SP4,
[redacted], 243RD ASSAULT SUPPORT HELICOPTER COMPANY, APO
96377, NO INJURIES.
8. CORPORAL IN THE ROK ARMY RECEIVED FATAL INJURIES; IDENTITY
IS UNKNOWN AT THIS TIME.
9. DCA, VFR, PHU HEIP, 0.5 HOURS
10. TAKE - OFF WITH SIING LOAD
11. UPON DEPARTING THE 28 TH RCP , THE ,9. 2 ENGINE FAILED AT 40-
50 K OTS OF AIRSPEED AND 75 TO 100 ABOVE THE GROUND. THE IP
TOOK CONTROL OF THE AIRCRAFT NAD IMMEDIATELY JETTISONED THE
8000LB SLING LOAD. SIMULTANEOUSLY THE NO. 1 ENGINE FAILED AND THE
CYCLIC DIPPED SLIGHTLY FORWARD. THE CYCLIC THE DID AN UNCON-

PAGE THREE (3) UNCLASS AAANHAE 1689 F O U O
TOLLED HARDOVER TO THE REAR AND FROZE IN THE AFT POSITION.
THE IP TRIED TO LOWER THE THRUST ROD BUT IT WAS ALSO FROZEN.
WITHIN 20-30 SECONDS AFTER THE INITIAL ENGINE FAILURE, THE
AIRCRAFT IMPACTED IN A TAIL LOW ATTAITUDE, ROLLED ON ITS RIGHT
SIDE, AND THE CARGO SECTION BURST INTO FLAMES. THE SURVIVING
CREW EXITED THE AIRCRAFT FROM THE PILOTS EMERGENCY EXIT.
12. WEATHER WAS NOT A FACTOR.
13. NONE
14. UNKNOWN "FOR [redacted] USE ONLY"
15. NONE
16. A. NA B. NONE C. NA D. NO E. NO
17. CPT [redacted], 243RD ASSAULT SUPPORT
HELICOPTER COMPANY. APO 96344, (TELEPHONE DBT 236).
18. YES
19. NO
20. A SUPPLEMENTAL TO FOLLOW
21. "FOR OFICIAL USE ONLY"., PROTECTIVE MARKINGS WILL BE REMOVED
AFTER THREE DAYS.
BT
1689

NNNN

DEPARTMENT OF THE ARMY
HEADQUARTERS, 1[?]th COMBAT AVIATION BATTALION
APO San Francisco 96377

SPECIAL ORDERS
NUMBER 144
EXTRACT.

12 June 1971

7. TC 456. Following BOARD/COMMITTEE appointed subject to call of the Pres/Chmn there of, and will consist of members as indicated.

SHANAHAN, JOHN L. J[redacted] CPT 1201 92d Aslt Hel)(WAX6AA) AR (pres)
SHELTON, WILFORD J. [redacted] CW2 100D0 Co [illegible]/227th, 1[?]th CAB (WAAVA0) AV (Recdr)
WRIGHT, THOMAS E[redacted] WO1 100[?] 92d Avn Co (Aslt Hel)(WAX6AA) 96377 AV (Mbr)
HUDSON, CLIFFORD C.[redacted] CPT 03139 HHC 1[?]th Cbt Avn Bn (WFAJA) MC Bn Surgeon

Authority: AR 95-5, AR 15-6 [illegible] or 385-1[?]
Name of Board/Committee: Accident Investigating Board
Members: Same as SHL
Period: Indefinite
Purpose: To investigate facts and circumstances surrounding aircraft accident occurring on 31 May 1971, (grid Coord) CQ252345, Phu Hiep, RVN involving a CH-47A SN 6[?]-13116, (AC) CW2 Moores, of the 243d Avn Co 96377
Effective date: 31 May 1971
Special Instructions: Board will submit report in original and two copies to this headquarters ATTN: Bn Safety Officer NLT 15 June 1971. Officers are released from all other duties until investigation is complete.

8. TC 463. Following individual APPOINTED/DESIGNATED/CERTIFIED as indicated.

DANIELS, EDWARD L.[redacted] CPT 1981 192d Avn Co (Aslt Hel)(W[illegible]) 96321 FA

Authority: Para 26b, AR 385-40 and AR 15-6
Designated as: NA
Certified as: NA
Appointed as: Collateral Investigation Officer
Period: Indefinite
Purpose: To conduct Collateral investigation on facts and circumstances surrounding acft accident occurring on 25 May 1971 involving UH-1[?] 6[?]-15730
Effective date: [illegible] June 1971
Special Instructions: Investigation will be directed toward determining negligence claims or pecuniary responsibility. Completed report to reach this headquarters NLT 23 June 1971. Officers released from all other duties until investigation is complete.

"FOR OFFICIAL USE ONLY"

Para 7 S 1 1hh [illegible] 0 SF 6377 dated 12 June 1971 (CONT)

THOMPSON, [illegible] [redacted] C T 19 1 130 Avn Co (Util Acft)(W RAA) 96377 OC

Authority: [illegible]
Designated as: [illegible]
Certified as: NA
Appointed as: Investigating Officer
Period: Indefinite
Purpose: To conduct a formal line of duty investigation on ROSS, [illegible] PFC 76-4h-1372 of the 139th Med Det APO 96377
Effective date: 11 June 1971
Special Instructions: Completed report to reach this headquarters NLT 27 June 1971. Officers released from all other duties until investigation completed.

FOR THE COMMANDER:

OFFICIAL:

[illegible] HOLT
CPT, FA
Adjutant

Donald L. Hale
DONALD L. HALE
CW2, USA
Asst Adjutant

DISTRIBUTION:
1[illegible] in [illegible] case
1-201 1-File 2-TC
1-[illegible]

[illegible] PURPOSES:
5-CO, [illegible], 13th [illegible]
5-CO, 92d Avn Co
5-CO, 130 Avn Co
5-Bn Safety
[illegible] ATTN: [illegible] Johnson

DEPARTMENT OF THE ARMY
HEADQUARTERS 17TH AVIATION GROUP (COMBAT)
APO San Francisco 96316

SPECIAL ORDERS
NUMBER 173
EXTRACT

22 June 1971

10. TC 453. Following individual(s) APPOINTED/DESIGNATED/CERTIFIED As indicated.

FENDER CHARLES S [redacted] CW3 17th CAG 10th ASHC (WC5LWA) APO 96316 AV

Auth: VOCO 17th CAG
Designated as: N/A
Certified as: N/A
Appointed as: Investigating Officer
Period: Indefinite
Purpose: To conduct an accident investigation concerning the crash of a CH-47A piloted by CW2 Maree Robert O 515-32-4752 on the afternoon of 31 May 71 at Phu Hiep
Effective date: 31 May 71 VOCO 17th CAG
Special Instr: Investigation will be conducted IAW appropriate regulations Coordinate with the 10th CAG accident prevention office and submit to them three (3) copies of completed report

FOR THE COMMANDER:

OFFICIAL;

WILLIAM F. HAWKINBERRY
CPT, AG
Asst Adjutant

DISTRIBUTION:
14-each files
30-Indiv conc
5-indiv FDNF
1-Indiv 201 file
5-10th ASH
5-10th CAG
1-Msn Clk

FROM: DAF, Det 36, 5 Wea Sq, APO 96316 5 Jun 1971

SUBJECT: Official Data Extract for Accident Investigation

TO: 10th CAB (Attn: Safety Officer)
Song Ba Thin

The following is a summary of weather observations for 31 May 1971, hours as indicated in local standard times for Tuy Hoa AAF.

TIME	WINDS IN KNOTS	VISIBILITY IN MILES	CLOUDS HUNDREDS OF FEET	TEMPERATURE/ DEW POINT DEGREES C	ALTIMETER	PRESSURE ALTITUDE FEET
0855	240/07	15	20 SCTD 100 SCTD 140 BKN 300 OVCST	28/24	2984	+2050
0955	VRBL/04	15	20 SCTD 100 SCTD 300 THIN BKN	29/24	2984	+2200
1055	100/08	15	20 SCTD 100 BKN 300 OVCST	31/24	2984	+2300
1155	100/07	15	25 SCTD 100 BKN 300 OVCST	30/26	2985	+2300
1255	090/06	15	30 SCTD 100 BKN 300 OVCST	30/25	2981	+2300
1315	090/08	15	30 SCTD 100 BKN 300 OVCST	31/25	2980	+2400
1355	090/09	15	30 SCTD 100 SCTD 300 BKN	31/25	2979	+2450
1455	100/08	15	30 SCTD 100 SCTD 300 OVCST	32/24	2977	+2600

FOSTER H. DAY, Capt USAF
Commander

"FOR [illegible] USE ONLY"

DEPARTMENT OF THE ARMY
HEADQUARTERS, 10TH COMBAT AVIATION BATTALION
APO San Francisco 96377

5 June 1971

C E R T I F I C A T E

I hereby certify that Army Aircraft, CH-47A, serial number 64-13116, crashed and was destroyed by fire at Phu Hiep, RVN on 31 May 1971, and was a total loss. Catalogue cost of this CH-47A was $ 1,072,838.00.

John L. Shanahan Jr.

JOHN L. SHANAHAN JR.
CPT, AR
President, Accident Investigation Board

MAINTENANCE REQUEST

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics.

See reverse of file copy for codes and additional data.

PAGE NO. 1 | NO. PAGES 2 | REPORTS CONTROL SYMBOL CSGLD 1047 (R1)

SECTION I | [ ] WORK REQUEST | [ ] NMCS | [X] EIR | 02 ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

CONTROL NUMBER	10. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53228	243rd Avn Co S	APO San Francisco 96377	WDYEA A

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	H eli co pter		CH-47A	1520-633-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES 0 [2] NO	[O]	[X] [1] YES [2] NO	2398			

14. FAILURE DETECTED DURING *(Select one use(s) or X)*

[A] SCHEDULED MAINTENANCE [C] TEST [E] STORAGE [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [F] INSPECTION [X] OTHER

15. MOST INDICATIVE TROUBLE *(Select one use(s) or X)*

[100] INOPERATIVE [250] OVERHEATING [290] OUT OF ADJUSTMENT
[200] NOISY [280] LOW PERFORMANCE [X] 1920 OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM *(Do not prescribe repairs)*

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP BY STEP INSTRUCTIONS IN TM 38-750

USES AND INSTRUCTIONS

1. When all appropriate entries are made in Section I, THIS FORM BECOMES A FORM PECULIAR to a specific weapon system, item of equipment or its component or separate assembly, or a group of similar items with the same FSN. This Section, when combined with either Section II or III or a combination of all three, provides the basis for controlled maintenance actions. This form will be used for:

AT THE ORGANIZATIONAL LEVEL

a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL

a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL

a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*

a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1159	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT *(Select one use(s) or X)*	30. EIR *(Select one use(s) or X)*	31. RECOMMENDATION *(Select one use(s) or X)*	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES [2] NO	[E] EMERGENCY [U] URGENT [X] [R] ROUTINE	[A] IMPROVE DESIGN [C] REVISE PROCEDURE [M] MODIFY [X] [O] OTHER *(Specify)*	243rd Avn Co	W DYEAA
			b. LOCATION APO San Francisco 96377	d. SUBMITTED BY L Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES IF AVAILABLE
1680-135-0284	Actuator Electro	

1. Mfg Part No. 114Ps200-2
2. Item Serial No. Unknown
3. TM Number 55-1520-200-24P1 Page 231 Fig 66 Index 11
4. Last Overhaul N/A "FOR REPAIR USE ONLY"
5. Quantity Inspected one

DA FORM 1 JAN 64 2407

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MAINTENANCE REQUEST - CONTINUATION SHEET
For use of this form, see TM 38-750; proponent agency is ODCSLOG.

* See reverse of file copy for codes and additional data.

PAGE NO. 2 | NO. OF PAGES | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER: E 53228

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE* CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO. — d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS* (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. PART SOURCE CODE*	j. QUANTITY	k. PARTS COST
6	Quantity Defective		None						
7	Time since New		Unkown						
8	Since Overhaul		N/A						
9	Circumstances prior to Difficulty				The	Weather was warm and clear. The ACFT			
					Was	on a normal resupply mission			
10	Description of Difficulty				None EIR	Requested by Accident investigation board			
11	Cause		None						
12	Action Taken		None						
13	Recommendations		The Accident Investigation board recommends Teardown/Analysis						

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DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST
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PAGE NO. 1 | NO. PAGES 2 | REPORTS CONTROL SYMBOL CSGLD 1047 (R1)

SECTION I | [ ] AUTO REQUEST | [ ] MWO | [X] EIR | [02] ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53231	243D ASH CO	APO SF 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	HELICOPTER		CH-47A	1520-633-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES H [2] NO	ON	[X 1] YES [2] NO	2410			0

14. FAILURE DETECTED DURING *(Select one - use ✓ or X)*
[A] SCHEDULED MAINTENANCE [C] TEST [E] STORAGE [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [F] INSPECTION [X H] OTHER

15. FIRST INDICATION OF TROUBLE *(Select one-use ✓ or X)*
[060] INOPERATIVE [230] OVERHEATING [750] OUT OF ADJUSTMENT
[500] NOISY [320] LOW PERFORMANCE [X099] OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM *(Do not describe repairs)*

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP-BY-STEP INSTRUCTIONS IN TM 38-750.

USES AND INSTRUCTIONS

1. When all appropriate entries are made in Section I, THIS FORM BECOMES A FORM PECULIAR to a specific weapon system, item of equipment or its component or separate assembly, or a group of similar items with the same FSN. This Section, when combined with either Section II or III or a combination of all three, provides the basis for controlled maintenance actions. This form will be used for:

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a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1156	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT *(Select one - use ✓ or X)*	30. EIR *(Select one - use ✓ or X)*	31. RECOMMENDATION *(Select one - use ✓ or X)*	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES [2] NO	[U] EMERGENCY [U] URGENT [R] ROUTINE	[A] IMPROVE DESIGN [C] REVISE PROCEDURE [B] MODIFY [X D] OTHER *(Specify)*	243D ASH CO	WDYEAA
			b. LOCATION APO SF 96377	d. SUBMITTED BY CPT MARTIN

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS - DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE
2840-950-6875	ENGINE, ACFT TURBO	SEPERATE SHEET ATTACHED

1. Mfg part number-2-000-030-18
2. Item serial number- LE0-4957
3. TM number- TM 55-1520-209-34-P1 Page 358 Fig 52
4. Last overhaul- 2384 "FOR OFFICIAL USE ONLY"
5. Quantity inspected- Two

DA FORM 1 JAN 64 2407

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MAINTENANCE REQUEST - CONTINUATION SHEET For use of this form, see TM 38-750; proponent agency is ODCSLOG.	*See reverse of file copy for codes and additional data.	PAGE NO. 2	NO. 3 PAGES	REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER E53231 ☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO.	d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. PART SOURCE CODE	j. QUANTITY	k. PARTS COST
		6. Quantity Defective ONE								
		7. Time since new- 1444								
		8. Since overhaul- 17								
		9. Circumstances prior to difficulty- The [illegible] was flying the aircraft lifting off with a sling load with the AC monitoring the instruments.								
		10. Description of difficulty- While lifting off with a sling load. The pilot noticed at approximately 75ft AGL that the NP indicator was unwinding rapidly indicating a loss of power on the #2 engine. He immediately jettisioned the load. He then noticed that he had an indication of a loss of power on the #1 engine. The aircraft could not be controlled it impacted with the ground and burned								
		11. Cause- Suspected failure of the output driveshaft in the fuel control in #2 engine								
		12. Action taken- The fuel control has been removed and is being processed for teardown analysis								
		13. Recommendations- None at present pending results of teardown analysis.								
		14. Gas Turbine Engine Checklist				See Page 3				

[illegible] "FOR OFFICIAL USE ONLY"

DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST

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PAGE NO. 1 | NO. PAGES | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

SECTION I | [ ] WORK REQUEST | [ ] MWO | [X] JCN | [02] ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53232	243D ASH CO	APO SF 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	HELICOPTER		CH-47A	1520-633-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES [2] NO	ON	[1] YES [X] NO	2410	m		0

14. FAILURE DETECTED DURING (Select one - use V or X)
[A] SCHEDULED MAINTENANCE [C] TEST [I] STORAGE [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [L] INSPECTION [H] OTHER

15. FIRST INDICATION OF TROUBLE (Select one use V or X)
[008] INOPERATIVE [ ] 36 OVERHEATING [790] OUT OF ADJUSTMENT
[009] NOISY [ ] 36 LOW PERFORMANCE [X099] OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP-BY-STEP INSTRUCTIONS IN TM 38-750.

USES AND INSTRUCTIONS

1. When all appropriate entries are made in Section I, THIS FORM BECOMES A FORM PECULIAR to a specific weapon system, item of equipment or its component or separate assembly, or a group of similar items with the same FSN. This Section, when combined with either Section II or III or a combination of all three, provides the basis for controlled maintenance actions. This form will be used for:

AT THE ORGANIZATIONAL LEVEL
a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra-Sho, Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter-Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*:
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1156	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT (Select one - use V or X)	30. PRIORITY (Select one use V or X)	31. RECOMMENDATION (Select one use V or X)	32a. ORGANIZATION, ADDRESS	c. UNIT IDEN CODE
[1] YES [2] NO	X [E] EMERGENCY [U] URGENT [P] ROUTINE	[A] IMPROVE DESIGN [C] REVISE PROCEDURE [B] MODIFY [X] [D] OTHER (Specify)	243D ASH CO b. LOCATION APO SF 96377	WDYEAA d. SUBMITTED BY L Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH SKETCHES, IF AVAILABLE.
2840-950-6875	ENGINE, TURBO	SEPERATE SHEET ATTACHED

1. Mfg part number- 2-000-030-18
2. Item serial number- LEO- 4918
3. TM number- TM 55-1520-209-34P-1 Page 358 Fig 62
4. Last overhaul- 1477
5. Quantity Inspected- Two

DA FORM 1 JAN 64 2407

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MAINTENANCE REQUEST - CONTINUATION SHEET
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PAGE NO. 2 | NO. PAGES | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER: E53232

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE CODE	a. COMPONENT/PART NOUN, SERVICE, OR MWO NO.			k. MANHOURS (Hours & tenths)	l. FEDERAL STOCK NUMBER	m. PART SOURCE CODE	n. QUANTITY	o. PARTS COST
		d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE					

6. Quantity Defective- One

7. Time since new-1494

8. Since overhaul- 17

9. Circumstances prior to difficulty- The weather was clear and warm. The pilot was flying the acft lifting off with a sling load with the AC monitoring the instruments.

10. Description of difficulty- While lifting off with a sling load. The pilot noticed at approximately 75 ft AGL that the N1 indicator was unwinding rapidly indicating a loss of power on the #2 engine. He immediately jettisioned the load. He then AS noticed that he had no indication of power on the #1 engine The acft could not be controlled, it impacted with the ground and burned

11. Cause-Suspect failure of the torque output shaft in the fuel control on #2 engine

12. Action taken- The fuel control has been removed and is being processed for teardown analysis

13. Recommendation- None at present pending results of teardown analysis

14. Engine Turbine Check List --See Page 3

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MAINTENANCE REQUEST - CONTINUATION SHEET
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PAGE NO. 3 NO. 5 PAGES

REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER: E 53232

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE CODE	a. COMPONENT/PART NOUN, SERVICE, OR MWO NO. d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. SOURCE CODE	j. QUANTITY	k. PARTS COST
14	Turbine Engine Checklist				.				
	1. Normal Rated power				.				
	2. Set Power Rating				.				
	3. No				.				
	4. Weather Good Oat 31°				.				
	5. 640 90.5°-91° 230 Rotor RPM				.				
	6. Appx. 30 Knots APPX 75-100Ft				.				
	7. 640°				.				
	8. Yes				.				
	9 No caution Light				.				
	10 Fuel Valve on Crossfeed Closed Fuel boost pumps on								
	11 No				.				
	12 No				.				
	13 N/A				.				
	14 Yes				.				
	15 N/A				.				
	16 No				.				
	17 No				.				
	18 No				.				
	19 Not Prior to Failure				.				
	20 No				.				
	21 N/A				.				
	22 No				.				
	23 JP/4				.				
	24 23.99				.				
	25 No				.				
	26 N/A				.				
	27 No				.				
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DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST

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*See reverse of file copy for codes and additional data.

PAGE NO. 1 | NO. PAGES | REPORTS CONTROL SYMBOL CSGLD 1047 (R1)

SECTION I — [ ] WORK REQUEST [ ] SWO [X] EIR — ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE: 02

1. CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53230	243D ASH CO	APO SF 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
LEO* 4918	ENGINE TURBO		T-55 L7	2840-950-6875

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES H [2] NO	ON	[1] YES [X][2] NO	1494			0

14. FAILURE DETECTED DURING *(Select one user's or X)*
[A] SCHEDULED MAINTENANCE [C] TEST [E] STORAGE [X][G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [F] INSPECTION [H] OTHER

15. FIRST INDICATION OF TROUBLE *(Select one user's or X)*
[A08] INOPERATIVE [A20] OVERHEATING [A22] OUT OF ADJUSTMENT
[A09] NOISY [A30] LOW PERFORMANCE [X][A99] OTHER 1099

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM *(Do not prescribe repairs.)*

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP-BY-STEP INSTRUCTIONS IN TM 38-750.

USES AND INSTRUCTIONS

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AT THE ORGANIZATIONAL LEVEL
a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Inter-Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter-Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*.
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1156	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT *(Select one user's or X)*	30. EIR *(Select one user's or X)*	31. RECOMMENDATION *(Select one user's or X)*	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES [2] NO	[X][E] EMERGENCY [U] URGENT [R] ROUTINE	[A] IMPROVE DESIGN [C] REVISE PROCEDURE [M] MODIFY [X][O] OTHER *(Specify)*	243D ASH CO	WDYEAA
			b. LOCATION APO SF 96377	d. SUBMITTED BY CPT MARTIN

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE
2915-761-0002	FUEL CONTROL	TORQUE OUTPUT SHAFT SPLINES STRIPPED

1. Mfg part number- 592964113
2. Item serial number. - 41441
3. TM number- 55-2840-234-20P Page 59 Figure 35
4. Last overhaul- UNK
5. Quantity inspected- ONE

DA FORM 1 JAN 64 2407

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MAINTENANCE REQUEST - CONTINUATION SHEET
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PAGE NO. 2 | NO. PAGES | REPORTS CONTROL SYMBOL CSOLD-1047 (R1)

CONTROL NUMBER: E53230

☐ WORK REQUEST ☐ MWO ☐ EIR

20a. ACTION CODE	b. FAILURE CODE	a. COMPONENT/PART NOUN, SERVICE, OR MWO NO.			g. MANHOURS (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. SOURCE CODE	j. QUANTITY	k. PARTS COST
		d. CS CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE					
		6. Quantity defective -ONE							
		7. Time since new- 570							
		8. Since overhaul- 11							
		9. Circumstances prior to difficulty- The weather was clear and warm. The pilot was flying the aircraft lifting off with a ~~sling load with an AC monitoring instruments.~~							
		10. Description of difficulty- Upon lifting off with a sling load, the pilot noticed that on the #2 Eng, the N_1 indicator was rapidly approaching 0. The load was immediately jettisoned and it was noticed that power was lost on the #1 Eng, the pilot attempted to control the aircraft, but the altitude was not enough to effectively regain control. The aircraft struck the ground and burned upon impact.							
		11. Cause - Sheared splines on the torque output shaft splines							
		12. Action taken -The fuel control has been removed from the remains of the engine and is being processed for teardown analysis							
		13 Recommendations- None at present pending results of teardown analysis							

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MAINTENANCE REQUEST

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PAGE NO. 1 | NO. PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

SECTION I — [ ] MORE REQUEST [ ] SWO [X] IR [02] ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53233	243rd Avn Co	APO San Francisco 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	Helicopter		CH-47A	1520-633-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES 0 [2] NO	[ON]	[X] YES [2] NO	2398			0

14. FAILURE DETECTED DURING (*Select one use* ✓ *or X*)
[A] SCHEDULED MAINTENANCE [C] TEST [I] STORAGE [S] FIRING
[B] HANDLING [O] NORMAL OPERATION [F] INSPECTION [X] OTHER

15. FIRST INDICATION OF TROUBLE (*Select one use* ✓ *or X*)
[ ] INOPERATIVE [ ] OVERHEATING [ ] OUT OF ADJUSTMENT
[ ] NOISY [ ] LOW PERFORMANCE [X] OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (*Do not prescribe repairs*)

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP-BY-STEP INSTRUCTIONS IN TM 38-750

USES AND INSTRUCTIONS

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c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Inter Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*:
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 11 5 9	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT (*Select one use* ✓ *or X*) [1] YES [2] NO

30. EIR (*Select one use* ✓ *or X*) [E] EMERGENCY [U] URGENT [X] ROUTINE

31. RECOMMENDATION (*Select one use* ✓ *or X*) [A] IMPROVE DESIGN [C] REVISE PROCEDURE [B] MODIFY [X] OTHER (*Specify*)

32a. ORGANIZATION, ACTIVITY: 243rd Avn Co
b. LOCATION: APO San Francisco 96377
c. UNIT IDEN CODE: WDYEAA
d. SUBMITTED BY: L Martin

33. FEDERAL STOCK NUMBER: 2915-352-6813
34. NOUN NOMENCLATURE: Pump Subassembly
35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE

1. Mfg Part number 114P4111-3
2. Item Serial No. Unknown
3. TM Number 55-1520-209-24P2 Page 1224 Fig 211 Index 29
4. Last overhaul N/A
5. Quantity Inspected two

DA FORM 1 JAN 64 2407

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...NANCE REQUEST - CONTINUATION ...ET
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* See reverse of file copy for codes and additional data.	PAGE NO.	NO. OF PAGES	REPORTS CONTROL SYMBOL CSOLD-1047 (R1)
	2	2	

... NUMBER: E 63233

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE* CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO. — d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS* (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. PART SOURCE CODE*	j. QUANTITY	k. PARTS COST
6	Quantity Defective		None						
7	Time since New		Unknown						
8	Since overhaul		N/A						
9	Circumstances prior to Difficulty				The	weather was warm and	clear.	The ACFT	
					was	on a normal resupply	mission.		
10	Description of difficulty				None ETP	requested by Accident	investigation board		
11	Cause				None				
12	2 Action Taken				None				
13	Recommendations		The Accident investigation board recommends teardown/Analysis						

DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST (EE)

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PAGE NO. 1 | NO. OF PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

SECTION I — [ ] WORK REQUEST [ ] MWO [X] EIR

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53234	2 43rd Avn Co	APO San Francisco 96377	WDYEAA

ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE: 02

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	HELICOPTER		CH -47A	1520-633-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES 0 [2] NO	Oil	[X] [F] YES [ ] [F] NO	2393			0

14. FAILURE DETECTED DURING (Select one use(s) or X)
[A] SCHEDULED MAINTENANCE [C] TEST [E] STORAGE [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [F] INSPECTION [X] [H] OTHER

15. OPERATOR'S INDICATION OF TROUBLE (Select one use(s) or X)
[ ] [500] INOPERATIVE [ ] [258] OVERHEATING [ ] [700] OUT OF ADJUSTMENT
[ ] [501] NOISY [ ] [987] LOW PERFORMANCE [X] [920] OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP BY STEP INSTRUCTIONS IN TM 38-750.

USES AND INSTRUCTIONS

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a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Inter Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*.
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
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c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 11 59	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT (Select one use(s) or X)	30. EIR (Select one use(s) or X)	31. RECOMMENDATION (Select one use(s) or X)	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES [2] NO	[E] EMERGENCY [U] URGENT [X] [R] ROUTINE	[A] IMPROVE DESIGN [C] REVISE PROCEDURE [B] MODIFY [X] [9] OTHER (Specify)	243rd Avn Co	WDYEAA
			b. LOCATION APO San Francisco 96377	d. SUBMITTED BY S Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE
1650-691-3026	Manifold hyd	

1. Mfg Part Number MP 310100-3
2. Item Serial No. Unknown
3. TM Number 55-1520-200-34P1 Page 752 Fig 117 Index 70
4. Ladt overhaul N/A
5. Quantity Inspected one

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NANCE REQUEST - CONTINUATION EET

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PAGE NO. 2 | NO. OF PAGES 2

REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

NUMBER: E 53234

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE* CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO. — d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS* (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. PART SOURCE CODE*	j. QUANTITY	k. PARTS COST
6	Quantity Defective		None		.				
7.	Time since New		Unknown		.				
8	Since Overhaul		N/A		.				
9	Circumstances prior to Difficulty					The weather was warm and clear. The ACFT was on a normal resupply mission.			
10	Description of Difficulty				None	EIR requested by Accident investigation board			
11	Cause				None .				
12	Action Taken				None .				
13	Recommendations		The Accident investigation board recommends teardown/Analysis						

DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST

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PAGE NO. 1 | NO. OF PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

[ ] WORK REQUEST [ ] MWO [X] EIR 02 ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

1. EQUIPMENT NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53235	243rd Avn Co	APO San Francisco 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	Helicopter		CH-47A	1520-632-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES 0 [2] NO	ON	[X] YES [2] NO	2398			0

14. FAILURE DETECTED DURING (Select one - use ✓ or X)
[A] SCHEDULED MAINTENANCE [C] TEST [E] STORAGE [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [F] INSPECTION [X] OTHER

15. FIRST INDICATION OF TROUBLE (Select one-use ✓ or X)
[A] INOPERATIVE [C] OVERHEATING [E] OUT OF ADJUSTMENT
[B] NOISY [D] LOW PERFORMANCE [X] OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

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c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra-Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter-Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*:
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1159	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT (Select one - use ✓ or X)	30. EIR (Select one - use ✓ or X)	31. RECOMMENDATION (Select one - use ✓ or X)	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES [2] NO	[C] EMERGENCY [U] URGENT [X] R ROUTINE	[A] IMPROVE DESIGN [S] REVISE PROCEDURE [M] MODIFY [X] O OTHER (Specify)	243rd Avn Co	WDYEAA
			b. LOCATION APO San Francisco 96377	d. SUBMITTED BY S Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE
1650-055-7537	Accumulator H yd	

1. Mfg Part Number	11/HS133-1	"FOR OFFICIAL USE ONLY"
2. Item Serial No	Unknown	
3. TM Number	55-1520-200-24P1	Page 754 Fig 117 Index 32
4. Last Overhaul	N/A	
5 Quantity Inspected	One	

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PAGE NO. 2 | NO. OF PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER: E 53235

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE* CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO. — d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS* (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. PART SOURCE CODE	j. QUANTITY	k. PARTS COST
6	Quantity Defective		None						
7	Time Since New		Unknown						
8	Since Overhaul		N/A						
9	Circumstances prior to Difficulty				The weather was warm and clear. The ACFT was on a normal resupply mission.				
10	Description of Difficulty				None EIR requested by Accident investigation board				
11	Cause				None				
12	Action Taken				None				
13	Recommendations				The Accident investigation board recommends Teardown/Analysis				

"FOR OFFICIAL USE ONLY"

DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST
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PAGE NO. 1 | OF PAGES | REPORTS CONTROL SYMBOL CSGLD 1047 (R1)

SECTION I — WORK REQUEST — EIR — ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE: 02

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53236	243rd Avn Co	APO San Francisco 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	Helicopter		CH-47 A	1520-633-6336

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
YES / NO	ON	X YES / NO	2398			0

14. FAILURE DETECTED DURING (Select one — use ✓ or X): A SCHEDULED MAINTENANCE; B HANDLING; C TEST; D NORMAL OPERATION; E STORAGE; F INSPECTION; G FLIGHT; X OTHER

15. FIRST INDICATION OF TROUBLE (Select one use ✓ or X): 068 INOPERATIVE; 558 OVERHEATING; 720 OUT OF ADJUSTMENT; NOISY; LOW PERFORMANCE; X 829 OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP-BY-STEP INSTRUCTIONS IN TM 38-750.

USES AND INSTRUCTIONS

1. When all appropriate entries are made in Section I, THIS FORM BECOMES A FORM PECULIAR to a specific weapon system, item of equipment or its component or separate assembly, or a group of similar items with the same FSN. This Section, when combined with either Section II or III or a combination of all three, provides the basis for controlled maintenance actions. This form will be used for:

AT THE ORGANIZATIONAL LEVEL
a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

7 1272

23-58

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE: 1159	JULIAN DATE:

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT (Select one — use ✓ or X)	30. EIR (Select one — use ✓ or X)	31. RECOMMENDATION (Select one — use ✓ or X)	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
1 YES; 2 NO	E EMERGENCY; U URGENT; X R ROUTINE	A IMPROVE DESIGN; R REVISE PROCEDURE; M MODIFY; X O OTHER (Specify)	243rd Avn Co; b. LOCATION: APO San Francisco 96377	WDYEAA; d. SUBMITTED BY: L Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES IF AVAILABLE
5930-843-2366	Switch Pressure[illegible]	"OFFICIAL USE ONLY"

1. Mfg Part Number 114PS407-1
2. Item Serial No. Unknown 25 MAY 70
3. TM Number 55-15[illegible]-202-34P2 Page 1241 Fig 213 Index 58
4. Last Overhaul N/A
5. Quantity Inspected One

DA FORM 1 JAN 64 2407 — RECEIPT COPY

MAINTENANCE REQUEST - CONTINUATION SHEET
For use of this form, see TM 38-750; proponent agency is [illegible] G.

*See reverse of file copy for codes and additional data.

PAGE NO. 2 OF 4 PAGES

REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER: E 53 236

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO.			d. MANHOURS (Hours & tenths)	e. FEDERAL STOCK NUMBER	f. PARTS SOURCE CODE	g. QUANTITY	h. PARTS COST
		d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE					
6	Quantity Defective		None		.				
7	Time Since New		Unknown		.				
8	Since Overhaul		N/A		.				
9	Circumstances prior to Difficulty				The weather was warm and clear. The ACFT				
					was on a Normal resupply mission.				
10	Description of Difficulty			None	EIR requested by Accident investigation borad				
11	Cause			None	.				
12	Action Taken			None	.				
13	Recommendations		The Accident investigation board recommends Teardown/Analysis						

DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST

For use of this form, see TM 38-750; the proponent agency is Office of the Deputy Chief of Staff for Logistics.

*See reverse of file copy for codes and additional data.

PAGE NO. 1 | NO. OF PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

SECTION I [ ] WORK REQUEST [ ] MWO [X] EIR 02 ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53243	243rd Avn Co	APO San Francisco 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	Helicopter		CH-47A	1520-633-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES 0 [2] NO	[ON]	[X] YES [2] NO	2398			0

14. FAILURE DETECTED DURING *(Select one - use ✓ or X)*

[A] SCHEDULED MAINTENANCE [C] TEST [F] STORAGE [X] [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [I] INSPECTION [J] OTHER

15. FIRST INDICATION OF TROUBLE *(Select one-use ✓ or X)*

[1500] INOPERATIVE [2500] OVERHEATING [7900] OUT OF ADJUSTMENT
[3000] NOISY [3800] LOW PERFORMANCE [X] 9200 OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM *(Do not prescribe repairs)*

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP-BY-STEP INSTRUCTIONS IN TM 38-750

USES AND INSTRUCTIONS

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a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL

a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra Shop Maintenance Request)*
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*

AT DEPOT MAINTENANCE LEVEL

a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*

a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1159	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT *(Select one - use ✓ or X)*	30. EIR *(Select one - use ✓ or X)*	31. RECOMMENDATION *(Select one - use ✓ or X)*	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES [2] NO	[U] URGENT [X] [R] ROUTINE	[A] IMPROVE DESIGN [C] REVISE PROCEDURE [D] MODIFY [X] [O] OTHER *(Specify)*	243rd Avn Co b. LOCATION: APO San Francisco 96377	WDYEAA d. SUBMITTED BY: L Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE
2915-739-2548	Valve, Ga te	

1. Mfg part number	114PS401-1
2. Item Serial No.	Unknown
3. TM Number	55-1520-209 -34P2 Page 1235 Fig. 213 Index 4
4. Last Overhaul	N/A
5. Quantity Inspected	three

DA FORM 1 JAN 64 2407

RECEIPT COPY 1

MAINTENANCE REQUEST - CONTINUATION SHEET
For use of this form, see TM 38-750; proponent agency is TAGO.

*See reverse of file copy for codes and additional data.

PAGE NO. 2 OF 5 PAGES

REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER: E 53243

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO.			d. MANHOURS (Hours & tenths)	e. FEDERAL STOCK NUMBER	f. PART SOURCE CODE	g. QUANTITY	h. PARTS COST
		d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE					
6.	Quantity Defective		None		.				
7.	Time since New		Unknown		.				
8.	Since Overhaul		N/A		.				
9.	Circumstances prior to Difficulty;				The weather was warm and clear. The ACFT was on a normal resupply mission.				
10.	Description of Difficulty				None EIR requested by Accident investigation board.				
11.	Cause				None .				
12	Action Taken				None .				
13	Recommendations				The Accident investigation board recommends tear down an/Analysis				

DA FORM 1 JAN 64 2407-1

NMP COPY

MAINTENANCE REQUEST (DA) For use of this form, see TM 38-750; the proponent agency is Office of the Deputy Chief of Staff for Logistics.	* See reverse of file copy for codes and additional data.	PAGE NO. 1	OF PAGES 2	REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

SECTION I ☐ WORK REQUEST ☐ MWO ☒ EIR ☐ ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE 02

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53244	243rd Avn Co	APO San Francisco 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13116	Helicopter		CH-47A	1520-633-6836

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
☐ 1 YES 0 ☐ 2 NO	ON	☒ 1 YES ☐ 2 NO	2398			0

14. FAILURE DETECTED DURING *(Select one - use ✓ or X)*
☐ A SCHEDULED MAINTENANCE ☐ C TEST ☐ F STORAGE ☐ G FLIGHT
☐ B HANDLING ☐ D NORMAL OPERATION ☐ E INSPECTION ☒ X OTHER

15. FIRST INDICATION OF TROUBLE *(Select one-use ✓ or X)*
☐ 060 INOPERATIVE ☐ 220 OVERHEATING ☐ 790 OUT OF ADJUSTMENT
☐ 080 NOISY ☐ 300 LOW PERFORMANCE ☒ X 1920 OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM *(Do not prescribe repairs)*

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP BY STEP INSTRUCTIONS IN TM 38-750.

USES AND INSTRUCTIONS

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b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR'S)*
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1159	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT *(Select one - use ✓ or X)*	30. URGENCY *(Select one - use ✓ or X)*	31. RECOMMENDATION *(Select one - use ✓ or X)*	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
☐ 1 YES ☐ 2 NO	☐ E EMERGENCY ☐ U URGENT ☒ R ROUTINE	☐ A IMPROVE DESIGN ☐ C REVISE PROCEDURE ☐ M MODIFY ☒ X OTHER *(Specify)*	243rd Avn Co	WDYEAA
			b. LOCATION APO San Francisco 96377	d. SUBMITTED BY S Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE.
1650-128-7429	Pump, Axial	

1. Mfg part number 114US127-3
2. Item Serial No. Unknown
3. TM Number 55-1520-209-34P-1 ~~Page 551 Fig. 13 Index 12~~
4. Last Overhaul N/A
5. Quantity Inspected 1.0

DA FORM 1 JAN 64 2407

RECEIPT COPY 1

MAINTENANCE REQUEST - CONTINUATION SHEET
For use of this form, see TM 38-750; proponent agency is TRADOC.

*See reverse of file copy for codes and additional data.

PAGE NO. 2 | NO. OF PAGES 2 | REPORTS CONTROL SYMBOL CSOLD-1047 (R1)

CONTROL NUMBER: E 53244

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE* CODE	a. COMPONENT/PART NOUN, SERVICE, OR MWO NO.	d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS* (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. SOURCE CODE*	j. QUANTITY	k. PARTS COST
6.	Quantuty Defective	None								
7.	Time Since New	Unknown								
8.	Since Overhaul	N/A								
9.	Circumstances prior to Difficulty						The weather was warm and clear. The A cft was on a normal resupply mission.			
10.	Description of Difficulty						None EIR requested by Accident investigation board.			
11	Cause					None				
12	Action Taken					None				
13	Recommendations	The Accident investigation board recommends tear down/analysis								

"FOR OFFICIAL USE ONLY"

DA FORM 1 JAN 64 2407-1

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MAINTENANCE REQUEST

For use of this form, see TM 38-750; the proponent agency is Office of the Deputy Chief of Staff for Logistics.

*See reverse of file copy for codes and additional data.

PAGE NO. 1 | PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

SECTION I | [ ] WORK REQUEST | [ ] MWO | [X] EIR | 02 ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53245	2 43rd Avn Co	APO San Francisco 96 377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
64-13 116	Helicopter		CH-47A	1520-633-6336

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES 0 [2] NO	[X]	[X] YES [2] NO	2398			0

14. FAILURE DETECTED DURING *(Select one - use ✓ or X)*
[A] SCHEDULED MAINTENANCE [C] TEST [E] STORAGE [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [F] INSPECTION [X] OTHER

15. FIRST INDICATION OF TROUBLE *(Select one-use ✓ or X)*
[060] INOPERATIVE [240] OVERHEATING [790] OUT OF ADJUSTMENT
[090] NOISY [300] LOW PERFORMANCE [X] 990 OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM *(Do not prescribe repairs)*

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b. Reporting accomplishment of Modification Work Orders.
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d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra-Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter-Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*.
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1159	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT *(Select one - use ✓ or X)*	30. EIR *(Select one - use ✓ or X)*	31. RECOMMENDATION *(Select one - use ✓ or X)*	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES [2] NO	[E] EMERGENCY [U] URGENT [X] ROUTINE	[A] IMPROVE DESIGN [C] REVISE PROCEDURE [B] MODIFY [D] OTHER *(Specify)*	243rd Avn Co	WDYEAA
			b. LOCATION APO San Francisco 96377	d. SUBMITTED BY S Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE
2915-9x2-~470	Switch Float	"FOR OFFICIAL USE ONLY"

1. Mfg Part number	FA203-2	
2. Item Serial No.	Unknown	
3. TM Number	55-1520-209-34P-2	Page 1224 Fig 211 Index 23
4. Last Overhaul	N/A	
5. Quantity Inspected	Two	

DA FORM 1 JAN 64 2407

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MAINTENANCE REQUEST - CONTINUATION SHEET
For use of this form, see TM 38-750; proponent agency is ODCSLOG.

* See reverse of file copy for codes and additional data.

PAGE NO. 2 OF 2 PAGES

REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

CONTROL NUMBER: E 53245

☐ WORK REQUEST ☐ MWO ☒ EIR

2a. ACTION CODE	b. FAILURE* CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO. d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE	g. MANHOURS* (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. SOURCE* CODE	j. QUANTITY	k. PARTS COST
6	Quantity Defective		None		.				
7	Time since new		Unknown		.				
8	Since Overhaul		N/A		.				
9	Circumstances prior to Difficulty				The weather was warm and clear. The ACFT was on a normal resupply mission.				
10	Description of Difficulty				None EIR requested by accident investigation board.				
11	Cause				None .				
12	Action taken				None .				
13	Recommendations				The Accident investigation board recommends teardown/analysis				

DA FORM 1 JAN 64 2407-1

NMP COPY

MAINTENANCE REQUEST

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* See reverse of file copy for codes and additional data.

PAGE NO. 1 | PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

N1 | [ ] WORK REQUEST | [ ] MWO | [X] EIR | 02 ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53453	243rd Avn Co	APO Sa n Francisco 96377	WDYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER
UNK	Engine, Turbine		T55-L7	2840-981-9717

7. STRAC	8. UTILIZATION CODE*	9. SELECTED ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
[1] YES 0 [2] NO	[O]	[Z] YES [2] NO	UNK			UNK

14. FAILURE DETECTED DURING (Select one - use Y or X)
[A] SCHEDULED MAINTENANCE [S] TEST [T] STORAGE [G] FLIGHT
[B] HANDLING [O] NORMAL OPERATION [I] INSPECTION [X] OTHER

15. FIRST INDICATION OF TROUBLE (Select one-use Y or X)
[OOH] INOPERATIVE [250] OVERHEATING [700] OUT OF ADJUSTMENT
[OOH] NOISY [300] LOW PERFORMANCE [ ] OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

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c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
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c. Submission of Equipment Improvement Recommendations *(EIR)*.
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AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*:
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
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23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1159	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT (Select one - use Y or X)	30. EIR (Select one - use Y or X)	31. RECOMMENDATION (Select one - use Y or X)	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES	[E] EMERGENCY	[A] IMPROVE DESIGN [C] REVISE PROCEDURE	243rd Avn Co	WDYEA A
[2] NO	[U] URGENT	[M] MODIFY [O] OTHER (Specify)	b. LOCATION APO San Francisco 96377	d. SUBMITTED BY L Martin
	[X] R ROUTINE			

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE
2840-760-0620	Torquemeter Drive	

1. MFG Part No 2-760-040-08
2. Item Serial No UNK
3. TM Number 55-2840-234-35P Page 175 Fig 56
4. Last Overhaul N/A
5. Quantity Inspected One

"ONLY"

DA FORM 1 JAN 64 2407

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MAINTENANCE REQUEST - CONTINUATION SHEET
For use of this form, see TM 38-750; proponent agency is ODCSLOG.

*See reverse of file copy for codes and additional data.

PAGE NO. 2 NO. PAGES

REPORTS CONTROL SYMBOL CSOLD-1047 (R1)

CONTROL NUMBER E 53453

☐ WORK REQUEST ☐ [illegible] ☐ EIR

20a. ACTION CODE	b. FAILURE CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO.			g. MANHOURS (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. SOURCE CODE	j. QUANTITY	k. PARTS COST
		d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE					
6.	Quantity Defective		None		.				
7	Time Since New		UNK		.				
8	Since Overhaul		N/A		.				
9	Circumstances prior to Difficulty				The weather was clear and warm. The pilot was flying the ACFT lifting off with a slingload with AC monitoring instruments.				
10	Description of Difficulty				None EIR Requested by Accident investigation board				
11	Cause				None .				
12	Action Taken				None .				
13	Recommendations				The Accident Investigation board recommends Teardown/Analysis .				

DA FORM 1 JAN 64 2407-1

NMP COPY

MAINTENANCE REQUEST

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics.

* See reverse of file copy for codes and additional data.

PAGE NO. 1 | NO. PAGES 2 | REPORTS CONTROL SYMBOL CSGLD-1047 (R1)

SECTION I — [ ] WORK REQUEST [ ] MWO [X] EIR — ORGANIZATION ISSUE PRIORITY DESIGNATOR CODE: ON

CONTROL NUMBER	1a. ORGANIZATION	b. LOCATION	c. UNIT IDEN CODE
E53460	243rd Avn Co	APO San Francisco 96377	W DYEAA

2. SERIAL NUMBER	3. NOUN NOMENCLATURE	4. LINE NUMBER	5. MODEL	6. FEDERAL STOCK NUMBER			
64-13116	H elicopte r		CH-47A	1520-633-6836			
7. STRAC	**8. UTILIZATION CODE***	**9. SELECTED ITEM**		**10. HOURS**	**11. MILES**	**12. ROUNDS**	**13. STARTS**
[1] YES 0 [2] NO	ON	[X] YES [2] NO		2398			0

14. FAILURE DETECTED DURING *(Select one - use √ or X)*
[A] SCHEDULED MAINTENANCE [C] TEST [F] STORAGE [G] FLIGHT
[B] HANDLING [D] NORMAL OPERATION [E] INSPECTION [X] [H] OTHER

15. FIRST INDICATION OF TROUBLE *(Select one use √ or X)*
[300] INOPERATIVE [320] OVERHEATING [790] OUT OF ADJUSTMENT
[500] NOISY [340] LOW PERFORMANCE [XXX] OTHER

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM *(Do not prescribe repairs)*

PRIOR TO USING THIS FORM READ CAREFULLY THE STEP-BY-STEP INSTRUCTIONS IN TM 38-750.

USES AND INSTRUCTIONS

1. When all appropriate entries are made in Section I, THIS FORM BECOMES A FORM PECULIAR to a specific weapon system, item of equipment or its component or separate assembly, or a group of similar items with the same FSN. This Section, when combined with either Section II or III or a combination of all three, provides the basis for controlled maintenance actions. This form will be used for:

AT THE ORGANIZATIONAL LEVEL
a. Requesting repairs and maintenance services.
b. Reporting accomplishment of Modification Work Orders.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Reporting receipt of defective materiel.
e. It may be used to record maintenance accomplishments.

AT SUPPORT MAINTENANCE LEVEL
a. Recording maintenance work and/or service actually performed.
b. Reporting the installation of equipment modifications.
c. Submission of Equipment Improvement Recommendations *(EIR)*.
d. Requesting repair of unserviceable components, assemblies and subassemblies as a result of direct exchange procedures.
e. Reporting receipt of defective materiel.
f. Requesting maintenance work and/or services between shops of a given field maintenance shop *(Intra Shop Maintenance Request)*.
g. Requesting maintenance work and/or services of another field maintenance unit or activity within the same echelon or at a higher echelon *(Inter Shop Maintenance Request)*.

AT DEPOT MAINTENANCE LEVEL
a. Reporting the installation of equipment modifications.
b. Submission of Equipment Improvement Recommendations *(EIR)*.

2. SUBMITTING SEPARATE EQUIPMENT IMPROVEMENT RECOMMENDATIONS *(EIR's)*:
a. EMERGENCY EIR's will be submitted to the designated Department of the Army agency by electrical message. A follow-up DA Form 2407, checked "Emergency" in Section III will be submitted with the message number indicated as part of the narrative remarks in Block 35.
b. URGENT EIR's will be air-mailed to the designated Department of the Army agency. Check "Urgent" in Section III.
c. ROUTINE EIR's prepared as a separate action will require only normal mailing of the NMP Copy 2 to the designated Department of the Army agency. Check "Routine" in Section III.

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 1159	JULIAN DATE

SECTION III - EQUIPMENT IMPROVEMENT RECOMMENDATION

29. NORMAL REPLACEMENT *(Select one - use √ or X)*	30. EIR *(Select one - use √ or X)*	c. RECOMMENDATION *(Select one - use √ or X)*	32a. ORGANIZATION/ACTIVITY	c. UNIT IDEN CODE
[1] YES	[E] EMERGENCY		243rd Avn Co	WDTEAA
[2] NO	[U] URGENT	[A] IMPROVE DESIGN [C] REVISE PROCEDURE	b. LOCATION	d. SUBMITTED BY
	[X] [R] ROUTINE	[M] MODIFY [X] [O] OTHER *(Specify)*	APO San Francisco 96377	S Martin

33. FEDERAL STOCK NUMBER	34. NOUN NOMENCLATURE	35. OPINION OR REMARKS. DESCRIBE CONDITIONS UNDER WHICH FAILURE OCCURRED. ATTACH PHOTOS OR SKETCHES, IF AVAILABLE.
2995-420-5226	Actuator	

1. Mfg P art No 11 4P3205-2
2. Item Serial No Unknown
3. TM Number 55-1520-209-34P1 Page 381 Fig 66 Index 10
4. Last Overhaul N/A
5. Quantity Inspected One

"FOR OFFICIAL USE ONLY"

FORM 1 JAN 64 2407

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MAINTENANCE REQUEST - CONTINUATION SHEET
For use of this form, see TM 38-750; proponent agency is ODCS[illegible].

*See reverse of file copy for codes and additional data.

PAGE NO. 2 | NO. OF PAGES [illegible] | REPORTS CONTROL SYMBOL CSOLD-1047 (R1)

CONTROL NUMBER: E 53460

☐ WORK REQUEST ☐ MWO ☒ EIR

20a. ACTION CODE	b. FAILURE CODE	c. COMPONENT/PART NOUN, SERVICE, OR MWO NO.			g. MANHOURS (Hours & tenths)	h. FEDERAL STOCK NUMBER	i. PART SOURCE CODE	j. QUANTITY	k. PARTS COST
		d. CB CODE	e. REFERENCE DESIGNATOR	f. MFR. CODE					
6	Quantity Defective		None		.				
7	Time Since New		Unknown		.				
8	Since Overhaul		N/A		.				
9	Circumstances prior to Difficulty				The Weather was warm and Clear. The ACFT Was on a normal resupply mission				
10	Description of Difficulty				None EIR requested by accident investigation board				
11	Cause				None .				
12	Action Taken				None .				
13	Recommendations				The Accident investigation board recommends Teardown/Analysis				

"FOR OFFICIAL USE ONLY"

DA FORM 1 JAN 64 2407-1

NMP COPY

PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT
(TM 10-1105)

SAMPLE NO.	LAB REPORT NO.
N/A	8104

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade, JP-4

SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF

AMT PROD SAMPLE REPRESENTS: N/A

MANUFACTURER OR SUPPLIER OF PRODUCT:

SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): Point #5

SAMPLE TAKEN BY (Name)	CONTRACT NO.	ITEM NO.	FSN	DATE SAMPLE TAKEN
N/A				31 May 71

QUAL NO.	BATCH NO.	FILL DATE	DLVR DATE	DATE SAMPLE REC
				31 May 71

NAME AND LOCATION OF LABORATORY:
959th QM DET PPL(M)
APO 96238

- ☐ FUEL BULK STORAGE
- ☐ FUEL PACKAGED
- ☐ ALLIED PRODUCTS
- ☐ FILTER EFFECTIVENESS
- ☐ QUALIFICATION CONTRACT
- ☐ ROUTINE SURVEILLANCE
- ☐ PROCUREMENT ORIGIN
- ☐ PROCUREMENT
- ☐ SPECIAL
- ☐ DEPOT

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT	TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP			27. WATER AND SEDIMENT % VOL MAX		
a. MID			28. FSII % VOL TOP		
b. BOT			a. MID		
c. AVG	45-57	55.8	b. BOT		
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br	c. AVG	.10-.15	.11
3. COLOR VISUAL	REPORT	W/W	29. PARTICULATE CONTAMINANT MGS/GAL		
a. HELLIGE (Colorimeter)			30. THERMAL STABILITY INCHES HG		
b. ASTM MAX/SAYB MIN			a. PREHEATER RATING		
c. SAYB AFTER HEAT MIN			31. SULFIDES (Tank Water BTMS)		
4. ODOR			32. WATER SEPAROMETER INDEX MIN		
5. DISTILLATION IBP °F	REPORT	138	33. % ASH PLAIN/SULF MAX		
a. 10 % REC - EVAP AT °F	REPORT	214	34. % LEAD		
b. % REC - EVAP AT 290°F	20 min	43	35. % PHOSPHORUS		
c. % REC - EVAP AT 370°F	50 min	78	36. % CHLORINE		
d. % REC - EVAP AT 400°F	REPORT	88	37. BURNING TEST (16 hrs)		
e. % rec ~~DRY POINT~~ 470 °F	90 min	--	38. KIN CS/SSU AT °F		
f. ~~% RECOVERED~~ END POINT	REPORT	456	a. KIN CS/SSU AT °F		
g. % LOSS max	1.5	1.0	b. KIN CS/SSU AT °F		
h. % RESIDUE max	1.5	1.0	c. KIN CS/SSU AT °F		
i. 10% + 50% EVAP °F MIN			d. SSF AT °F		
6. ENGINE RATING O.N. MOTOR METHOD			e. VISCOSITY INDEX MIN		
a. ON RESEARCH METHOD			39. EVAP LOSS % MAX		
b. LMR AVIATION METHOD			40. PRECIPITATION NO MAX		
c. RMR SUPER CH METHOD			41. SEPARATION % MAX		
d. CETANE NUMBER/INDEX MIN			42. ACID NO/BASE NO MAX		
7. RVP (PSI)	2.0-3.0	2.3	43. CHANNEL PT °F MAX		
8. GUM EXISTENT MG/100 ML MAX			44. SAPONIFICATION NO MAX		
GUM (Wash) MG/100 ML MAX			45. DIELECTRIC STRENGTH KV MIN		
GUM POTENTIAL MG/100 ML MAX			46. FOAM SEQ 1. MLS MAX (TND/STAB)		
PRECIPITATE MG/100 ML MAX			a. SEQ 2. MLS MAX (TND/STAB)		
9. TEL/TML (ML/GM/GAL) MAX			b. SEQ 3. MLS MAX (TND/STAB)		
10. OXIDATION STABILITY MINUTES			47. PENETRATION UNWORKED 77°F		
11. DR TEST/MERC S % MAX			a. PENETRATION WORKED 77°F		
12. SULFUR BY LAMP BOMB % MAX			48. DROP PT/MELT PT °F MIN		
13. FREEZING PT °F			49. CORR AND OXIDATION STAB		
14. CORROSION COPPER STRIP			50. SWELLING SYN RUBBER %		
15. AROMATICS % VOL MAX			51. LOW TEMP STABILITY		
16. OLEFINS % VOL MAX			52. SALT SPRAY TEST		
17. SMOKE POINT MM MIN			53. WORK STABILITY		
18. SMOKE VOLAT INDEX MIN			54. WATER STABILITY		
19. ANILINE PT °F/ANILINE GRAV PROD MIN			55. THICKENER TYPE		
20. FLASH/FIRE POINT °F MIN			56. THICKENER CONTENT %		
21. CLOUD POINT °F MAX			57. CORROSION PROTECTION		
22. POUR POINT °F MAX			58. REMOVAL		
23. WATER REACT INTERFACE RATING MAX			59. APPARENT VISC AT °F		
a. VOLUME CHANGE MAX			a. SHEAR RATE POISES		
24. CARBON RESIDUE % WT MAX			60. SED CONTAM, MILLIPORE, MG/L. MAX	2.0	0.1
25. WATER % VOL MAX			61. EFFECTIVENESS OF FILTRATION		
26. SEDIMENT % VOL MAX			62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077

EDITION OF 1 MAR 62, IS OBSOLETE.

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PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT

(TM 10-1105)

SAMPLE NO.	LAB REPORT NO.
N/A	8105

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade, JP-4

SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF

AMT PROD SAMPLE REPRESENTS: N/A

MANUFACTURER OR SUPPLIER OF PRODUCT:

SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): Point #8

SAMPLE TAKEN BY (Name)	CONTRACT NO.	ITEM NO.	FSN	DATE SAMPLE TAKEN
N/A				31 May 71

QUAL NC.	BATCH NO.	FILL DATE	DLVR DATE	DATE SAMPLE REC
				31 May 71

NAME AND LOCATION OF LABORATORY:
959th QM DET PPL(M)
APO 96238

- ☐ FUEL BULK STORAGE
- ☐ FUEL PACKAGED
- ☐ ALLIED PRODUCTS
- ☐ FILTER EFFECTIVENESS
- ☐ QUALIFICATION CONTRACT
- ☐ ROUTINE SURVEILLANCE
- ☐ PROCUREMENT ORIGIN
- ☐ PROCUREMENT
- ☐ SPECIAL
- ☐ DEPOT

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 600/600F TOP		
a. MID		
b. BOT		
c. AVG	45-57	55.8
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br
3. COLOR VISUAL	REPORT	W/W
a. HELLIGE (Colorimeter)		
b. ASTM MAX/SAYB MIN		
c. SAYB AFTER HEAT MIN		
4. ODOR		
5. DISTILLATION IBP °F	REPORT	140
a. 10 % REC. EVAP AT °F	REPORT	220
b. % REC. EVAP AT 290°F	20 min	42
c. % REC. EVAP AT 370°F	50 min	78
d. % REC. EVAP AT 400°F	REPORT	87
e. ~~% rec~~ ~~********~~ 470 °F	90 min	—
f. ~~%~~ ~~********~~ END POINT	REPORT	456
g. % LOSS max	1.5	1.0
h. % RESIDUE max	1.5	1.0
i. 10% + 50% EVAP °F MIN		
6. ENGINE RATING O.N. MOTOR METHOD		
a. ON RESEARCH METHOD		
b. LMR AVIATION METHOD		
c. RMR SUPER CH METHOD		
d. CETANE NUMBER/INDEX MIN		
7. RVP (PSI)	2.0-3.0	2.1
8. GUM EXISTENT MG/100 ML MAX		
GUM (Wash) MG/100 ML MAX		
GUM POTENTIAL MG/100 ML MAX		
PRECIPITATE MG/100 ML MAX		
9. TEL/TML (ML/GM/GAL) MAX		
10. OXIDATION STABILITY MINUTES		
11. DR TEST/MERC S% MAX		
12. SULFUR BY LAMP BOMB % MAX		
13. FREEZING PT °F		
14. CORROSION COPPER STRIP		
15. AROMATICS % VOL MAX		
16. OLEFINS % VOL MAX		
17. SMOKE POINT MM MIN		
18. SMOKE VOLAT INDEX MIN		
19. ANILINE PT °F/ANILINE GRAV PROD MIN		
20. FLASH/FIRE POINT °F MIN		
21. CLOUD POINT °F MAX		
22. POUR POINT °F MAX		
23. WATER REACT INTERFACE RATING MAX		
a. VOLUME CHANGE MAX		
24. CARBON RESIDUE % WT MAX		
25. WATER % VOL MAX		
26. SEDIMENT % VOL MAX		

TEST	SPEC/QUAL	RESULT
27. WATER AND SEDIMENT % VOL MAX		
28. FSII % VOL TOP		
a. MID		
b. BOT		
c. AVG	.10-.15	.12
29. PARTICULATE CONTAMINANT MGS/GAL		
30. THERMAL STABILITY INCHES HG		
a. PREHEATER RATING		
31. SULFIDES (Tank Water BTMS)		
32. WATER SEPAROMETER INDEX MIN		
33. % ASH PLAIN/SULF MAX		
34. % LEAD		
35. % PHOSPHORUS		
36. % CHLORINE		
37. BURNING TEST (16 hrs)		
38. KIN CS/SSU AT °F		
a. KIN CS/SSU AT °F		
b. KIN CS/SSU AT °F		
c. KIN CS/SSU AT °F		
d. SSF AT °F		
e. VISCOSITY INDEX MIN		
39. EVAP LOSS % MAX		
40. PRECIPITATION NO MAX		
41. SEPARATION % MAX		
42. ACID NO/BASE NO MAX		
43. CHANNEL PT °F MAX		
44. SAPONIFICATION NO MAX		
45. DIELECTRIC STRENGTH KV MIN		
46. FOAM SEQ 1. MLS MAX (TND/STAB)		
a. SEQ 2. MLS MAX (TND/STAB)		
b. SEQ 3. MLS MAX (TND/STAB)		
47. PENETRATION UNWORKED 77°F		
a. PENETRATION WORKED 77°F		
48. DROP PT/MELT PT °F MIN		
49. CORR AND OXIDATION STAB		
50. SWELLING SYN RUBBER %		
51. LOW TEMP STABILITY		
52. SALT SPRAY TEST		
53. WORK STABILITY		
54. WATER STABILITY		
55. THICKENER TYPE		
56. THICKENER CONTENT %		
57. CORROSION PROTECTION		
58. REMOVAL		
59. APPARENT VISC AT °F		
a. SHEAR RATE POISES		
60. SED CONTAM, MILLIPORE, MG/L. MAX	2.0	0.2
61. EFFECTIVENESS OF FILTRATION		
62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077

EDITION OF 1 MAR 62. IS OBSOLETE.

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PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT

(TM 10-1105)

SAMPLE NO.	LAB REPORT NO.
N/A	8106

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade, JP-4

SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF

AMT PROD SAMPLE REPRESENTS: N/A

MANUFACTURER OR SUPPLIER OF PRODUCT:

SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): Point #10

SAMPLE TAKEN BY (Name)	CONTRACT NO.	ITEM NO.	FSN	DATE SAMPLE TAKEN
N/A				31 May 71

QUAL NO.	BATCH NO.	FILL DATE	DLVR DATE	DATE SAMPLE REC
				31 May 71

NAME AND LOCATION OF LABORATORY:
959th QM DET PPL(M)
APO 96238

- ☐ FUEL BULK STORAGE
- ☐ FUEL PACKAGED
- ☐ ALLIED PRODUCTS
- ☐ FILTER EFFECTIVENESS
- ☐ QUALIFICATION CONTRACT
- ☐ ROUTINE SURVEILLANCE
- ☐ PROCUREMENT ORIGIN
- ☐ PROCUREMENT
- ☐ SPECIAL
- ☐ DEPOT

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT	TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP			27. WATER AND SEDIMENT % VOL MAX		
a. MID			28. FSII % VOL TOP		
b. BOT			a. MID		
c. AVG	45-57	55.8	b. BOT		
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br	c. AVG	.10-.15	.12
3. COLOR VISUAL	REPORT	C/W	29. PARTICULATE CONTAMINANT MGS/GAL		
a. HELLIGE (Colorimeter)			30. THERMAL STABILITY INCHES HG		
b. ASTM MAX/SAYB MIN			a. PREHEATER RATING		
c. SAYB AFTER HEAT MIN			31. SULFIDES (Tank Water BTMS)		
4. ODOR			32. WATER SEPAROMETER INDEX MIN		
5. DISTILLATION IBP °F	REPORT	146	33. % ASH PLAIN/SULF MAX		
a. 10 % REC - EVAP AT °F	REPORT	220	34. % LEAD		
b. % REC - EVAP AT 290°F	20 min	46	35. % PHOSPHORUS		
c. % REC - EVAP AT 370°F	50 min	80	36. % CHLORINE		
d. % REC - EVAP AT 400°F	REPORT	88	37. BURNING TEST (16 hrs)		
e. % rec ~~********~~ 470°F	90 min	--	38. KIN CS/SSU AT °F		
f. % ~~**********~~ END POINT	REPORT	458	a. KIN CS/SSU AT °F		
g. % LOSS max	1.5	1.0	b. KIN CS/SSU AT °F		
h. % RESIDUE max	1.5	1.0	c. KIN CS/SSU AT °F		
i. 10% + 80% EVAP °F MIN			d. SSF AT °F		
6. ENGINE RATING O.N. MOTOR METHOD			e. VISCOSITY INDEX MIN		
a. ON RESEARCH METHOD			39. EVAP LOSS % MAX		
b. LMR AVIATION METHOD			40. PRECIPITATION NO MAX		
c. RMR SUPER CH METHOD			41. SEPARATION % MAX		
d. CETANE NUMBER/INDEX MIN			42. ACID NO/BASE NO MAX		
7. RVP (PSI)	2.0-3.0	2.2	43. CHANNEL PT °F MAX		
8. GUM EXISTENT MG/100 ML MAX			44. SAPONIFICATION NO MAX		
GUM (Wash) MG/100 ML MAX			45. DIELECTRIC STRENGTH KV MIN		
GUM POTENTIAL MG/100 ML MAX			46. FOAM SEQ 1. MLS MAX (TND/STAB)		
PRECIPITATE MG/100 ML MAX			a. SEQ 2. MLS MAX (TND/STAB)		
9. TEL/TML (ML/GM/GAL) MAX			b. SEQ 3. MLS MAX (TND/STAB)		
10. OXIDATION STABILITY MINUTES			47. PENETRATION UNWORKED 77°F		
11. DR TEST/MERC S % MAX			a. PENETRATION WORKED 77°F		
12. SULFUR BY LAMP BOMB % MAX			48. DROP PT/MELT PT °F MIN		
13. FREEZING PT °F			49. CORR AND OXIDATION STAB		
14. CORROSION COPPER STRIP			50. SWELLING SYN RUBBER %		
15. AROMATICS % VOL MAX			51. LOW TEMP STABILITY		
16. OLEFINS % VOL MAX			52. SALT SPRAY TEST		
17. SMOKE POINT MM MIN			53. WORK STABILITY		
18. SMOKE VOLAT INDEX MIN			54. WATER STABILITY		
19. ANILINE PT °F/ANILINE GRAV PROD MIN			55. THICKENER TYPE		
20. FLASH/FIRE POINT °F MIN			56. THICKENER CONTENT %		
21. CLOUD POINT °F MAX			57. CORROSION PROTECTION		
22. POUR POINT °F MAX			58. REMOVAL		
23. WATER REACT INTERFACE RATING MAX			59. APPARENT VISC AT °F		
a. VOLUME CHANGE MAX			a. SHEAR RATE POISES		
24. CARBON RESIDUE % WT MAX			60. SED CONTAM, MILLIPORE, MG/L, MAX	2.0	0.2
25. WATER % VOL MAX			61. EFFECTIVENESS OF FILTRATION		
26. SEDIMENT % VOL MAX			62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077

EDITION OF 1 MAR 62, IS OBSOLETE.

[illegible] USE ONLY

PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT

(TM 10-1105)

SAMPLE NO.	LAB REPORT NO.
N/A	8107

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade, JP-4

SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF

AMT PROD SAMPLE REPRESENTS: N/A

MANUFACTURER OR SUPPLIER OF PRODUCT:

SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): AC-23 Tanker

SAMPLE TAKEN BY (Name)	CONTRACT NO.	ITEM NO.	FSN	DATE SAMPLE TAKEN
N/A				31 May71

QUAL NO.	BATCH NO.	FILL DATE	DLVR DATE	DATE SAMPLE REC
				31 May 71

- ☐ FUEL BULK STORAGE
- ☐ FUEL PACKAGED
- ☐ ALLIED PRODUCTS
- ☐ FILTER EFFECTIVENESS
- ☐ QUALIFICATION CONTRACT
- ☐ ROUTINE SURVEILLANCE
- ☐ PROCUREMENT ORIGIN
- ☐ PROCUREMENT
- ☐ SPECIAL
- ☐ DEPOT

NAME AND LOCATION OF LABORATORY:
959th QM DET PPL(M)
APO 96238

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT	TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP			27. WATER AND SEDIMENT % VOL MAX		
a. MID			28. FSII % VOL TOP		
b. BOT			a. MID		
c. AVG	45-57	56.0	b. BOT		
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br	c. AVG	.10-.15	.11
3. COLOR VISUAL	REPORT	W/W	29. PARTICULATE CONTAMINANT MGS/GAL		
a. HELLIGE (Colorimeter)			30. THERMAL STABILITY INCHES HG		
b. ASTM MAX/SAYB MIN			a. PREHEATER RATING		
c. SAYB AFTER HEAT MIN			31. SULFIDES (Tank Water BTMS)		
4. ODOR			32. WATER SEPAROMETER INDEX MIN		
5. DISTILLATION IBP °F	REPORT	146	33. % ASH PLAIN/SULF MAX		
a. 10 % REC - EVAP AT °F	REPORT	218	34. % LEAD		
b. % REC - EVAP AT 290°F	20 min	42	35. % PHOSPHORUS		
c. % REC - EVAP AT 370°F	50 min	79	36. % CHLORINE		
d. % REC - EVAP AT 400°F	REPORT	88	37. BURNING TEST (16 hrs)		
e. % rec ~~EVAP AT~~ 470 °F	90 min	--	38. KIN CS/SSU AT °F		
f. ~~% RECOVERED~~ END POINT	REPORT	460	a. KIN CS/SSU AT °F		
g. % LOSS max	1.5	1.0	b. KIN CS/SSU AT °F		
h. % RESIDUE max	1.5	1.0	c. KIN CS/SSU AT °F		
i. 10% + 50% EVAP °F MIN			d. SSF AT °F		
8. ENGINE RATING O.N. MOTOR METHOD			e. VISCOSITY INDEX MIN		
a. ON RESEARCH METHOD			39. EVAP LOSS % MAX		
b. LMR AVIATION METHOD			40. PRECIPITATION NO MAX		
c. RMR SUPER CH METHOD			41. SEPARATION % MAX		
d. CETANE NUMBER/INDEX MIN			42. ACID NO/BASE NO MAX		
7. RVP (PSI)	2.0-3.0	2.1	43. CHANNEL PT °F MAX		
8. GUM EXISTENT MG/100 ML MAX			44. SAPONIFICATION NO MAX		
GUM (Wash) MG/100 ML MAX			45. DIELECTRIC STRENGTH KV MIN		
GUM POTENTIAL MG/100 ML MAX			46. FOAM SEQ 1. MLS MAX (TND/STAB)		
PRECIPITATE MG/100 ML MAX			a. SEQ 2. MLS MAX (TND/STAB)		
9. TEL/TML (ML/GM/GAL) MAX			b. SEQ 3. MLS MAX (TND/STAB)		
10. OXIDATION STABILITY MINUTES			47. PENETRATION UNWORKED 77°F		
11. DR TEST/MERC 5 % MAX			a. PENETRATION WORKED 77°F		
12. SULFUR BY LAMP BOMB % MAX			48. DROP PT/MELT PT °F MIN		
13. FREEZING PT °F			49. CORR AND OXIDATION STAB		
14. CORROSION COPPER STRIP			50. SWELLING SYN RUBBER %		
15. AROMATICS % VOL MAX			51. LOW TEMP STABILITY		
16. OLEFINS % VOL MAX			52. SALT SPRAY TEST		
17. SMOKE POINT MM MIN			53. WORK STABILITY		
18. SMOKE VOLAT INDEX MIN			54. WATER STABILITY		
19. ANILINE PT °F/ANILINE GRAV PROD MIN			55. THICKENER TYPE		
20. FLASH/FIRE POINT °F MIN			56. THICKENER CONTENT %		
21. CLOUD POINT °F MAX			57. CORROSION PROTECTION		
22. POUR POINT °F MAX			58. REMOVAL		
23. WATER REACT INTERFACE RATING MAX			59. APPARENT VISC AT °F		
a. VOLUME CHANGE MAX			a. SHEAR RATE POISES		
24. CARBON RESIDUE % WT MAX			60. SED CONTAM, MILLIPORE, MG/L, MAX	2.0	0.9
25. WATER % VOL MAX			61. EFFECTIVENESS OF FILTRATION		
26. SEDIMENT % VOL MAX			62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077

EDITION OF 1 MAR 62, IS OBSOLETE.

FOR OFFICIAL USE ONLY

PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT

(TM 10-1105)

SAMPLE NO.	N/A
LAB REPORT NO.	8108
PRODUCT NOMENCLATURE AND TYPE	Turbine Fuel Aviation Grade, JP-4
SPEC NO.	MIL-T-5624H
SAMPLE SUBMITTED BY (Installation)	THAAF
AMT PROD SAMPLE REPRESENTS	N/A
MANUFACTURER OR SUPPLIER OF PRODUCT	
SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.)	Point #9
SAMPLE TAKEN BY (Name)	N/A
CONTRACT NO.	
ITEM NO.	
FSN	
DATE SAMPLE TAKEN	31 May 71
QUAL NO.	
BATCH NO.	
FILL DATE	
DLVR DATE	
DATE SAMPLE REC	31 May 71
NAME AND LOCATION OF LABORATORY	959th QM DET PPL(M) APO 96238
☐ FUEL BULK STORAGE ☐ FUEL PACKAGED ☐ ALLIED PRODUCTS ☐ FILTER EFFECTIVENESS ☐ QUALIFICATION CONTRACT	☐ ROUTINE SURVEILLANCE ☐ PROCUREMENT ORIGIN ☐ PROCUREMENT ☐ SPECIAL ☐ DEPOT
DATE TESTS STARTED	31 May 71
DATE TESTS COMPL	31 May 71

TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP		
a. MID		
b. BOT		
c. AVG	45-57	56.0
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br
3. COLOR VISUAL	REPORT	W/W
a. HELLIGE (Colorimeter)		
b. ASTM MAX/SAYB MIN		
c. SAYB AFTER HEAT MIN		
4. ODOR		
5. DISTILLATION IBP °F	REPORT	142
a. 10 % REC - EVAP AT °F	REPORT	218
b. % REC - EVAP AT 290°F	20 min	44
c. % REC - EVAP AT 370°F	50 min	78
d. % REC - EVAP AT 400°F	REPORT	87
e. % rec ~~AT~~ 470 °F	90 min	--
f. ~~%~~ END POINT	REPORT	458
g. % LOSS max	1.5	1.0
h. % RESIDUE max	1.5	1.0
i. 10% + 50% EVAP °F MIN		
6. ENGINE RATING O.N. MOTOR METHOD		
a. ON RESEARCH METHOD		
b. LMR AVIATION METHOD		
c. RMR SUPER CH METHOD		
d. CETANE NUMBER/INDEX MIN		
7. RVP (PSI)	2.0-3.0	2.2
8. GUM EXISTENT MG/100 ML MAX		
GUM (Wash) MG/100 ML MAX		
GUM POTENTIAL MG/100 ML MAX		
PRECIPITATE MG/100 ML MAX		
9. TEL/TML (ML/GM/GAL) MAX		
10. OXIDATION STABILITY MINUTES		
11. DR TEST/MERC 5 % MAX		
12. SULFUR BY LAMP BOMB % MAX		
13. FREEZING PT °F		
14. CORROSION COPPER STRIP		
15. AROMATICS % VOL MAX		
16. OLEFINS % VOL MAX		
17. SMOKE POINT MM MIN		
18. SMOKE VOL % INDEX MIN		
19. ANILINE PT °F/ANILINE GRAV PROD MIN		
20. FLASH/FIRE POINT °F MIN		
21. CLOUD POINT °F MAX		
22. POUR POINT °F MAX		
23. WATER REACT INTERFACE RATING MAX		
a. VOLUME CHANGE MAX		
24. CARBON RESIDUE % WT MAX		
25. WATER % VOL MAX		
26. SEDIMENT % VOL MAX		

TEST	SPEC/QUAL	RESULT
27. WATER AND SEDIMENT % VOL MAX		
28. FSII % VOL TOP		
a. MID		
b. BOT		
c. AVG	.10-.15	.12
29. PARTICULATE CONTAMINANT MGS/GAL		
30. THERMAL STABILITY INCHES HG		
a. PREHEATER RATING		
31. SULFIDES (Tank Water BTMS)		
32. WATER SEPAROMETER INDEX MIN		
33. % ASH PLAIN/SULF MAX		
34. % LEAD		
35. % PHOSPHORUS		
36. % CHLORINE		
37. BURNING TEST (16 hrs)		
38. KIN CS/SSU AT °F		
a. KIN CS/SSU AT °F		
b. KIN CS/SSU AT °F		
c. KIN CS/SSU AT °F		
d. SSF AT °F		
e. VISCOSITY INDEX MIN		
39. EVAP LOSS % MAX		
40. PRECIPITATION NO MAX		
41. SEPARATION % MAX		
42. ACID NO/BASE NO MAX		
43. CHANNEL PT °F MAX		
44. SAPONIFICATION NO MAX		
45. DIELECTRIC STRENGTH KV MIN		
46. FOAM SEQ 1. MLS MAX (TND/STAB)		
a. SEQ 2. MLS MAX (TND/STAB)		
b. SEQ 3. MLS MAX (TND/STAB)		
47. PENETRATION UNWORKED 77°F		
a. PENETRATION WORKED 77°F		
48. DROP PT/MELT PT °F MIN		
49. CORR AND OXIDATION STAB		
50. SWELLING SYN RUBBER %		
51. LOW TEMP STABILITY		
52. SALT SPRAY TEST		
53. WORK STABILITY		
54. WATER STABILITY		
55. THICKENER TYPE		
56. THICKENER CONTENT %		
57. CORROSION PROTECTION		
58. REMOVAL		
59. APPARENT VISC AT °F		
a. SHEAR RATE POISES		
60. SED CONTAM, MILLIPORE, MG/L, MAX	2.0	0.3
61. EFFECTIVENESS OF FILTRATION		
62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077 EDITION OF 1 MAR 62, IS OBSOLETE.

FOR OFFICIAL USE ONLY

PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT

(TM 10-1105)

SAMPLE NO.	LAB REPORT NO.
N/A	8102

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade JP-4

SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF

AMT PROD SAMPLE REPRESENTS: N/A

MANUFACTURER OR SUPPLIER OF PRODUCT:

SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): Point #2

SAMPLE TAKEN BY (Name)	CONTRACT NO.	ITEM NO.	FSN	DATE SAMPLE TAKEN
N/A				31 May 71

QUAL NO.	BATCH NO.	FILL DATE	DLVR DATE	DATE SAMPLE REC
				31 May 71

NAME AND LOCATION OF LABORATORY:
959th QM DET PPL(M)
APO 96238

- ☐ FUEL BULK STORAGE
- ☐ FUEL PACKAGED
- ☐ ALLIED PRODUCTS
- ☐ FILTER EFFECTIVENESS
- ☐ QUALIFICATION CONTRACT
- ☐ ROUTINE SURVEILLANCE
- ☐ PROCUREMENT ORIGIN
- ☐ PROCUREMENT
- ☐ SPECIAL
- ☐ DEPOT

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT	TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP			27. WATER AND SEDIMENT % VOL MAX		
a. MID			28. FSII % VOL TOP		
b. BOT			a. MID		
c. AVG	45-57	55.8	b. BOT		
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br	c. AVG	.10-.15	.12
3. COLOR VISUAL	REPORT	W/W	29. PARTICULATE CONTAMINANT MGS/GAL		
a. HELLIGE (Colorimeter)			30. THERMAL STABILITY INCHES HG		
b. ASTM MAX/SAYB MIN			a. PREHEATER RATING		
c. SAYB AFTER HEAT MIN			31. SULFIDES (Tank Water BTMS)		
4. ODOR			32. WATER SEPAROMETER INDEX MIN		
5. DISTILLATION IBP °F	REPORT	139	33. % ASH PLAIN/SULF MAX		
a. 10 % REC - EVAP AT °F	REPORT	215	34. % LEAD		
b. % REC - EVAP AT 290°F	20 min	42	35. % PHOSPHORUS		
c. % REC - EVAP AT 370°F	50 min	77	36. % CHLORINE		
d. % REC - EVAP AT 400°F	REPORT	84	37. BURNING TEST (16 hrs)		
e. % rec ~~EVAP AT~~ 470 °F	90 min	--	38. KIN CS/SSU AT °F		
f. ~~% EVAP~~ END POINT	REPORT	458	a. KIN CS/SSU AT °F		
g. % LOSS max	1.5	1.0	b. KIN CS/SSU AT °F		
h. % RESIDUE max	1.5	1.0	c. KIN CS/SSU AT °F		
i. 10% + 90% EVAP °F MIN			d. SSF AT °F		
6. ENGINE RATING O.N. MOTOR METHOD			e. VISCOSITY INDEX MIN		
a. ON RESEARCH METHOD			39. EVAP LOSS % MAX		
b. LMR AVIATION METHOD			40. PRECIPITATION NO MAX		
c. RMR SUPER CH METHOD			41. SEPARATION % MAX		
d. CETANE NUMBER/INDEX MIN			42. ACID NO/BASE NO MAX		
7. RVP (PSI)	2.0-3.0	2.2	43. CHANNEL PT °F MAX		
8. GUM EXISTENT MG/100 ML MAX			44. SAPONIFICATION NO MAX		
GUM (Wash) MG/100 ML MAX			45. DIELECTRIC STRENGTH KV MIN		
GUM POTENTIAL MG/100 ML MAX			46. FOAM SEQ 1. MLS MAX (TND/STAB)		
PRECIPITATE MG/100 ML MAX			a. SEQ 2. MLS MAX (TND/STAB)		
9. TEL/TML (ML/GM/GAL) MAX			b. SEQ 3. MLS MAX (TND/STAB)		
10. OXIDATION STABILITY MINUTES			47. PENETRATION UNWORKED 77°F		
11. DR TEST/MERC 5 % MAX			a. PENETRATION WORKED 77°F		
12. SULFUR BY LAMP BOMB % MAX			48. DROP PT/MELT PT °F MIN		
13. FREEZING PT °F			49. CORR AND OXIDATION STAB		
14. CORROSION COPPER STRIP			50. SWELLING SYN RUBBER %		
15. AROMATICS % VOL MAX			51. LOW TEMP STABILITY		
16. OLEFINS % VOL MAX			52. SALT SPRAY TEST		
17. SMOKE POINT MM MIN			53. WORK STABILITY		
18. SMOKE VOLAT INDEX MIN			54. WATER STABILITY		
19. ANILINE PT °F/ANILINE GRAV PROD MIN			55. THICKENER TYPE		
20. FLASH/FIRE POINT °F MIN			56. THICKENER CONTENT %		
21. CLOUD POINT °F MAX			57. CORROSION PROTECTION		
22. POUR POINT °F MAX			58. REMOVAL		
23. WATER REACT INTERFACE RATING MAX			59. APPARENT VISC AT °F		
a. VOLUME CHANGE MAX			a. SHEAR RATE POISES		
24. CARBON RESIDUE % WT MAX			60. SED CONTAM, MILLIPORE, MG/L, MAX	2.0	0.1
25. WATER % VOL MAX			61. EFFECTIVENESS OF FILTRATION		
26. SEDIMENT % VOL MAX			62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077

EDITION OF 1 MAR 62 IS OBSOLETE.

PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT
(TM 10-1105)

SAMPLE NO.	LAB REPORT NO.
N/A	8110

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade, JP-4 — SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF — AMT PROD SAMPLE REPRESENTS: N/A

MANUFACTURER OR SUPPLIER OF PRODUCT: — SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): UNK

SAMPLE TAKEN BY (Name)	CONTRACT NO.	ITEM NO.	FSN	DATE SAMPLE TAKEN
N/A				31 May 71

QUAL NO.	BATCH NO.	FILL DATE	DLVR DATE	DATE SAMPLE REC
				31 May 71

NAME AND LOCATION OF LABORATORY: 959th QM Det PPL(M), APO 96238

- ☐ FUEL BULK STORAGE
- ☐ FUEL PACKAGED
- ☐ ALLIED PRODUCTS
- ☐ FILTER EFFECTIVENESS
- ☐ QUALIFICATION CONTRACT
- ☐ ROUTINE SURVEILLANCE
- ☐ PROCUREMENT ORIGIN
- ☐ PROCUREMENT
- ☐ SPECIAL
- ☐ DEPOT

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT	TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP			27. WATER AND SEDIMENT % VOL MAX		
a. MID			28. FSII % VOL TOP		
b. BOT			a. MID		
c. AVG	45-57	55.6	b. BOT		
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br	c. AVG	.10-.15	.11
3. COLOR VISUAL	REPORT	W/W	29. PARTICULATE CONTAMINANT MGS/GAL		
a. HELLIGE (Colorimeter)			30. THERMAL STABILITY INCHES HG		
b. ASTM MAX/SAYB MIN			a. PREHEATER RATING		
c. SAYB AFTER HEAT MIN			31. SULFIDES (Tank Water BTMS)		
4. ODOR			32. WATER SEPAROMETER INDEX MIN		
5. DISTILLATION IBP °F	REPORT	148	33. % ASH PLAIN/SULF MAX		
a. 10 % REC - EVAP AT °F	REPORT	220	34. % LEAD		
b. % REC - EVAP AT 290°F	20 min	42	35. % PHOSPHORUS		
c. % REC - EVAP AT 370°F	50 min	80	36. % CHLORINE		
d. % REC - EVAP AT 400°F	REPORT	88	37. BURNING TEST (16 hrs)		
e. % rec F ******** 470 °F	90 min	--	38. KIN CS/SSU AT °F		
f. ******** END POINT	REPORT	458	a. KIN CS/SSU AT °F		
g. % LOSS max	1.5	1.0	b. KIN CS/SSU AT °F		
h. % RESIDUE max	1.5	1.0	c. KIN CS/SSU AT °F		
i. 10% + 50% EVAP °F MIN			d. SSF AT °F		
6. ENGINE RATING O.N. MOTOR METHOD			e. VISCOSITY INDEX MIN		
a. ON RESEARCH METHOD			39. EVAP LOSS % MAX		
b. LMR AVIATION METHOD			40. PRECIPITATION NO MAX		
c. RMR SUPER CH METHOD			41. SEPARATION % MAX		
d. CETANE NUMBER/INDEX MIN			42. ACID NO/BASE NO MAX		
7. RVP (PSI)	2.0-3.0	2.2	43. CHANNEL PT °F MAX		
8. GUM EXISTENT MG/100 ML MAX			44. SAPONIFICATION NO MAX		
GUM (Wash) MG/100 ML MAX			45. DIELECTRIC STRENGTH KV MIN		
GUM POTENTIAL MG/100 ML MAX			46. FOAM SEQ 1. MLS MAX (TND/STAB)		
PRECIPITATE MG/100 ML MAX			a. SEQ 2. MLS MAX (TND/STAB)		
9. TEL/TML (ML/GM/GAL) MAX			b. SEQ 3. MLS MAX (TND/STAB)		
10. OXIDATION STABILITY MINUTES			47. PENETRATION UNWORKED 77°F		
11. DR TEST/MERC 5 % MAX			a. PENETRATION WORKED 77°F		
12. SULFUR BY LAMP BOMB % MAX			48. DROP PT/MELT PT °F MIN		
13. FREEZING PT °F			49. CORR AND OXIDATION STAB		
14. CORROSION COPPER STRIP			50. SWELLING SYN RUBBER %		
15. AROMATICS % VOL MAX			51. LOW TEMP STABILITY		
16. OLEFINS % VOL MAX			52. SALT SPRAY TEST		
17. SMOKE POINT MM MIN			53. WORK STABILITY		
18. SMOKE VOLAT INDEX MIN			54. WATER STABILITY		
19. ANILINE PT °F/ANILINE GRAV PROD MIN			55. THICKENER TYPE		
20. FLASH/FIRE POINT °F MIN			56. THICKENER CONTENT %		
21. CLOUD POINT °F MAX			57. CORROSION PROTECTION		
22. POUR POINT °F MAX			58. REMOVAL		
23. WATER REACT INTERFACE RATING MAX			59. APPARENT VISC AT °F		
a. VOLUME CHANGE MAX			a. SHEAR RATE POISES		
24. CARBON RESIDUE % WT MAX			60. SED CONTAM. MILLIPORE, MG/L, MAX	2.0	1.2
25. WATER % VOL MAX			61. EFFECTIVENESS OF FILTRATION		
26. SEDIMENT % VOL MAX			62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077

EDITION OF 1 MAR 64 IS OBSOLETE.

PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT

(TM 10-1105)

SAMPLE NO.	LAB REPORT NO.
N/A	8111

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade, JP-4

SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF

AMT PROD SAMPLE REPRESENTS: 50,000 Gal.

MANUFACTURER OR SUPPLIER OF PRODUCT:

SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): WZUX03

SAMPLE TAKEN BY (Name)	CONTRACT NO.	ITEM NO.	FSN	DATE SAMPLE TAKEN
N/A				31 May 71

QUAL NO.	BATCH NO.	FILL DATE	DLVR DATE	DATE SAMPLE REC
				31 May 71

NAME AND LOCATION OF LABORATORY:

959th QM DET PPL(M)
APO 96238

- ☐ FUEL BULK STORAGE
- ☐ FUEL PACKAGED
- ☐ ALLIED PRODUCTS
- ☐ FILTER EFFECTIVENESS
- ☐ QUALIFICATION CONTRACT
- ☐ ROUTINE SURVEILLANCE
- ☐ PROCUREMENT ORIGIN
- ☐ PROCUREMENT
- ☐ SPECIAL
- ☐ DEPOT

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP		
a. MID		
b. BOT		
c. AVG	45-57	56.0
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br
3. COLOR VISUAL	REPORT	W/W
a. HELLIGE (Colorimeter)		
b. ASTM MAX/SAYB MIN		
c. SAYB AFTER HEAT MIN		
4. ODOR		
5. DISTILLATION IBP °F	REPORT	142
a. 10 % REC - EVAP AT °F	REPORT	218
b. % REC - EVAP AT 200°F	20 min	40
c. % REC - EVAP AT 370°F	50 min	78
d. % REC - EVAP AT 400°F	REPORT	87
e. % rec ********* 470 °F	90 min	--
f. % ********* END POINT	REPORT	458
g. % LOSS max	1.5	1.0
h. % RESIDUE max	1.5	1.0
i. 10% + 80% EVAP °F MIN		
6. ENGINE RATING O.N. MOTOR METHOD		
a. ON RESEARCH METHOD		
b. LMR AVIATION METHOD		
c. RMR SUPER CH METHOD		
d. CETANE NUMBER/INDEX MIN		
7. RVP (PSI)	2.0-3.0	2.2
8. GUM EXISTENT MG/100 ML MAX		
GUM (Wash) MG/100 ML MAX		
GUM POTENTIAL MG/100 ML MAX		
PRECIPITATE MG/100 ML MAX		
9. TEL/TML (ML/GM/GAL) MAX		
10. OXIDATION STABILITY MINUTES		
11. DR TEST/MERC % MAX		
12. SULFUR BY LAMP BOMB % MAX		
13. FREEZING PT °F		
14. CORROSION COPPER STRIP		
15. AROMATICS % VOL MAX		
16. OLEFINS % VOL MAX		
17. SMOKE POINT MM MIN		
18. SMOKE VOLAT INDEX MIN		
19. ANILINE PT °F/ANILINE GRAV PROD MIN		
20. FLASH/FIRE POINT °F MIN		
21. CLOUD POINT °F MAX		
22. POUR POINT °F MAX		
23. WATER REACT INTERFACE RATING MAX		
a. VOLUME CHANGE MAX		
24. CARBON RESIDUE % WT MAX		
25. WATER % VOL MAX		
26. SEDIMENT % VOL MAX		

TEST	SPEC/QUAL	RESULT
27. WATER AND SEDIMENT % VOL MAX		
28. FSII % VOL TOP		
a. MID		
b. BOT		
c. AVG	.10-.15	.12
29. PARTICULATE CONTAMINANT MGS/GAL		
30. THERMAL STABILITY INCHES HG		
a. PREHEATER RATING		
31. SULFIDES (Tank Water BTMS)		
32. WATER SEPAROMETER INDEX MIN		
33. % ASH PLAIN/SULF MAX		
34. % LEAD		
35. % PHOSPHORUS		
36. % CHLORINE		
37. BURNING TEST (16 hrs)		
38. KIN CS/SSU AT °F		
a. KIN CS/SSU AT °F		
b. KIN CS/SSU AT °F		
c. KIN CS/SSU AT °F		
d. SSF AT °F		
e. VISCOSITY INDEX MIN		
39. EVAP LOSS % MAX		
40. PRECIPITATION NO MAX		
41. SEPARATION % MAX		
42. ACID NO/BASE NO MAX		
43. CHANNEL PT °F MAX		
44. SAPONIFICATION NO MAX		
45. DIELECTRIC STRENGTH KV MIN		
46. FOAM SEQ 1. MLS MAX (TND/STAB)		
a. SEQ 2. MLS MAX (TND/STAB)		
b. SEQ 3. MLS MAX (TND/STAB)		
47. PENETRATION UNWORKED 77°F		
a. PENETRATION WORKED 77°F		
48. DROP PT/MELT PT °F MIN		
49. CORR AND OXIDATION STAB		
50. SWELLING SYN RUBBER %		
51. LOW TEMP STABILITY		
52. SALT SPRAY TEST		
53. WORK STABILITY		
54. WATER STABILITY		
55. THICKENER TYPE		
56. THICKENER CONTENT %		
57. CORROSION PROTECTION		
58. REMOVAL		
59. APPARENT VISC AT °F		
a. SHEAR RATE POISES		
60. SED CONTAM, MILLIPORE, MG/L, MAX	2.0	0.7
61. EFFECTIVENESS OF FILTRATION		
62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED	SIGNATURE	TITLE
18 June 71	James E. Lawton	Lab NCOIC

DA FORM 1 NOV 67 2077

EDITION OF 1 MAR 45 IS OBSOLETE.

PETROLEUM PRODUCTS LABORATORY ANALYSIS REPORT

(TM 10-1105)

SAMPLE NO.: N/A

LAB REPORT NO.: 8109

PRODUCT NOMENCLATURE AND TYPE: Turbine Fuel, Aviation Grade, JP-4

SPEC NO.: MIL-T-5624H

SAMPLE SUBMITTED BY (Installation): THAAF

AMT PROD SAMPLE REPRESENTS: N/A

MANUFACTURER OR SUPPLIER OF PRODUCT:

SOURCE OF SAMPLE (Truck, Tank, Aircraft, etc.): Flight Line

SAMPLE TAKEN BY (Name): N/A

CONTRACT NO.:

ITEM NO.:

FSN:

DATE SAMPLE TAKEN: 31 May 71

QUAL NO.:

BATCH NO.:

FILL DATE:

DLVR DATE:

DATE SAMPLE REC: 31 May 71

NAME AND LOCATION OF LABORATORY: 959th QM DET PPL(M) APO 96238

☐ FUEL BULK STORAGE ☐ ROUTINE SURVEILLANCE
☐ FUEL PACKAGED ☐ PROCUREMENT ORIGIN
☐ ALLIED PRODUCTS ☐ PROCUREMENT
☐ FILTER EFFECTIVENESS ☐ SPECIAL
☐ QUALIFICATION CONTRACT ☐ DEPOT

DATE TESTS STARTED: 31 May 71

DATE TESTS COMPL: 31 May 71

TEST	SPEC/QUAL	RESULT
1. GRAVITY °API/SP GR 60°/60°F TOP		
a. MID		
b. BOT		
c. AVG	45-57	55.9
2. APPEARANCE/WORKMANSHIP	REPORT	Cl/Br
3. COLOR VISUAL	REPORT	W/W
a. HELLIGE (Colorimeter)		
b. ASTM MAX/SAYB MIN		
c. SAYB AFTER HEAT MIN		
4. ODOR		
5. DISTILLATION IBP °F	REPORT	142
a. 10 % REC - EVAP AT °F	REPORT	216
b. % REC - EVAP AT 290°F	20 min	40
c. % REC - EVAP AT 370°F	50 min	78
d. % REC - EVAP AT 400°F	REPORT	86
e. % rec ~~EVAP AT~~ 470 °F	90 min	--
f. % ~~EVAP AT~~ END POINT	REPORT	459
g. % LOSS max	1.5	1.0
h. % RESIDUE max	1.5	1.0
i. 10% + 50% EVAP °F MIN		
6. ENGINE RATING O.N. MOTOR METHOD		
a. ON RESEARCH METHOD		
b. LMR AVIATION METHOD		
c. RMR SUPER CH METHOD		
d. CETANE NUMBER/INDEX MIN		
7. RVP (PSI)	2.0-3.0	2.1
8. GUM EXISTENT MG/100 ML MAX		
GUM (Wash) MG/100 ML MAX		
GUM POTENTIAL MG/100 ML MAX		
PRECIPITATE MG/100 ML MAX		
9. TEL/TML (ML/GM/GAL) MAX		
10. OXIDATION STABILITY MINUTES		
11. DR TEST/MERC S % MAX		
12. SULFUR BY LAMP BOMB % MAX		
13. FREEZING PT °F		
14. CORROSION COPPER STRIP		
15. AROMATICS % VOL MAX		
16. OLEFINS % VOL MAX		
17. SMOKE POINT MM MIN		
18. SMOKE VOLAT INDEX MIN		
19. ANILINE PT °F/ANILINE GRAV PROD MIN		
20. FLASH/FIRE POINT °F MIN		
21. CLOUD POINT °F MAX		
22. POUR POINT °F MAX		
23. WATER REACT INTERFACE RATING MAX		
a. VOLUME CHANGE MAX		
24. CARBON RESIDUE % WT MAX		
25. WATER % VOL MAX		
26. SEDIMENT % VOL MAX		

TEST	SPEC/QUAL	RESULT
27. WATER AND SEDIMENT % VOL MAX		
28. FSII % VOL TOP		
a. MID		
b. BOT		
c. AVG	.10-.15	.12
29. PARTICULATE CONTAMINANT MGS/GAL		
30. THERMAL STABILITY INCHES HG		
a. PREHEATER RATING		
31. SULFIDES (Tank Water BTMS)		
32. WATER SEPAROMETER INDEX MIN		
33. % ASH PLAIN/SULF MAX		
34. % LEAD		
35. % PHOSPHORUS		
36. % CHLORINE		
37. BURNING TEST (16 hrs)		
38. KIN CS/SSU AT °F		
a. KIN CS/SSU AT °F		
b. KIN CS/SSU AT °F		
c. KIN CS/SSU AT °F		
d. SSF AT °F		
e. VISCOSITY INDEX MIN		
39. EVAP LOSS % MAX		
40. PRECIPITATION NO MAX		
41. SEPARATION % MAX		
42. ACID NO/BASE NO MAX		
43. CHANNEL PT °F MAX		
44. SAPONIFICATION NO MAX		
45. DIELECTRIC STRENGTH KV MIN		
46. FOAM SEQ 1. MLS MAX (TND/STAB)		
a. SEQ 2. MLS MAX (TND/STAB)		
b. SEQ 3. MLS MAX (TND/STAB)		
47. PENETRATION UNWORKED 77°F		
a. PENETRATION WORKED 77°F		
48. DROP PT/MELT PT °F MIN		
49. CORR AND OXIDATION STAB		
50. SWELLING SYN RUBBER %		
51. LOW TEMP STABILITY		
52. SALT SPRAY TEST		
53. WORK STABILITY		
54. WATER STABILITY		
55. THICKENER TYPE		
56. THICKENER CONTENT %		
57. CORROSION PROTECTION		
58. REMOVAL		
59. APPARENT VISC AT °F		
a. SHEAR RATE POISES		
60. SED CONTAM, MILLIPORE, MG/L, MAX	2.0	0.1
61. EFFECTIVENESS OF FILTRATION		
62. OTHER (Specify) FREE WATER	NONE	NONE

REMARKS

PRODUCT TESTED ON GRADE

DATE FORWARDED: 18 June 71

SIGNATURE: James E. Lawton

TITLE: Lab NCOIC

DA FORM 1 NOV 67 2077

PREVIOUS EDITIONS ARE OBSOLETE.

WEIGHT AN[illegible]ANCE CLEARANCE FORM F

TRANSPORT

(USE REVERSE FOR TACTICAL MISSIONS)

Cross Reference
RAF Form 2870
RCAF Form F. 113 C
50M 5-51 (6797)

FOR USE IN
T.O. 1-1B-40
AN 01-1B-40 &
TM 55-405-9

DATE	AIRCRAFT TYPE	FROM	HOME STATION
4 Jun 71	[illegible]-47A	Tuy Hoa	[illegible] 96377
MISSION/TRIP/FLIGHT NO.	**SERIAL NO.**	**TO**	**PILOT**
	[illegible]-13116	23th Regt [illegible], [illegible] Hoa [illegible]	[illegible] Moree

LIMITATIONS

CONDITION	TAKEOFF	LANDING	LIMITING WING FUEL
[1] ALLOWABLE GROSS WEIGHT	[illegible]000	[illegible]000	
TOTAL AIRCRAFT WEIGHT (Ref. 11)			
OPERATING WEIGHT PLUS ESTIMATED LANDING FUEL WEIGHT			
OPERATING WEIGHT (Ref. 8)			
ALLOWABLE LOAD (Ref. 12) (use SMALLEST figure)			
[2] PERMISSIBLE C. G. TAKEOFF	FROM [illegible]	TO % M.A.C. or IN.	
[2] PERMISSIBLE C. G. LANDING	FROM [illegible]	TO % M.A.C. or IN.	
[5] LANDING FUEL WEIGHT			

REF	ITEM	WEIGHT	[1] INDEX OR MOM/
1	BASIC AIRCRAFT (From Chart C)	1[illegible]577	[illegible]4303
2	OIL ([illegible] Gal.)	2[illegible]	135
3	CREW (No.) [illegible] 200	1000	1[illegible]00
4	CREW'S BAGGAGE		
5	STEWARD'S EQUIPMENT		
6	EMERGENCY EQUIPMENT		
7	EXTRA EQUIPMENT [illegible]	1[illegible]0	270
8	OPERATING WEIGHT	127[illegible]	[illegible]513
9	TAKEOFF FUEL ([illegible]01 Gal.)	[illegible]7[illegible]	12057
10	WATER INJ. FLUID (——— Gal.)		
11	TOTAL AIRCRAFT WEIGHT	[illegible]	[illegible]550

12 DISTRIBUTION OF ALLOWABLE LOAD (PAYLOAD)

COMPT	UPPER COMPARTMENTS PASSENGERS NO.	WEIGHT	CARGO	COMPT	LOWER COMPARTMENTS PASSENGERS NO.	WEIGHT	CARGO	WEIGHT	INDEX OR MOM/
A									
B									
C									
D	[illegible]							[illegible]000	19860
E				[illegible]	1	150		150	497
F									
G									
H	[illegible]								
I									
J									
K									
L	CPT John L. Shanahan Jr.								
M									
N									
O									
P									
FWD	BELLY								
AFT	BELLY								

REMARKS

[illegible] 317 [illegible]

[illegible] 1[illegible]
[illegible] 4[illegible]

TOTAL FREIGHT

TOTAL MAIL

COMPUTER PLATE NUMBER (If used)

[1] Enter constant used.
[2] Enter values from current applicable T.O. TM
[3] Applicable to gross weight (Ref. 15)
[4] Applicable to gross weight (Ref. 18)
[5] Ref. 9 minus Ref. 17

REF	ITEM	WEIGHT	INDEX OR MOM/
13	TAKEOFF CONDITION (Uncorrected)	[illegible]9[illegible]5	9[illegible]917
14	CORRECTIONS (If required)		
15	TAKEOFF CONDITION (Corrected)	[illegible]96[illegible]5	9[illegible]917
16	TAKEOFF C. G. IN % M. A. C. OR IN.	235	
17	LESS FUEL	[illegible]0	2157
18	LESS AIR SUPPLY LOAD DROPPED	6000	19860
19	MISC. VARIABLES		
20	ESTIMATED LANDING CONDITION	[illegible]	[illegible]6900
21	ESTIMATED LANDING C. G. IN % M. A. C. OR IN.	[illegible]	

CORRECTIONS (Ref. 14)

COMPT	ITEM	CHANGES (+ or −) WEIGHT	[1] INDEX OR MOM/
	FOR OFFICIAL USE ONLY		
	TOTAL WEIGHT REMOVED	−	−
	TOTAL WEIGHT ADDED	+	+
	NET DIFFERENCE (Ref. 14)		

COMPUTED BY

[illegible] SIGNATURE

WEIGHT AND BALANCE AUTHORITY

CPT Larry K. Martin SIGNATURE

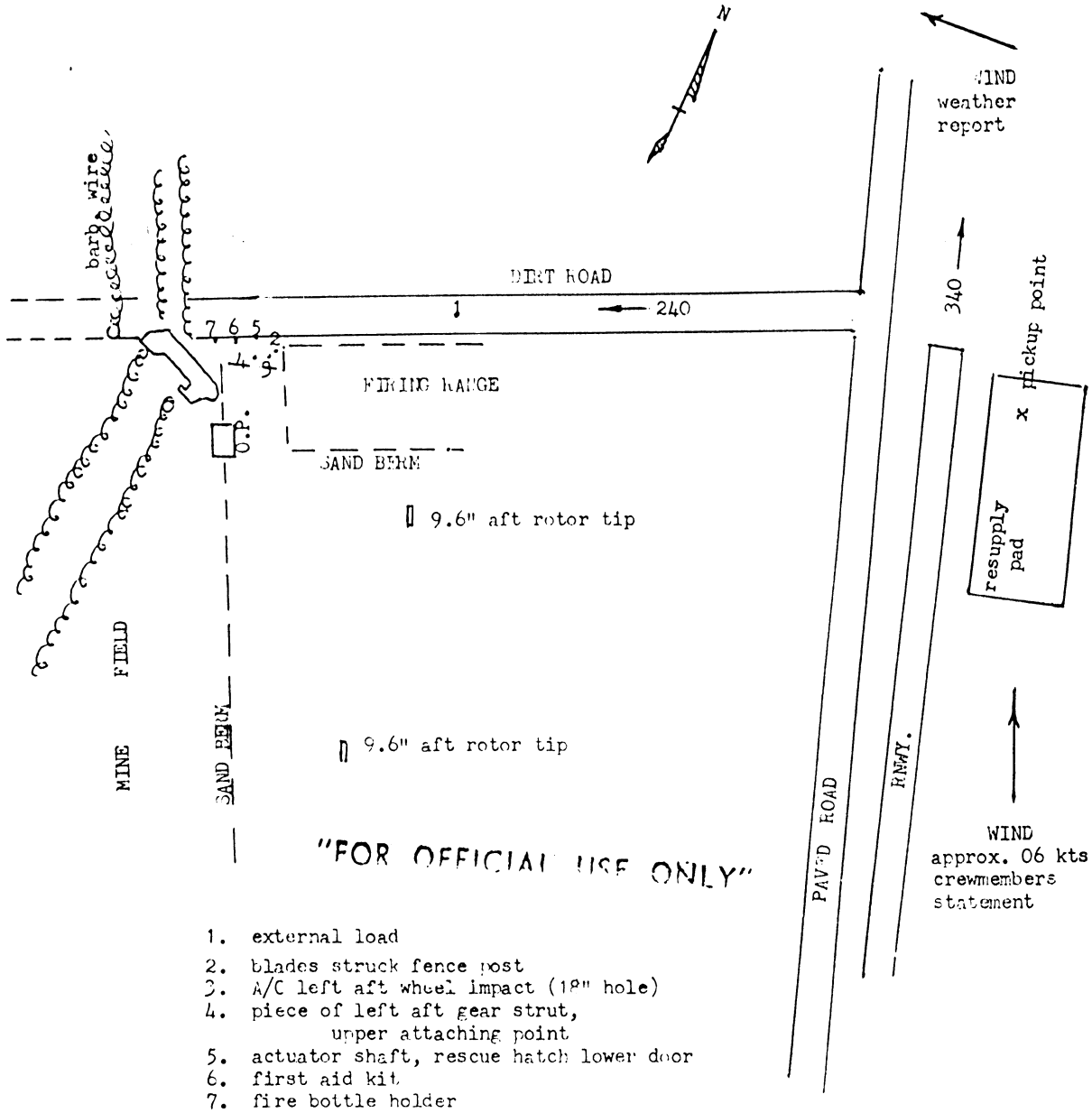
PILOT

[illegible] Robert O. Moree SIGNATURE

NOTE.—THIS TRANSPORT CLEARANCE FORM HAS RESULTED FROM TRIPARTITE AGREEMENT AND NO FURTHER CHANGES MAY BE MADE TO IT WITHOUT PRIOR CONSIDERATION BY TRIPARTITE AUTHORITIES.

DD FORM 1 SEPT 54 365F

CRASH SITE CH47A, S/N 64-13116



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1. external load
2. blades struck fence post
3. A/C left aft wheel impact (18" hole)
4. piece of left aft gear strut, upper attaching point
5. actuator shaft, rescue hatch lower door
6. first aid kit
7. fire bottle holder

scale: 1"=50 yds.

DEPARTMENT OF THE ARMY
[illegible], 10TH CENTRAL AVIATION BATTALION
APO San Francisco 96377

AVACDAH 4 June 1971

SUBJECT : Release of CH-47 Aircraft, 64-13116.

TO : Commanding Officer
243rd Assault Support Helicopter Company
APO 96377

1. Request that the following items be turned in for Teardown/Analysis of possible damage as soon as possible:

Nomenclature	Fed. Stock No.	Part No.
a. Engine, aircraft, turbo-prop T-55 L-7D, SN LE-04957, Fuel control SN 50257 AVI control #105-31116	2840-050-6875	2-000-030-18
b. Engine, aircraft, turbo-prop T-55 L-7D, SN LE-04218, Fuel Control SN 41441, AVI control #105-31116-1	2840-050-6875	2-000-030-18
c. Valve, gate, aircraft, (3)	2915-739-2540	114 3401-1
d. Pump, axial piston, (2)	1650-129-7429	114H3127-3
e. Switch, float, liquid level, (2)	2915-992-9470	FA203-2
f. Pump, submerged, (2)	2915-852-6813	114 4111-3
g. Manifold, hydraulic, (1)	1650-691-3026	[illegible] 116133-3
h. Accumulator, hydraulic, (1)	1680-055-7507	114H3133-1
i. Switch, pressure, (1)	5930-[illegible]-8366	114 3421-1
j. Actuator, electromagnetic,(2) M1	1680-199-6834	114 3200-2
M2	2915-420-8026	114 3201-2
k. Torque output shaft (engine transmom)	None	None

RELEASE OF CH-47 AIRCRAFT, 64-13116, 10TH CAB, 4 JUNE 1971.

2. U. S. Army CH-47 aircraft, serial number 64-13116, is released from all accident investigation purposes to the commanding officer, for disposition as he sees fit.

"A CERTIFIED TRUE COPY"

JOHN L. SLAMKAMP JR.
CPT, AR
President, Accident Investigation Board

DEPARTMENT OF THE ARMY
HEADQUARTERS 17TH AVIATION GROUP (COMBAT)
APO SAN FRANCISCO 96316

AVBAV-FS

12 June 1971

SUBJECT: Request for Assistance from USABAAR

Commanding Officer
10th Combat Aviation Battalion
ATTN: Aviation Safety Officer
APO SF 96377

On 1 June 1971 this office requested assistance from USAPAAR through USARV to assist in an accident investigation involving a CH-47A SN 64-13116. This request was denied by telephone conversation with Mr. Narty USARV Safety.

COY D. CAMPBELL
CW-2, AV
Asst Safety Officer

"[illegible] USE ONLY"

DEPARTMENT OF THE ARMY
U.S. ARMY AVIATION [illegible] COMMAND
P.O. BOX 209, MAIN OFFICE
ST. LOUIS, MISSOURI 63166

[illegible]   9 June 1971

SUBJECT: Crash Investigation [illegible] CH-47 [illegible] 64-13116

President
Accident Investigation Board
CH-47 [illegible] 64-13116

This writer was requested to give technical assistance in investigation of the crash and total burning of the above aircraft.

After viewing the crash site, I give the following as the primary reason for the crash:

On 31 May 1971, with a full crew of six and a full fuel load on board, the aircraft was working a [illegible], on lifting a sling load weighing approximately 6,000 pounds, the aircraft attained an altitude of approximately 70 feet in a hovering takeoff, at about 30 knots forward speed when the Number 2 engine had a complete power failure, (the engine serial number LE [illegible] 4918) This failure in the writers' opinion, was caused by failure of the fuel control (serial number 41[illegible]1) [illegible] pump, which was found badly burned, but with the following conditions: the N1 governor drive shaft ([illegible] 55-2[illegible]40-234-34; [illegible] 42, [illegible] Federal Stock Number: 2915-[illegible]53-09[illegible]8, Part Number: 62-15926) was found to have the small splines excessively worn. They were worn to a degree that caused [illegible]. The N1 control actuator was on the open stop, and the [illegible] actuator was [illegible] 70.0%. When the Number 2 engine failed, the number 1 engine took the load with a known torque of [illegible]-pounds. The outside air temperature was [illegible] degrees centigrade. The number 1 engine ([illegible] 4959) lost power due to the bleed band failing to open [illegible] the increase in load. The N2 [illegible] was too low and the engine flamed out. The fuel control([illegible] 52[illegible]57) mounted on the number 1 engine was found with the N1 actuator on the full open stop, the N2 was at 72.6%.

The engines were sent into the supply system for transportation to a higher headquarters for total inspection.

This writer [illegible] for the crash.

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[illegible signature]
[illegible]

s/ George D. Simpson
GEORGE D. SIMPSON, [illegible]12
[illegible]

DEPARTMENT OF THE ARMY
U.S. ARMY AVIATION MATERIEL COMMAND
P.O. BOX 209, MAIN OFFICE
ST. LOUIS, MISSOURI 63166

AMSAV-L-ATC 15 June 1971

SUBJECT: Summary of Accident Investigation of CH-47A Helicopter 64-13116, Which Crashed and Burned Due to Reported #2 and #1 Engine Failure.

President
Accident Investigation Board
CH-47 SN: 64-13116

a. On 31 May 1971, aircraft 64-13116 crashed and burned. This writer was asked to serve with the accident investigating board as a technical advisor on the airframe.

On 1 June 1971, We went to the crash site outside a Korean Compound at Phu Hiep, RVN. At the site searched the wreckage for visual evidence of what could have caused the crash. Recovered the #2 engine shut off fuel valve, which was open, #1 engine shut off fuel valve. Only the motor was available and the cross feed valve. It was assumed as the #2 valve was open-that fuel starvation was not the cause of engine failure.

b. On 2 June 1971, listened to the statements of W/O [redacted] pilot, W/O Schlieb pilot, gunner [redacted] and crew chief [redacted]

[redacted]

from confidential witness statements

c. On 3 June 1971, went back to the crash site to search farther, hopefully of finding some evidence of cause for failure.
At this time the fuel control of the #2 engine was examined and it was found that the input drive shaft for the N1 governor, the splines were rounded off. This is believed to be the contributing factor for the loss of power on the #2 engine. No inspection of the #1 engine fuel control was made, as it was fairly intact. It is mentioned at this time the reason for the inspection fo the #2 fuel control was made, it had been burned so bad the fuel pump and N1 and N2 portion was readily accesable for inspection.

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AMSAV-L-ATC
SUBJECT: Summary of Accident Investigation of CH-47A Helicopter [redacted] 64-13116, Which crashed and Burned Due to Reported #2 and #1 Engine Failure.

d. 4 June 1971, the entire crew at one time was interviewed and at this time they more or less all concurred with each others statements.

e. In summary-it is the opinion of this technical advisor-AVSCOM, the contributing factor for the crash is as follows:

1. The N1 drive portion of the fuel control for number two engine failed, causing fuel stoppage to the engine.
2. It is believed the number one engine was running under partial power. In accordance with TM 55-1520-209-10 power curve for single engine operation if power from the number one engine had been full power, the best the pilot could have done was to hover a 22,000 lb aircraft at 40 feet. This aircraft weighed approximately 23000 lbs after dropping sling load.
3. It is not believed in any way this accident should be labeled as pilot error for reasons explained in 2 above.
4. It is not believed this aircraft lost any hydraulic control of the flight control system as explained in para b.

Robert J. Heady

ROBERT J. HEADY
Equipment Specialist
Airframe and Airframe Equipment
U.S. Army Aviation Systems Command

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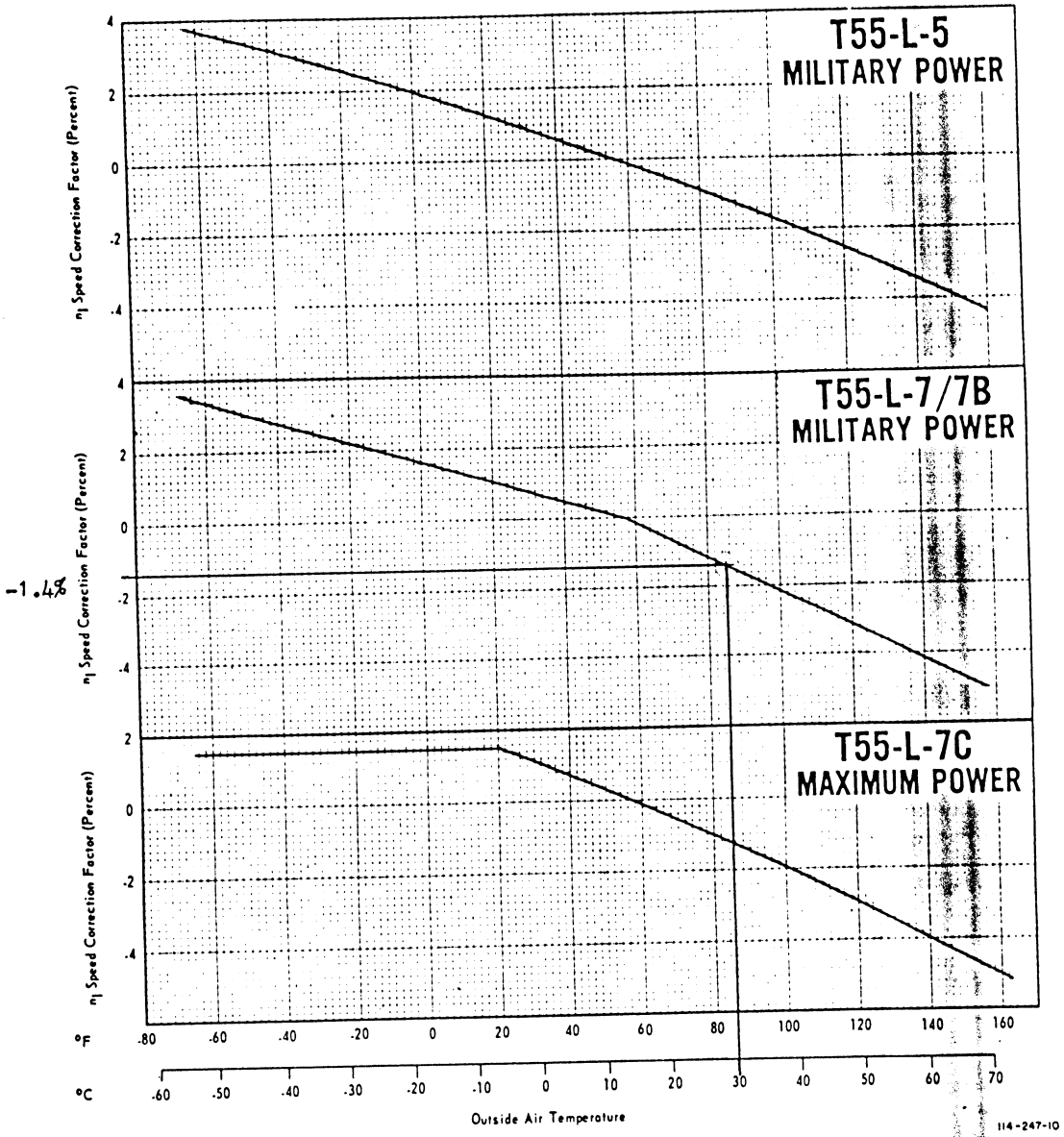


Figure 7-2. Deviation in regulated gas producer speed (nI)

b. From figure 7-2, determine the nI correction for the existing outside air temperature.

c. This correction is either added to or subtracted from the speed shown on the instrument panel or in the production engine acceptance test log.

d. The resulting percent of nI is the maximum allowable speed at which the engine should operate at military or maximum power for this temperature.

7-17. ENGINE OVERSPEED.

7-18. An engine overspeed condition on the T55 series engines exists whenever either of the following occurs:

a. A gas producer (nI) overspeed exists when the nI limit specified in table 1 of the production engine acceptance test log or DA Form 2408-5, as compensated for by the temperature bias curve, has been exceeded for more than 1 minute or by more than 2 percent. (Refer to paragraph 7-15 and see figure 7-2.)

Caution

Any operation that exceeds the above nI limit may cause excessive temperatures in the engine.

b. A power turbine (nII) overspeed condition may exist when 233 rotor rpm has been exceeded by 5 percent for more than 5 seconds. To aid maintenance personnel in determining if an actual nII overspeed has occurred, the pilot must record the following in the DA Form 2408-13 when noting an nII overspeed: Pressure altitude, outside air temperature, peak torque, peak rotor rpm, and duration of overspeed.

NOTE

Although no maintenance action is required when the rotor rpm exceeds 233 and does not exceed the overspeed limits, willful operation should not be conducted in excess of 233 rotor rpm.

7-19. CAUSES OF ENGINE OVERSPEED. An nII overspeed may be caused by one or more of the following:

a. Fuel control governor overshoot.

b. An abrupt load decrease.

7-20. RESULTS OF ENGINE OVERSPEED. The results of an engine overspeed are as follows:

a. An nI overspeed may result in one or more of the following:

(1) Overpower

(2) Overtemperature

(3) Overtorque

b. An nII overspeed may result in a reduction of power turbine rotor tip clearance.

NOTE

(See figures 7-3, 7-4, and 7-5, for the purpose of defining overtemperature.) They do not necessarily indicate the normal operating temperature for any individual engine. Significant changes in exhaust gas temperature at any power level are cause for investigation, even though these limits are not exceeded. A transient is defined as any 1-time cycle of the exhaust gas temperature (an increase, then a decrease).

7-21. ENGINE OVERTEMPERATURE (T55-L-5).

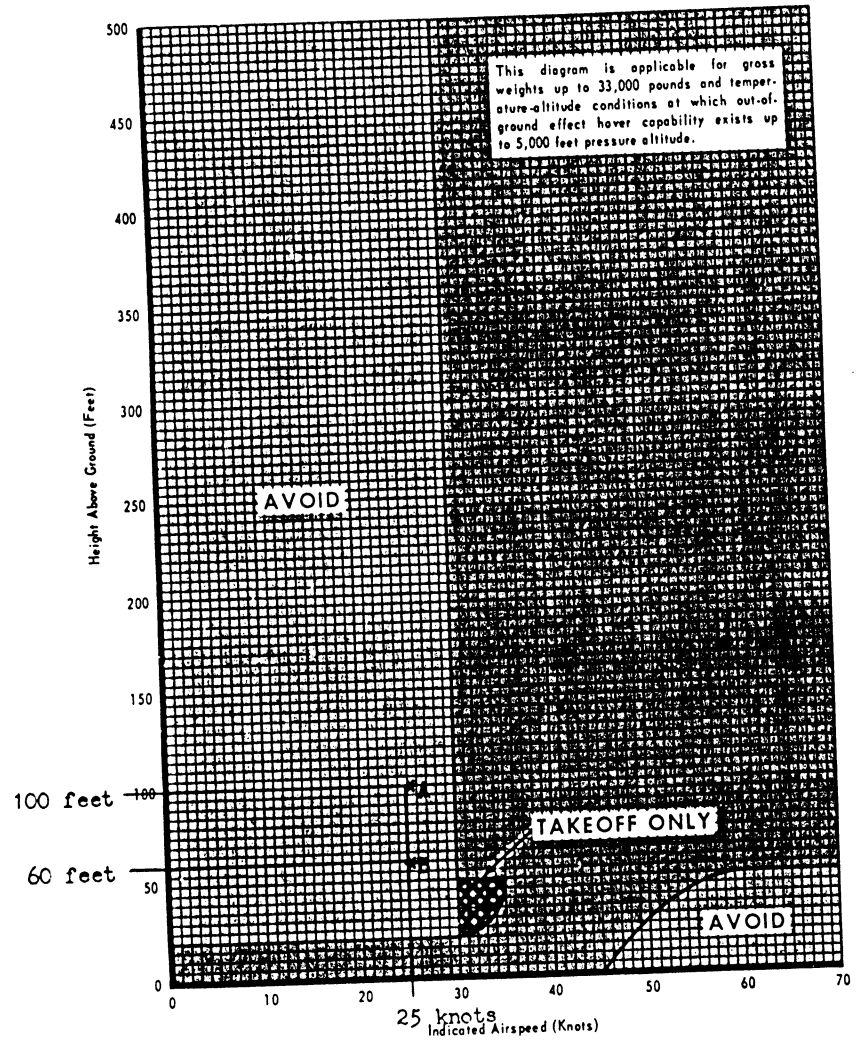
7-22. An overtemperature exists when the time/temperature limits shown on figure 7-3 are exceeded.

7-23. ENGINE OVERTEMPERATURE (T55-L-7 AND T55-L-7B).

7-24. An overtemperature exists when the time/temperature limits shown on figure 7-4 are exceeded.

Model: CH-47A
Date: 7 June 1966.
Data Basis: Estimated.

Engines: T55-L-7
Fuel Grade: JP-4
Fuel Density: 6.5 lb/gal.



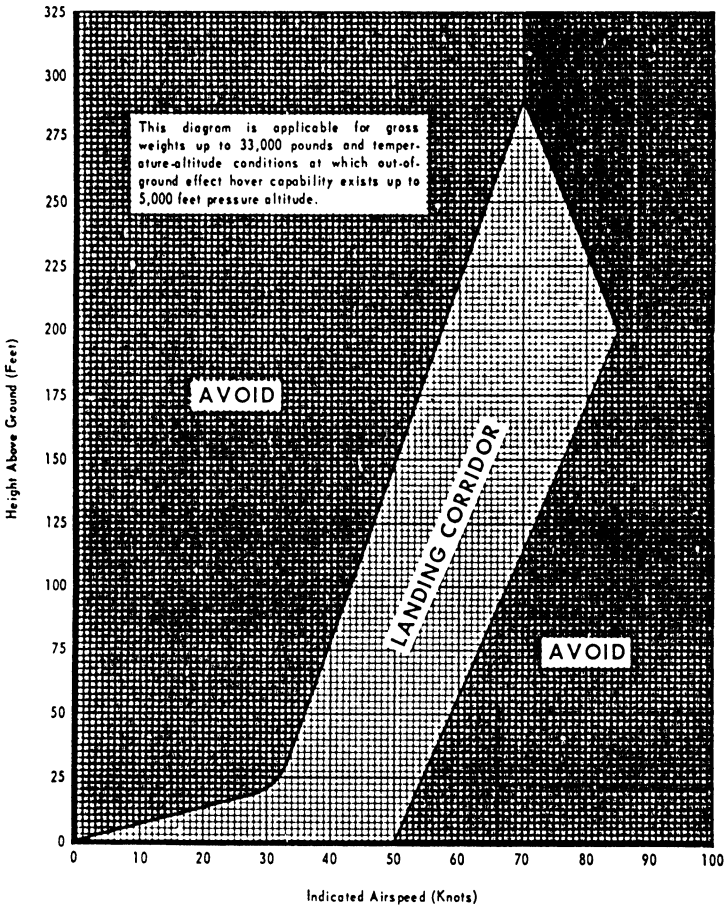
POINT A : #2 Engine failure

POINT B : #1 Engine failure / load release

Figure 7-8. Height-velocity diagram for safe landing after single-engine failure

Model: CH-47A
Date: 7 June 1966
Data Basis: Estimated

Engines: T55-L-7
Fuel Grade: JP-4
Fuel Density: 6.5 lb gal.

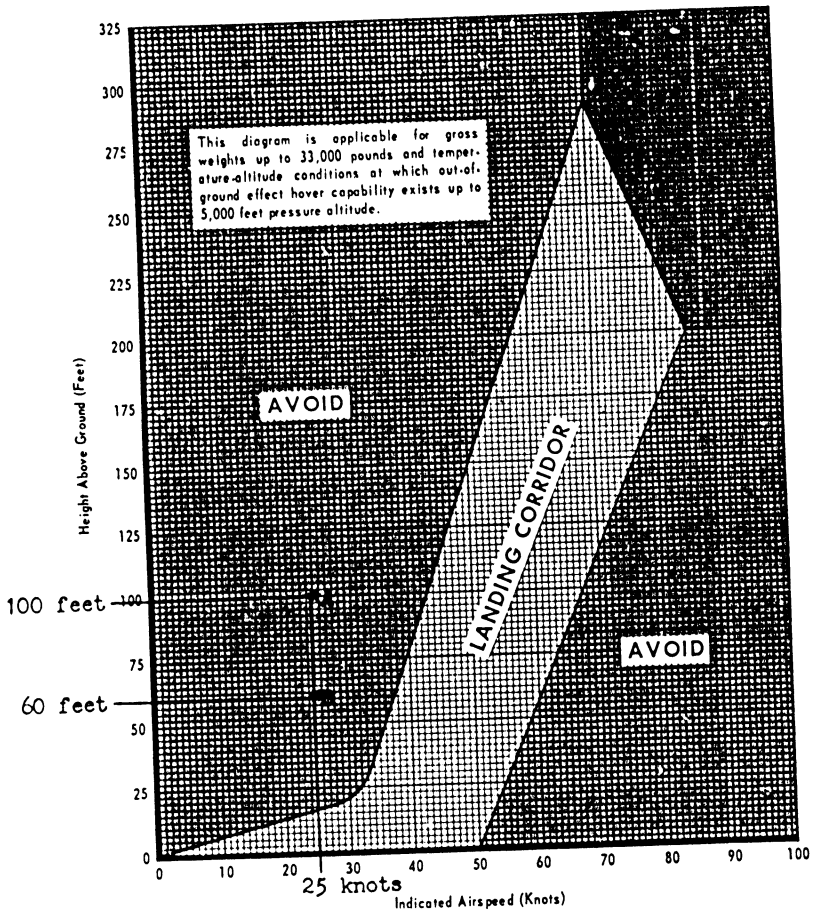


114-45-10H

Figure 7-9. Single engine and autorotative landing corridor

Model: CH-47A
Date: 7 June 1966
Data Basis: Estimated

Engines: T55-L-7
Fuel Grade: JP-4
Fuel Density: 6.5 lb/gal.



114-45-10H

POINT A : #2 Engine failure

POINT B : #1 Engine failure / load release

Figure 7-9. Single engine and autorotative landing corridor

Model: CH-47A
Date: 7 June 1966.
Data Basis: Estimated.

Engines: T55-L-7
Fuel Grade: JP-4
Fuel Density: 6.5 lb/gal.

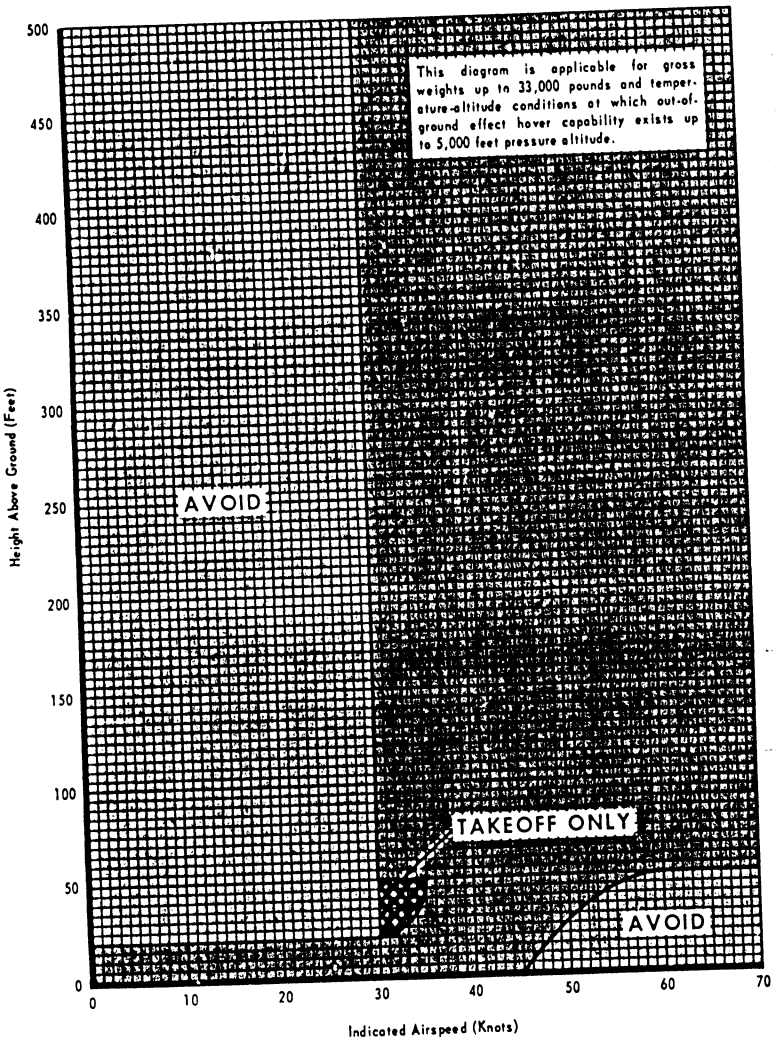


Figure 7-8. Height-velocity diagram for safe landing after single-engine failure

OPERATING WEIGHT
FERRY FUEL TANK INSTALLED
19,416 POUNDS

OPERATING WEIGHT
FERRY FUEL TANK REMOVED
18,812 POUNDS

MAXIMUM TAKEOFF AND
DESIGN ALTERNATE GROSS WEIGHT
33,000 POUNDS

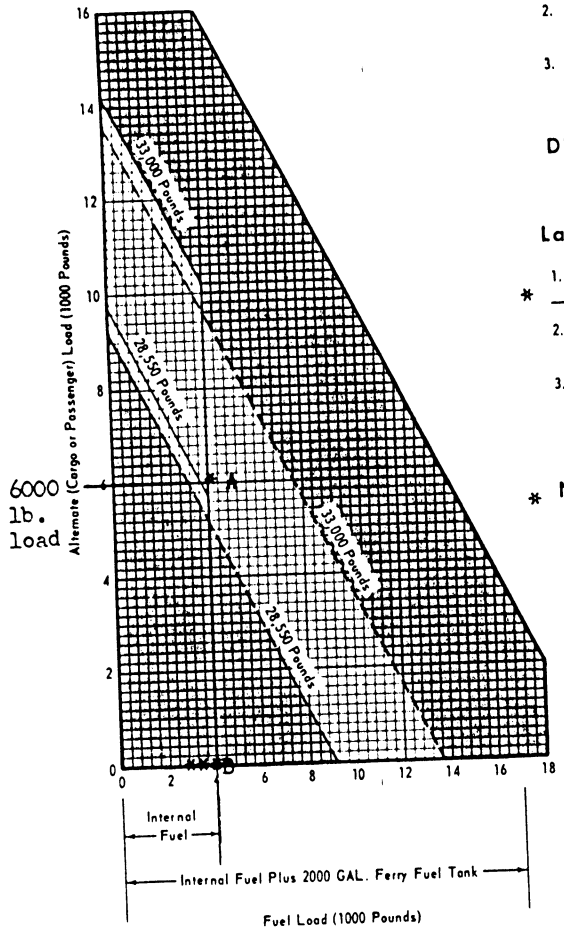
Load Factor = 2.0g
Landing Gear Sink Speed = 6 Feet/Second

1. Hover Ceiling (O.G.E.)(2 Engines) = 7,900 Feet
   Hover Ceiling (O.G.E.)(1 Engine) = See Note 1.
2. Rate of Climb at Normal Power (2 Engines) = 1,734 FPM
   Rate of Climb at Military Power (1 Engine) = 161 FPM
3. Service Ceiling at Normal Power (2 Engines) = 9,200 Feet (See Note 2.)
   Service Ceiling at Military Power (1 Engine) = 2,500 Feet

DESIGN GROSS WEIGHT 28,550 POUNDS

Load Factor = 2.67g
Landing Gear Sink Speed = 8 Feet/Second

1. Hover Ceiling (O.G.E.)(2 Engines) = 11,900 Feet (See Note 2.)
   * Hover Ceiling (O.G.E.)(1 Engine) = See Note 1. *
2. Rate of Climb at Normal Power (2 Engines) = 2,290 FPM
   Rate of Climb at Military Power (1 Engine) = 600 FPM
3. Service Ceiling at Normal Power (2 Engines) = 11,900 Feet (See Note 2.)
   Service Ceiling at Military Power (1 Engine) = 7,700 Feet



* Notes: 1. No capability on one engine. *
2. Actual service ceiling exceeds altitude limit.

NOTE

All performance data shown on this chart is to be used as a guide only, since this data is based on standard day conditions. For exact performance data as affected by temperature and pressure altitude, refer to Chapter 14.

RECOMMENDED LOADING

CAUTIONARY LOADING

LOADING NOT RECOMMENDED

114-19 A-10 F

Figure 7-12. Weight limitations chart (T55-L-7 series engines)

POINT A : #2 Engine failure - 29, 035 lbs.

POINT B : #1 Engine failure / load release - 23,035 lbs.

"[illegible] OFFICIAL USE ONLY"

engines and figure 7-12 is used when the helicopter is equipped with T55-L-7 series engines. The weight limitations charts are intended to provide a rapid means of determining the load carrying capabilities of the helicopter while remaining within safe operating limits. It is not the intent of these charts or the following discussion to establish maximum or minimum limits, but to provide operating personnel with the detail criteria upon which the importance of the mission can be weighed against the degree of risk to be assumed. Depending upon the importance of the mission, the commander will be able, by the use of these charts, to decide whether the mission warrants assuming the risk of exceeding a limitation. The following paragraphs are provided to illustrate the various aspects of the weights limitations charts.

7-65. OPERATING WEIGHT. Operating weight is defined as the weight of the complete helicopter ready for flight less fuel and payload. The operating weight includes the standard crew, full oil load, and all standard equipment. The operating weight is specified on both weight limitations charts for two configurations and is the basis from which the Alternate (Cargo or Passenger) load is developed. The operating weight was determined as shown on table 7-5. It is necessary to know the operating weight of the helicopter to accurately determine the Alternate Load. The origin of the Alternate Load and Fuel Load axes represents the operating weight specified on the individual chart. Since it is not likely that all helicopters will have the same operating weight it will be necessary to compute the actual operating weight and apply this value to the weight limitations chart. The operating weight is determined as follows:

a. Determine the basic weight of the helicopter from the DD Form 365C.

b. To this weight add the following:

(1) Engine oil (28 pounds).

(2) Crew weight (200 pounds/man).

(3) Cargo tiedown devices (50 pounds).

(4) Ferry fuel tank components (if installed) (604 pounds).

(5) Miscellaneous weight (if applicable) (200 pounds). (Refer to step c. and paragraph 7-73.)

Table 7-5. Operating weight determination

	With T55-L-5 Engines	With T55-L-7 Series Engines
Weight Empty	17,071 pounds	18,134 pounds
Engine Oil	28	28
Crew of 3 (200 Pounds/Man)	600	600
Cargo Tiedown Devices	50	50
Operating Weight (Ferry Fuel Tank Removed)	17,749 pounds	18,812 pounds
Ferry Fuel Tank Components	+604	+604
Operating Weight (Ferry Fuel Tank Installed)	18,353 pounds	19,416 pounds

MILITARY POWER
(30 - MINUTE OPERATION)
230 ROTOR RPM

Data Basis: Engine Specification
(Lycoming Report 124.20-A. Amendment No. 4)
Date: 30 June 1966
Engines: T55-L-7/7B
Fuel Grade: JP-4
Fuel Density: 6.5 Lb/Gal

Notes: 1. The data presented includes installation losses.

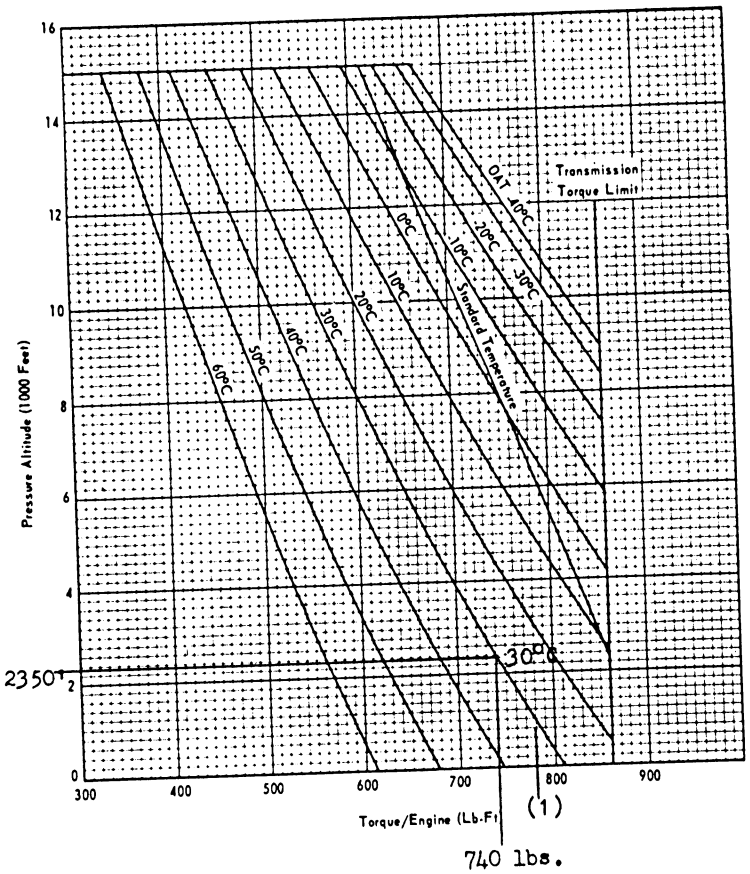


Figure 14-26. Military power available vs altitude

(1) 780 lbs. - observed torque transient at #1 Engine failure / load release.

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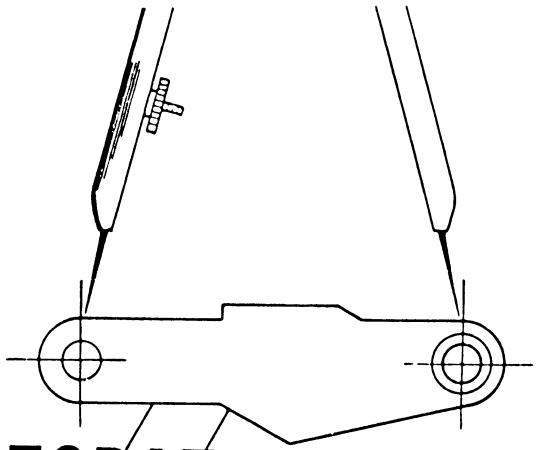
A R A D M A C

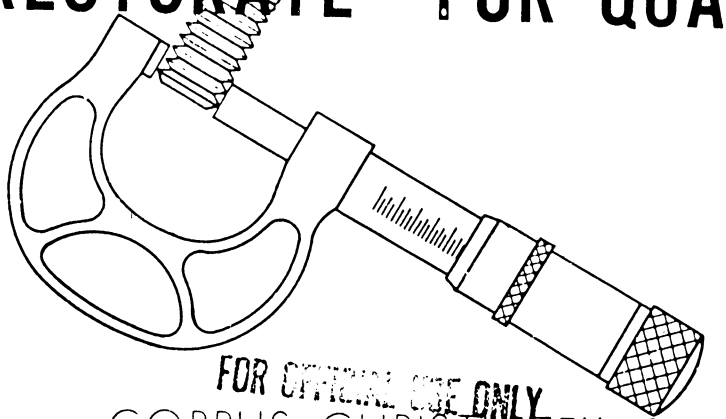
YR MO DA	TIME	A/C SERIAL
71 05 31	1300(H)	64-13116

CONTROL NO. RVN LOG 105-31116 -1 thru

Page



DIRECTORATE FOR QUALITY



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CORPUS CHRISTI, TEXAS

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9 SEP 1971

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT MISHAP

TEARDOWN ANALYSIS

AIRCRAFT MISHAP CASE NO. YR MO DA	TIME	A/C SERIAL
71 05 31	1300(H)	64-13116

CONTROL NO. RVN LOG 105-31116 -1 thru -12

U.S. ARMY AERONAUTICAL DEPOT MAINTENANCE CENTER
(ARADMAC)
MATERIEL ANALYSIS DIVISION
CORPUS CHRISTI, TEXAS 78419

Prepared by:

T. E. Adams Jr.

T. E. ADAMS, JR.
Equipment Specialist (Aircraft)

Approved by:

Eugene A. Wilson

EUGENE A. WILSON
Chief, Materiel Analysis Division

COPY NO 6

THIS PROTECTIVE MARKING CANCELLED EFFECTIVE 10 YEARS FROM DATE OF THIS REPORT.

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TECHNICAL REPORT OF U.S. ARMY AIRCRAFT MISHAP

TEARDOWN ANALYSIS

USAABAAR/THEATRE CONTROL NUMBER
RVN 105-31116 -1 thru -12

FOR OFFICIAL USE ONLY

1. AIRCRAFT

a. MODEL	b. S/N	c. TIME SINCE NEW	d. TIME SINCE O/H	e. OVERHAUL ACTIVITY AND DATE
CH-47A	64-13116	UNK	UNK	UNK

2. OPERATIONAL CONTROL: 243RD AVN CO UIC: A5C

3. COMPONENTS RECEIVED:

	a. NOMENCLATURE	b. PART NUMBER	c. FSN	d. S/N	e. OPERATING TIME
(1)	Engine Gas Turb	2-000-030-12	2840-987-9717	LE04957	UNK
(2)	Engine Gas Turb	2-000-030-12	2840-987-9717	LE04918	UNK
(3)	Misc Parts				
(4)					
(5)					

f. DATE RECEIVED: 2 July 1971

g. TRANS-MODE: (1) [ ] LAND (2) [X] AIR (3) [ ] SEA

4. SHIPPING CONDITIONS: a. [ ] GOOD b. [X] POOR SPECIFY: Parts received in wooden crate. No packing or padding. Parts were loose in crate.

5. REMARKS:
No EIR(DA Form 2407) received. Positive identification of engines was made from past overhaul and minor repair records at ARADMAC. Number 2 engine on Form 400 and shipping containers listed as T55L7C, LE04198, actual T55L7, LE04918. Number 1 engine listed as T55L7C, actual T55L7. Some miscellaneous parts not identifiable.

6. FINDINGS: [B X] BASIC (MFG/DESIGN) DISCREPANCY [N] NON-BASIC (MAINT/OPER) DISCREPANCY [F] FOREIGN OBJECT DAMAGE

7. FAILED OR MALFUNCTIONED MATERIEL
DID PART NUMBER OF FAILED OR MALFUNCTIONED MATERIEL MATCH THAT LISTED IN TM? YES 1 [ ] NO 0 [ ] UNK 7 [X]
(IF "NO" OR "UNK", SPECIFY IN BLOCK 8F, EXPLANATION)

IDENTIFICATION AND HISTORICAL DATA	A. MAJOR COMPONENT	B. SUBASSEMBLY	C. COMPONENT	D. PART
1. NOMENCLATURE	Engine Gas Turb		Fuel Control	Shaft, Drive, Int
2. TYPE, MODEL, SERIES	T55L7		JFC-31-12	
3. PART NUMBER	2-000-030-12		592964L13	02-13920
4. FSN	2840-987-9717		2915-761-0002	2915-963-0978
5. MFG CODE	91547		73030	77200
6. TM DATA:				
A. TM NUMBER	55-2840-234-34P		55-2840-234-34P	55-2840-234-34P
B. DATE	Oct 70		Oct 70	Oct 70
C. FUNCTIONAL GROUP	03		03	03
D. FIGURE NUMBER	3		35	52
E. INDEX NUMBER			9	30
7. SERIAL NUMBER	LE04918		41441	NA

AIRCRAFT MISHAP CASE NO.				OTHER AIRCRAFT	
YR MO DA	TIME	A/C SERIAL		T/M/S	SERIAL
71 05 31	1300(H)	64-13116	FOR OFFICIAL USE ONLY		

SAVAE Form 946, 1 Jun 70

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT MISHAP
TEARDOWN ANALYSIS
(Continuation Sheet)

USABAAR/THEATRE CONTROL NUMBER
RVN 105-31116

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3. TAMMS DATA:				
A. NO. OF OVERHAULS	UNK			
B. HR. SINCE OVERHAUL	UNK			
C. HR.SINCE NEW	UNK			
D. HR. SINCE LAST INSTALL.	UNK			
E. LAST OVERHAUL-FACILITY	ARADMAC			
9. LAST SPECIAL INSPECTION: (INDICATE FOR THESE COMPONENT(S))				
A. TYPE	UNK			
B. DATE	UNK			
C. HOURS SINCE	UNK			
10. TYPE FAILURE	386			
11. CAUSE OF FAILURE	920			
12. EIR CONTROL NUMBER	None			

8. ANALYSIS

A. POL CLASS	TYPE	SAMPLE (1) YES	SAMPLE (0) NO	DATE TAKEN YR MO DAY	ANALYSIS RESULTS	CONTAMINATED (1) YES	(0) NO	(7) UNK	CAUSATIVE ROLE D	S	(0) NONE	(7) UNK	FILTER COND (N) NORMAL	(B) BY PASS	(C) CLOGGED	(W) N/A
1. FUEL			X													
2. OIL, ENGINE			X													
3. OIL, TRANSMISSION(S)																
4. HYDRAULIC FLUID																
5. OTHER																

B. LAST ASOAP SAMPLE TAKEN (SPECIFY LABORATORY) LAB:

AFFECTED COMPONENT	DATE YR MO DAY	A/C HR	HR SINCE

C. SPECIAL ANALYSIS (SPECIFY LABORATORY) LAB:

ITEM	TYPE ANALYSIS	FINDINGS

D. TEARDOWN ANALYSIS REQUEST: WAS TEARDOWN ANALYSIS REQUESTED? YES 1 [X] NO 0 [ ] USABAAR/THEATRE CONTROL NO.

E. EXPLANATION OF FAILURE/MALFUNCTION:

1. The inlet housing and accessory drive gear box were consumed by fire (Incl 1 & 2).

2. There was no evidence of FOD or rotational damage on the inlet guide vanes, the compressor, or the stator vanes (Incl 2 & 3).

3. There was no rotational, or overtemperature damage in the first stage turbine area (Incl 4).

4. There was no rotational or overtemperature damage in the second stage turbine area (Incl 5).

5. There was no rotational or overtemperature damage in the third stage turbine area (Incl 6).

AIRCRAFT MISHAP CASE NO.						OTHER AIRCRAFT	
YR	MO	DA	TIME	A/C SERIAL	FOR OFFICIAL USE ONLY	T/M/S	SERIAL
71	05	31	1300(H)	64-13116			

F. (Continued)

6. The second and third stage turbine assembly turned free and quiet.

7. The fuel control was intact but exposure to intense heat melted the lead indium and copper tin plating on the fuel pump drive bearing, P/N 02-13503, 04, and 09, and caused them to seize. Disassembly of the fuel control failed to reveal physical damage, other than exposure to intense heat, that would have caused an engine failure.

G. CONCLUSIONS:

1. Disassembly and inspection of parts and components from this engine, T55L7, LE04957, that were not destroyed by fire, failed to reveal a physical failure that would have caused an engine failure.

2. The absence of rotational damage on the compressor and turbine assemblies, the even coating of magnesium ash throughout the engine and on the tail pipe indicated that the engine was probably not producing power at impact.

AIRCRAFT MISHAP CASE NO.						OTHER AIRCRAFT	
YR	MO	DA	TIME	A/C SERIAL		T/M/S	SERIAL
71	05	31	1300(II)	64-13116			

SAVAE Form 946-2, 1 Jun 70

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT MISHAP
TEARDOWN ANALYSIS
(Continuation Sheet)

USABAAR/THEATRE CONTROL NUMBER
RVN 105-31116 -1

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5. TAMMS DATA:				
A. NO. OF OVERHAULS	UNK		UNK	UNK
B. HR. SINCE OVERHAUL	UNK		UNK	UNK
C. HR. SINCE NEW	UNK		UNK	UNK
D. HR. SINCE LAST INSTALL.	UNK		UNK	UNK
E. LAST OVERHAUL-FACILITY	Minor @ ARADMAC		UNK	UNK
9. LAST SPECIAL INSPECTION: (INDICATE FOR THESE COMPONENT(S))				
A. TYPE	UNK		UNK	UNK
B. DATE	UNK		UNK	UNK
C. HOURS SINCE	UNK		UNK	UNK
10. TYPE FAILURE				020
11. CAUSE OF FAILURE				920
12. EIR CONTROL NUMBER	None Received			

8. ANALYSIS

POL CLASS	TYPE	SAMPLE (1) YES	SAMPLE (0) NO	DATE TAKEN YR MO DAY	ANALYSIS RESULTS	CONTAMINATED (1) YES	(0) NO	(7) UNK	CAUSATIVE ROLE D	S	(0) NONE	(7) UNK	FILTER COND. (N) NORMAL	(B) BY PASS	(C) CLOGGED	(W) N/A
FUEL			X													
OIL, ENGINE			X													
OIL, TRANSMISSION(S)																
HYDRAULIC FLUID																
OTHER																

B. LAST ASOAP SAMPLE TAKEN (SPECIFY LABORATORY) LAB:

C. SPECIAL ANALYSIS (SPECIFY LABORATORY) LAB:

AFFECTED COMPONENT	DATE YR MO DAY	A/C HR	HR SINCE	ITEM	TYPE ANALYSIS	FINDINGS
				Shaft, Drive	Metal	020 Abrasive wear

D. TEARDOWN ANALYSIS REQUEST: WAS TEARDOWN ANALYSIS REQUESTED? YES 1 [X] NO 0 [ ] USABAAR/THEATRE CONTROL NO.
RVN 105-31116 -1

F. EXPLANATION OF FAILURE/MALFUNCTION:

1. All magnesium housings were consumed by fire (Incl 7).

2. There was no evidence of FOD or rotational damage on the inlet guide vanes, the compressor, or the stator vanes (Incl 3 & 7).

3. There was no rotational or overtemperature damage in the first stage turbine area (Incl 8).

4. There was no rotational or overtemperature damage in the second stage turbine area (Incl 9).

5. There was no rotational or overtemperature damage in the third stage turbine area (Incl 10).

6. The second and third stage turbines turned free and quiet.

AIRCRAFT MISHAP CASE NO.						OTHER AIRCRAFT	
YR	MO	DA	TIME	A/C SERIAL	FOR OFFICIAL USE ONLY	T/M/S	SERIAL
71	05	31	1300(H)	64-13116			

F. (Continued)

7. The fuel pump housing on the fuel control was melted; however, the drive coupling, P/N 02-14311, (Incl 11), and the intermediate drive shaft, P/N 02-13920, were intact (Incl 11). Both parts showed evidence of spline failure (Incl 12). Both parts were sent to the metallurgical laboratory for evaluation.

G. CONCLUSIONS:

1. Disassembly and inspection of the parts of this engine received for analysis, revealed that failure of the splines in the intermediate drive shaft, P/N 02-13920, could have caused the Number 1 fuel pump and the N1 governor fly weights to stop turning which would have caused the fuel control to go to minimum flow or possibly no flow condition. This condition could have caused a flame out in this engine.

2. Failure of the fuel control intermediate drive shaft, P/N 02-13920, can be attributed to abrasive wear (See Laboratory report No 71MX178, Incl 13).

H. RECOMMENDATIONS:

1. It is recommended that AVSCOM engineering investigate the possibility of a one time inspection of all T55 engine fuel controls with 500 or more hours since new or overhaul.

2. A copy of D/F request for ARADMAC to perform a 100% inspection on all intermediate drive shaft lower splines, P/N 02-13920, is attached (Incl 16). It appears prudent that this information be incorporated as a revision of contract specifications with Hamilton Standard Corporation.

AIRCRAFT MISHAP CASE NO.						OTHER AIRCRAFT	
YR	MO	DA	TIME	A/C SERIAL		T/M/S	SERIAL
71	05	31	1300(H)	64-13116			

SAVAE Form 946-2, 1 Jun 70

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT MISHAP
TEARDOWN ANALYSIS
(Continuation Sheet)

USABAAR/THEATRE CONTROL NUMBER
RVN 105-31116 -2 thru -12

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8. TAMMS DATA:				
A. NO. OF OVERHAULS	UNK			
B. HR. SINCE OVERHAUL	UNK			
C. HR. SINCE NEW	UNK			
D. HR. SINCE LAST INSTALL.	UNK			
E. LAST OVERHAUL-FACILITY	UNK			
9. LAST SPECIAL INSPECTION: (INDICATE FOR THESE COMPONENT(S))				
A. TYPE	UNK			
B. DATE	UNK			
C. HOURS SINCE	UNK			
10. TYPE FAILURE	900			
11. CAUSE OF FAILURE	712			
12. EIR CONTROL NUMBER	None received			

13. ANALYSIS

A. POL CLASS	TYPE	SAMPLE (1) YES	SAMPLE (0) NO	DATE TAKEN YR MO DAY	ANALYSIS RESULTS	CONTAMINATED (1) YES	(0) NO	(7) UNK	CAUSATIVE ROLE D	S	(0) NONE	(7) UNK	FILTER COND. (N) NORMAL	(B) BY PASS	(C) CLOGGED	(W) N/A
1. FUEL			X													
2. OIL, ENGINE			X													
3. OIL, TRANSMISSION(S)			X													
4. HYDRAULIC FLUID			X													
5. OTHER			X													

B. LAST ASOAP SAMPLE TAKEN (SPECIFY LABORATORY) LAB:

C. SPECIAL ANALYSIS (SPECIFY LABORATORY) LAB:

AFFECTED COMPONENT	DATE YR MO DAY	A/C HR	HR SINCE	ITEM	TYPE ANALYSIS	FINDINGS

D. TEARDOWN ANALYSIS REQUEST: WAS TEARDOWN ANALYSIS REQUESTED? YES 1 [X] NO 0 [ ] USABAAR/THEATRE CONTROL NO.
RVN 105-31116 -2 thru -12

E. EXPLANATION OF FAILURE/MALFUNCTION:

Item 7, Page 1
Part Numbers not legible on most miscellaneous parts, extensive fire damage.

1. Miscellaneous parts received, cargo hook and hoist assembly, number 1 left fuel valve, number 1 N1 and N2 actuators, number 1 flight boost pump, torquemeter output shaft, 2 engine to transmission quill shafts, right aft fuel level float switch, right aft fuel boost pump, left forward fuel boost pump, number 2 N1, & 2 actuators, mechanical transmission parts, hydraulic accumulator, several unidentifiable small gears and shafts, pieces of engine cowling and fairing (Incl 1).

2. All parts had been exposed to intense heat and were extensively damaged.

3. It was not possible to functional test, x-ray, or flow test these parts because of extensive heat damage.

AIRCRAFT MISHAP CASE NO.						OTHER AIRCRAFT	
YR	MO	DA	TIME	A/C SERIAL	FOR OFFICIAL USE ONLY	T/M/S	SERIAL
71	05	31	1300(H)	64-13116			

F. (Continued)

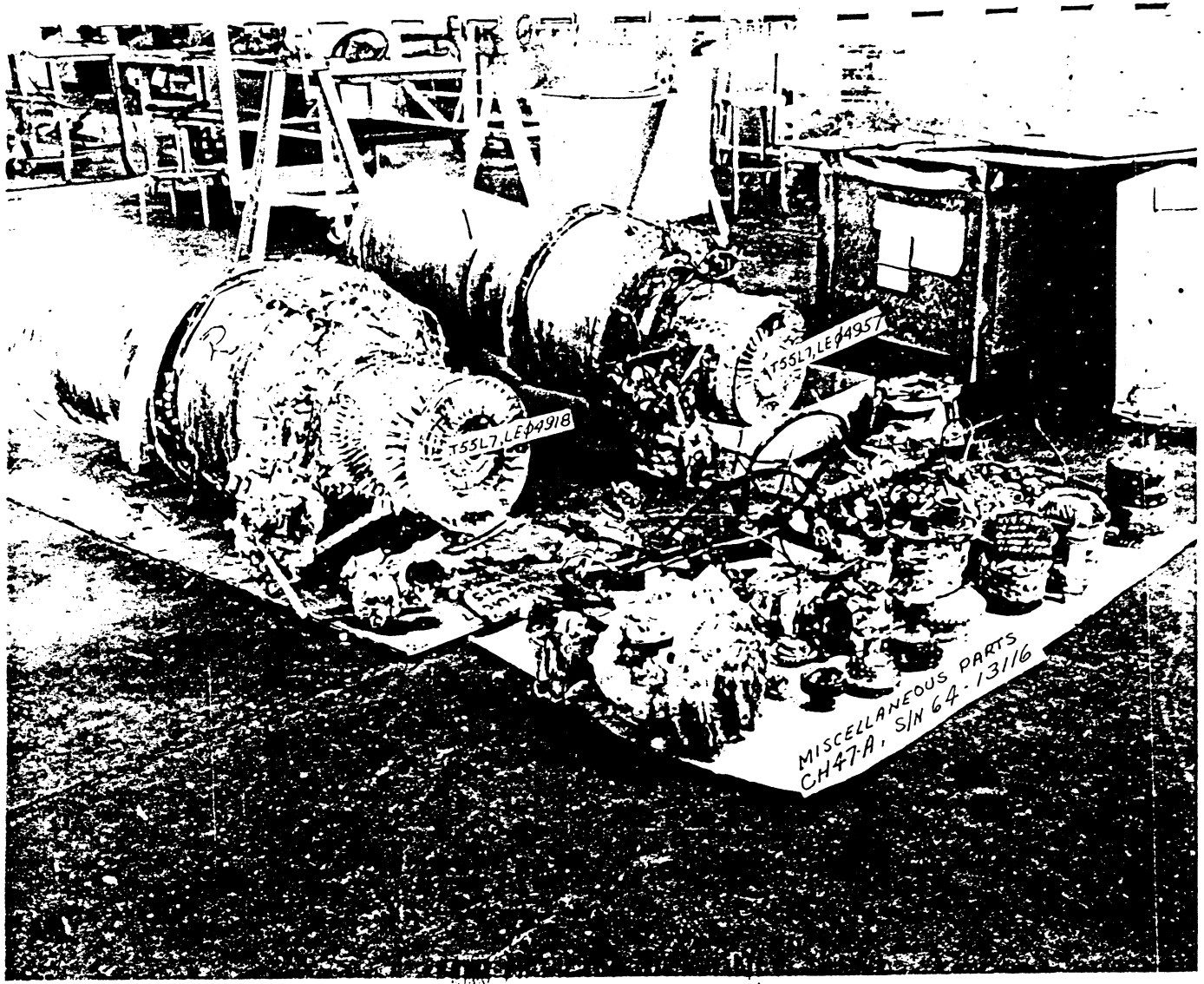
4. Parts and components that could be examined showed no evidence of failure prior to impact and fire.

G. CONCLUSIONS:

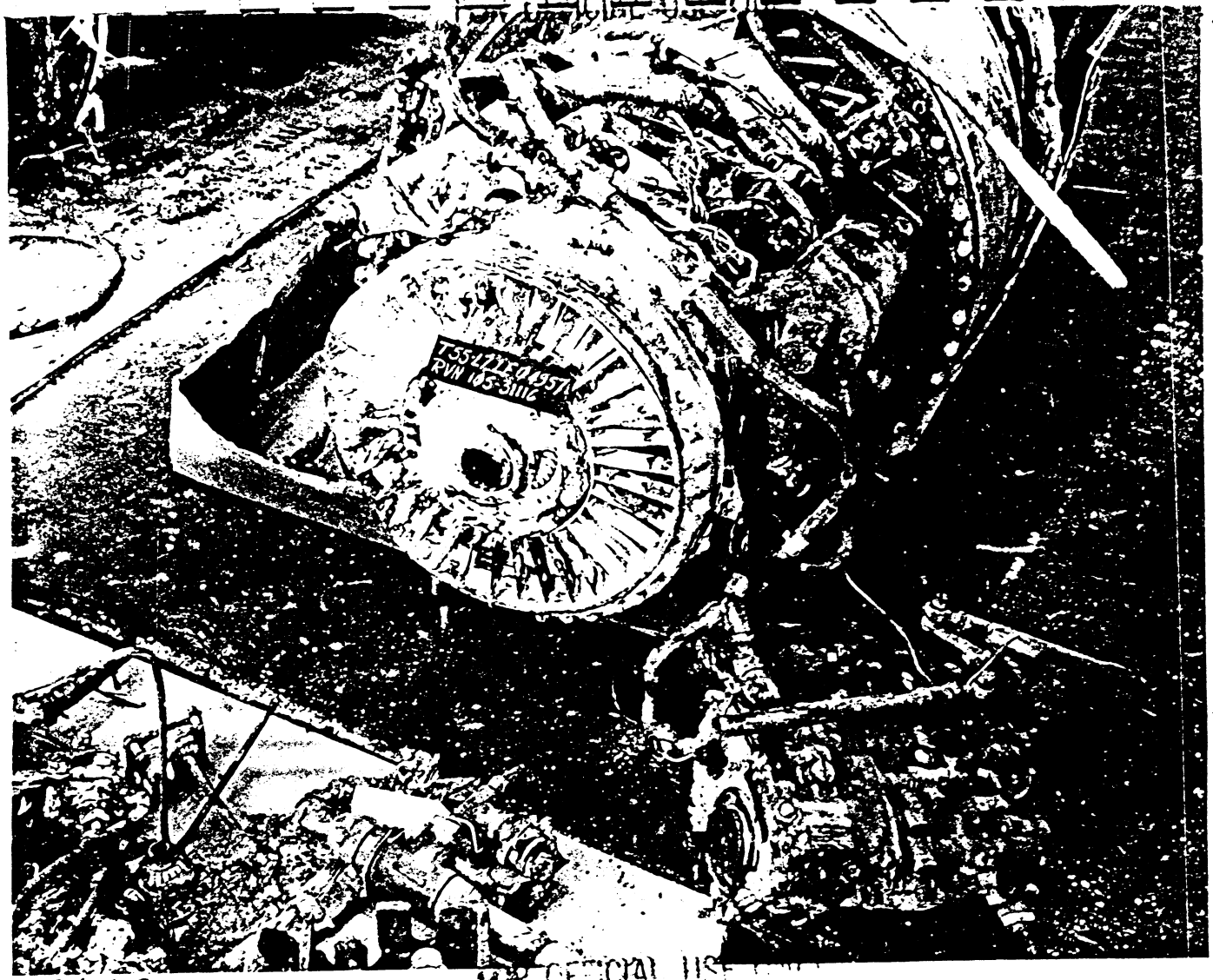
Visual and microscopic inspection of the miscellaneous parts failed to reveal a physical failure that could have caused the loss of power to either engine.

16 Incl
as

AIRCRAFT MISHAP CASE NO.						OTHER AIRCRAFT	
YR	MO	DA	TIME	A/C SERIAL		T/M/S	SERIAL
71	05	31	1300(II)	64-13116	FOR OFFICIAL USE ONLY		


T55L7, LE#4957
T55L7, LE#4918
MISCELLANEOUS PARTS
CH47-A, S/N 64-13116

INCL 1.



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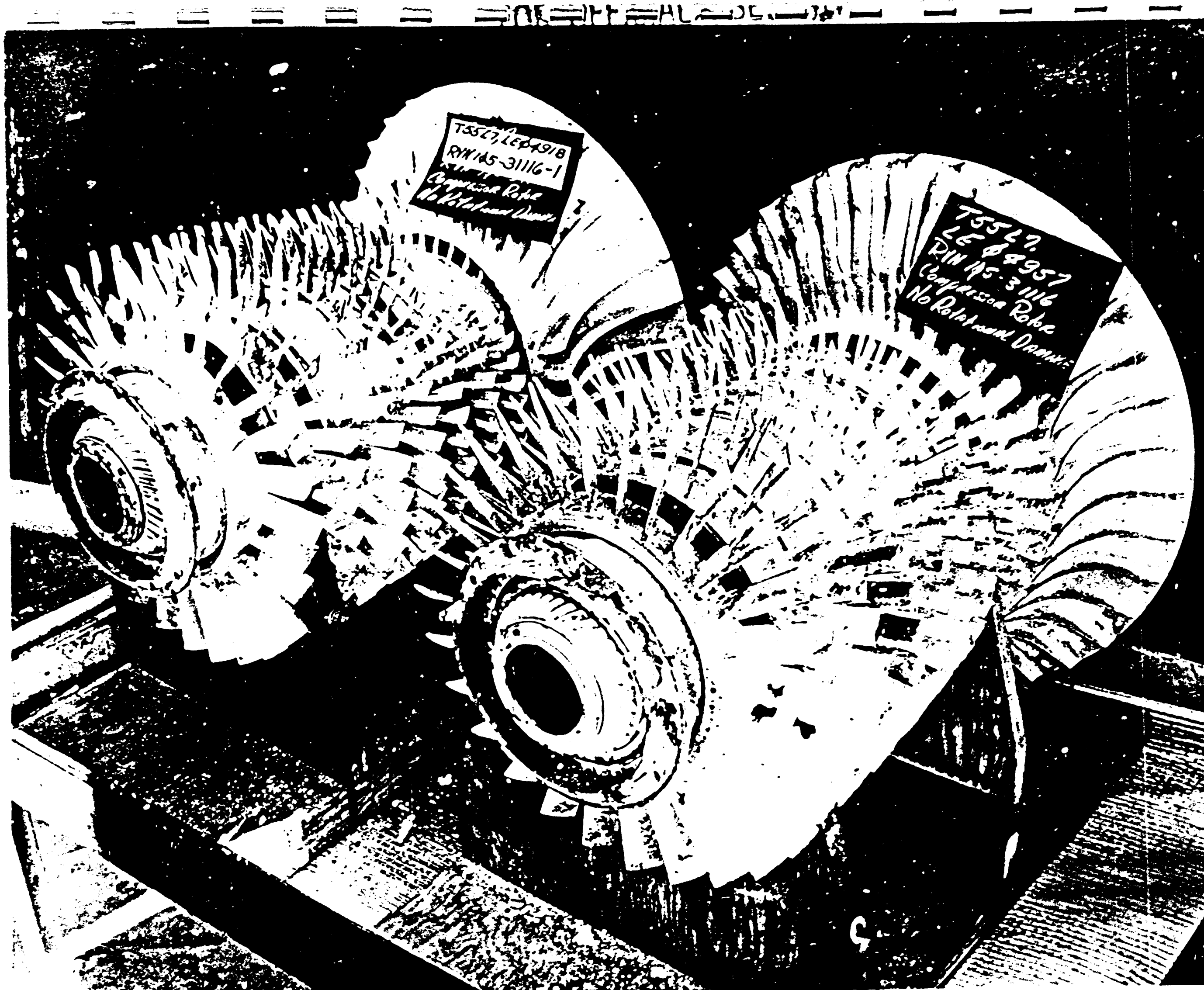

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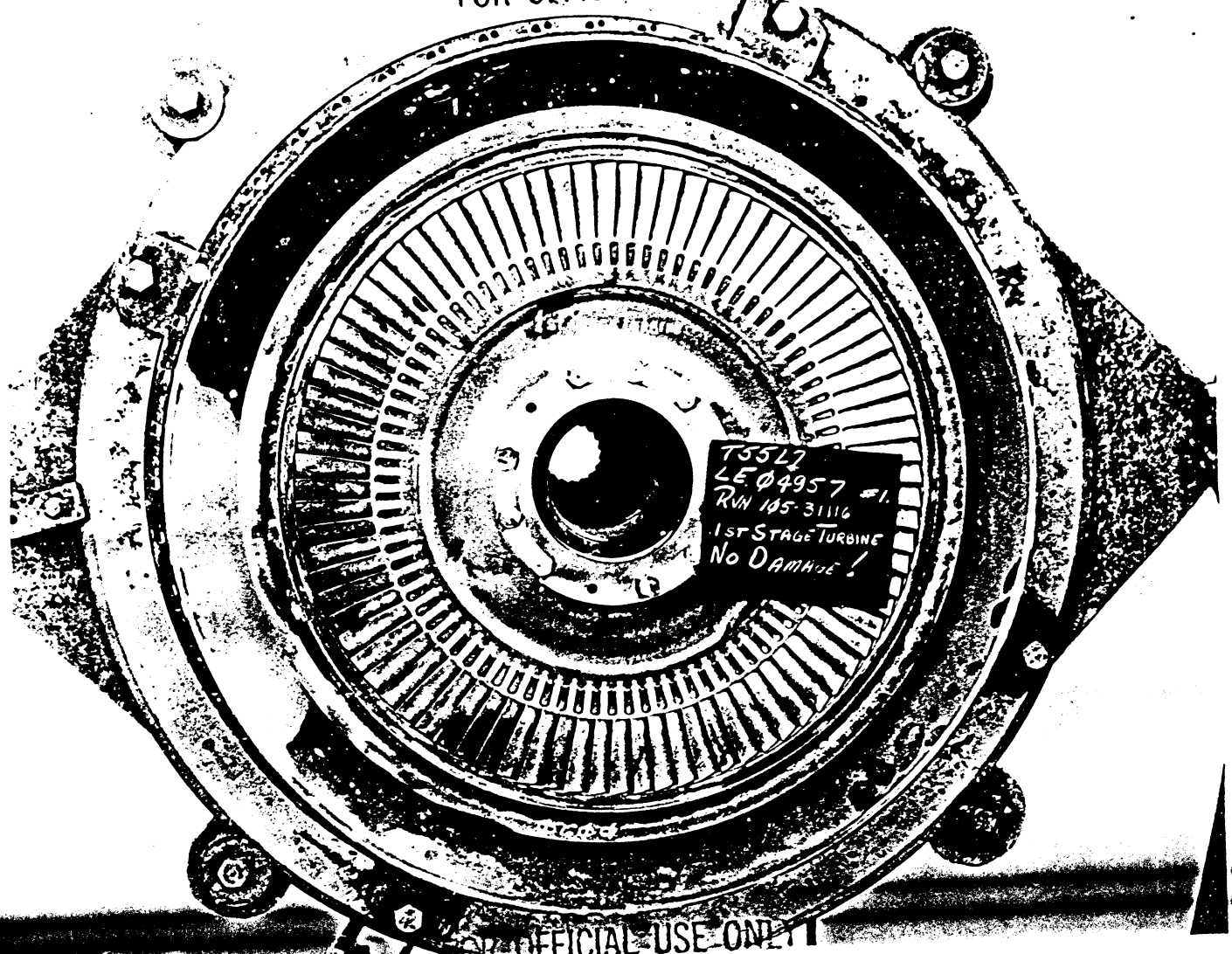

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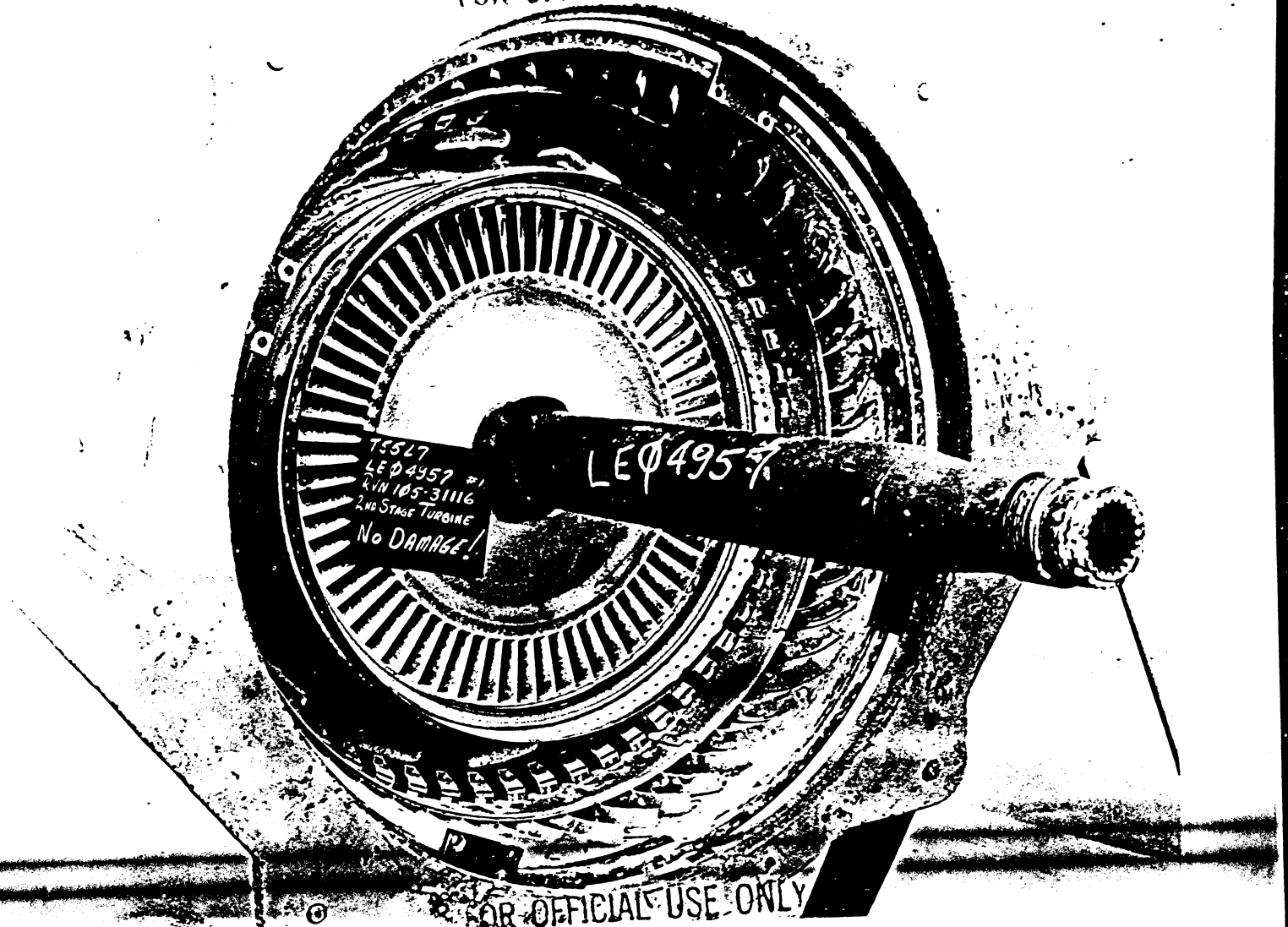
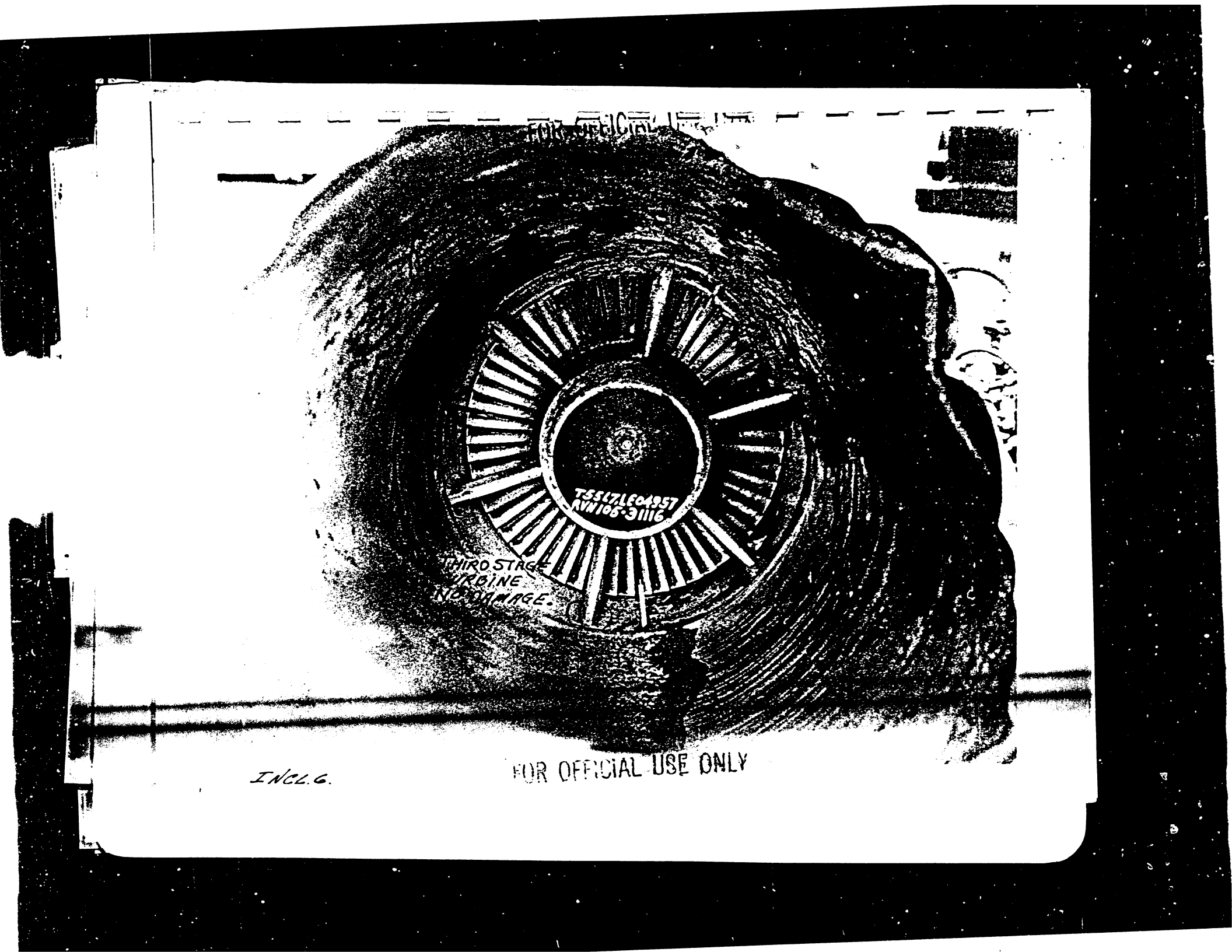
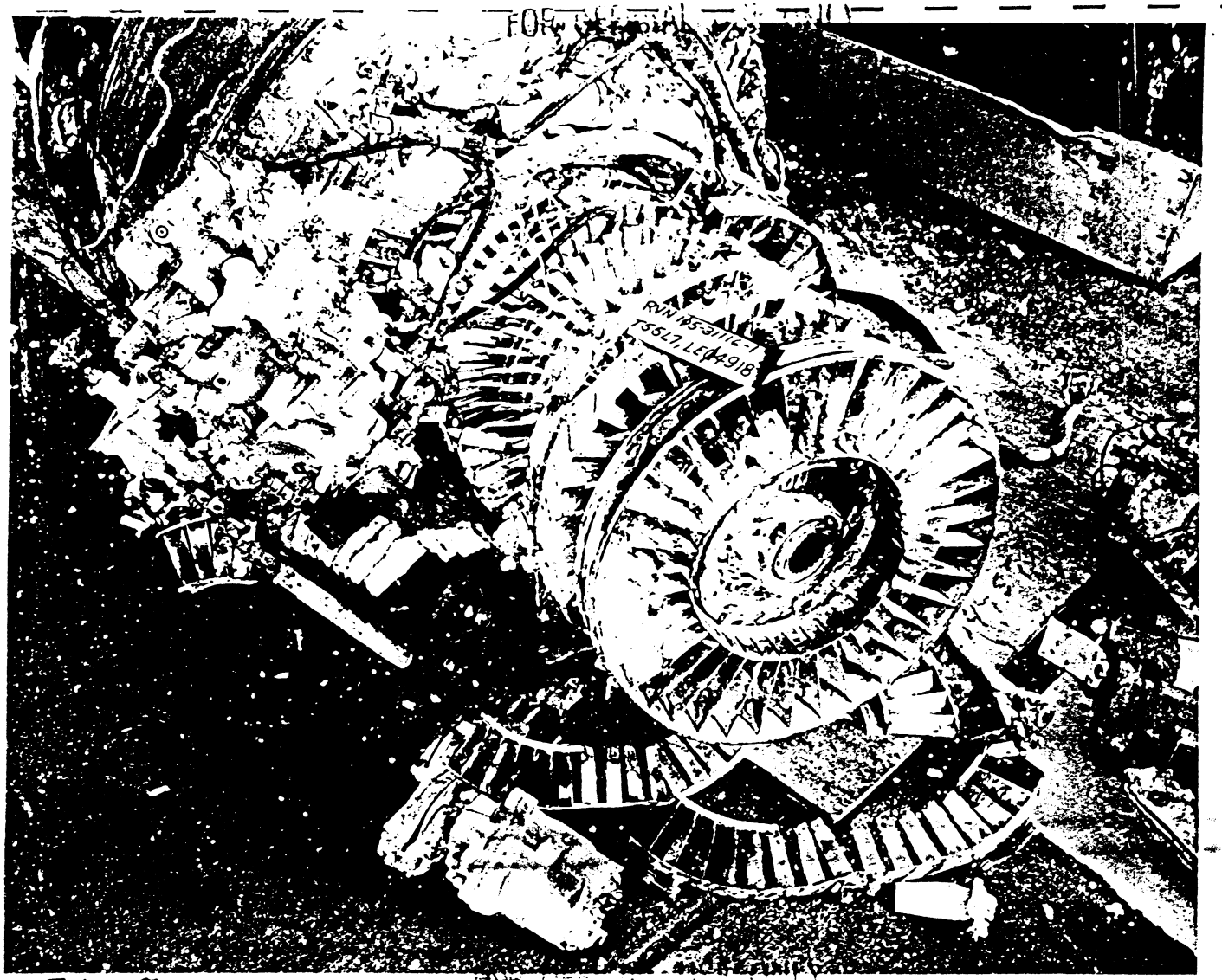


INCL. 5.

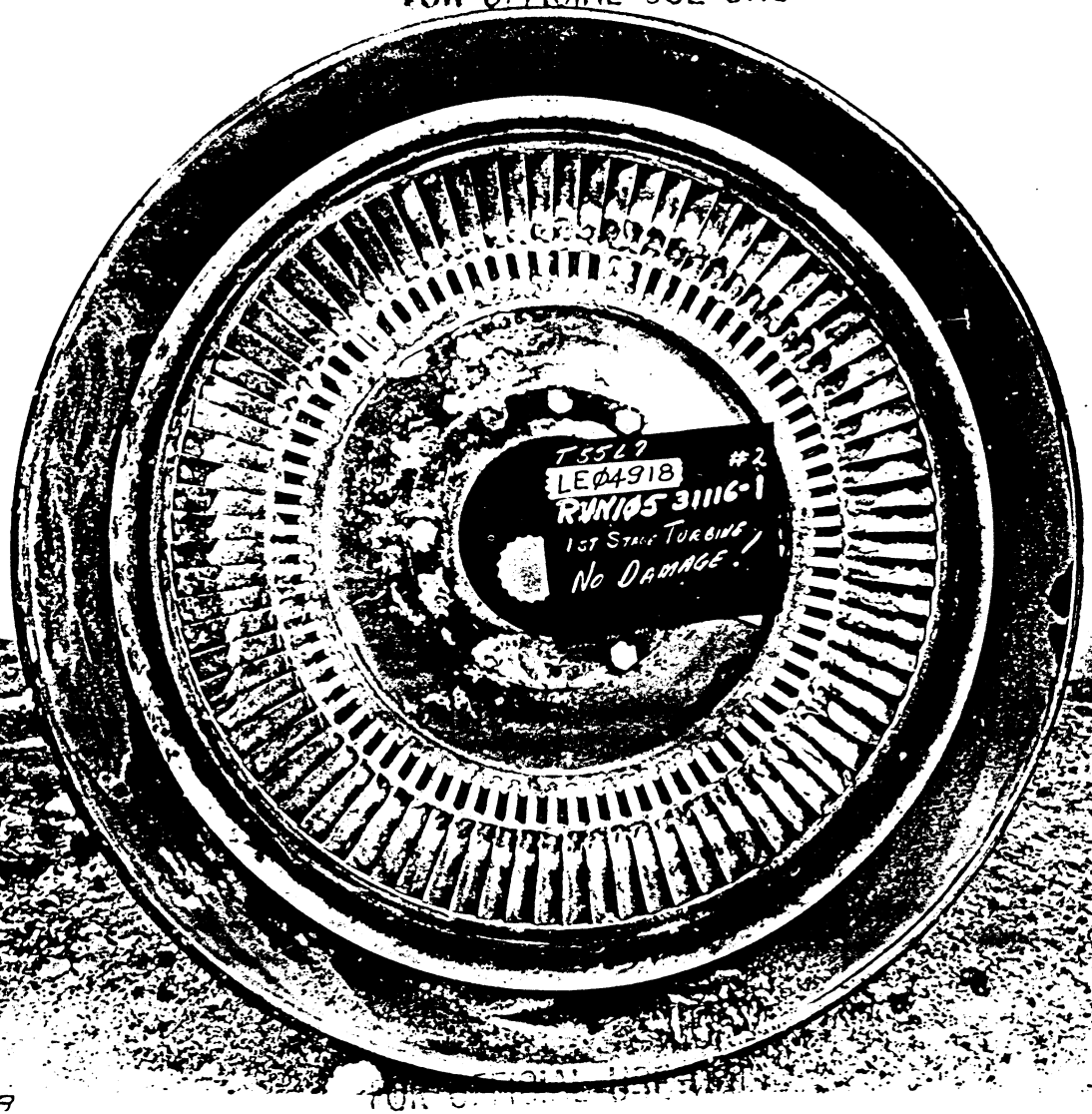


INCL. 6.

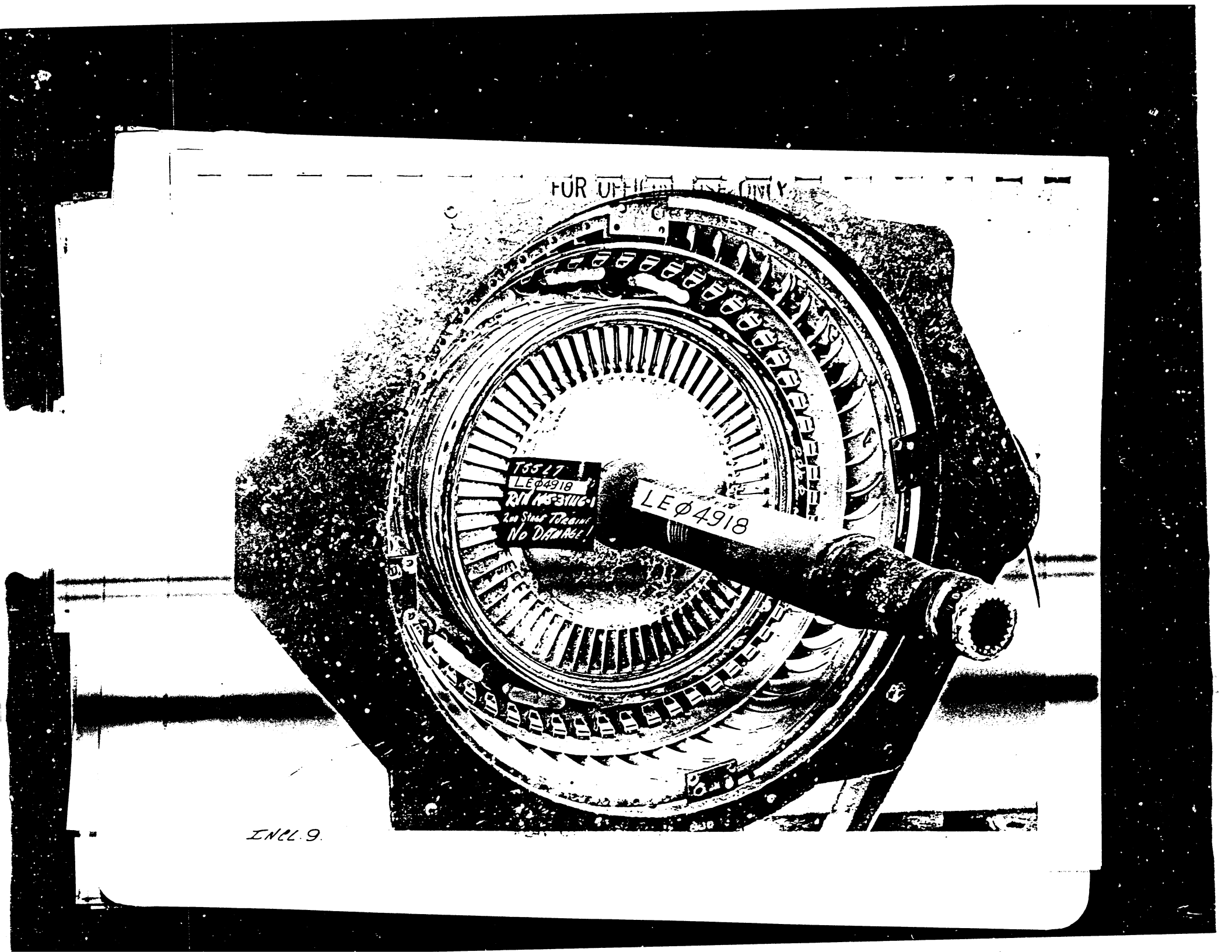
FOR OFFICIAL USE ONLY



INCL. 7

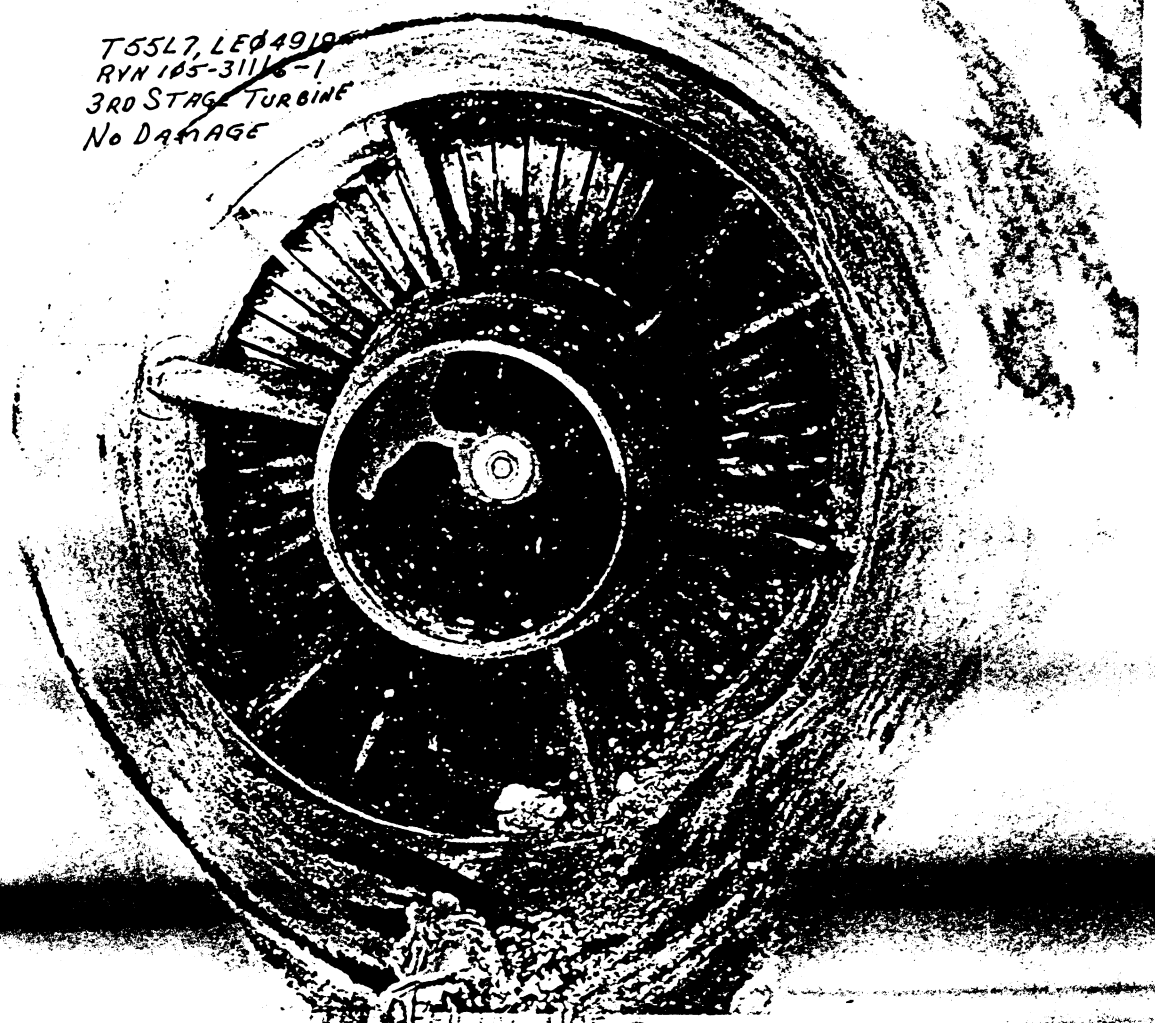


INCL A


FOR OFFICIAL USE ONLY
T3527
LEØ4918
RH MS-31116-1
2m Strut Tension
No DAMAGE!
LEØ4918

INCL 9.

T55L7, LE04910
RYN 165-3111-1
3RD STAGE TURBINE
NO DAMAGE



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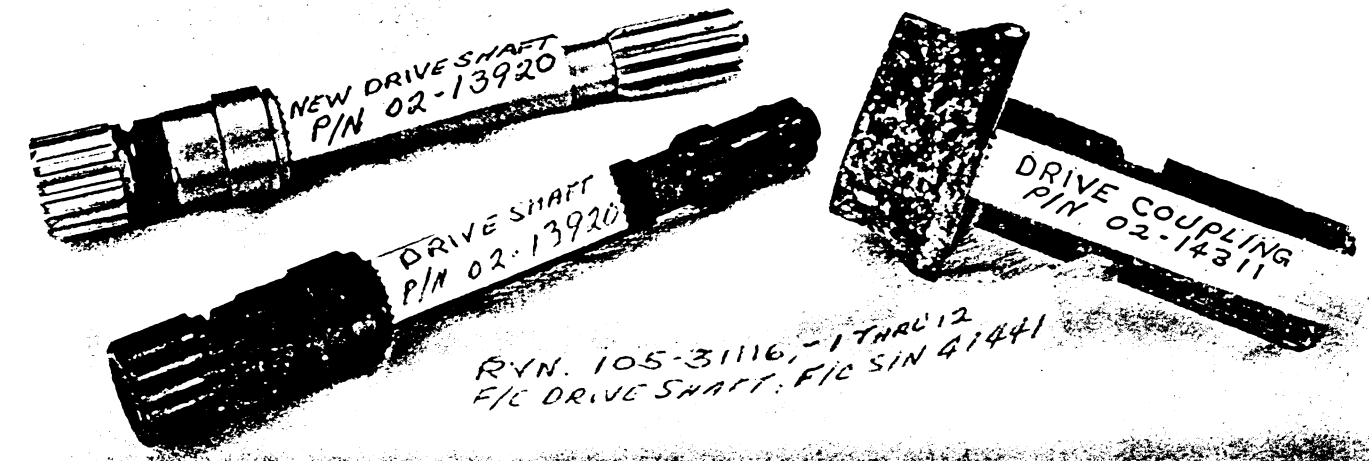
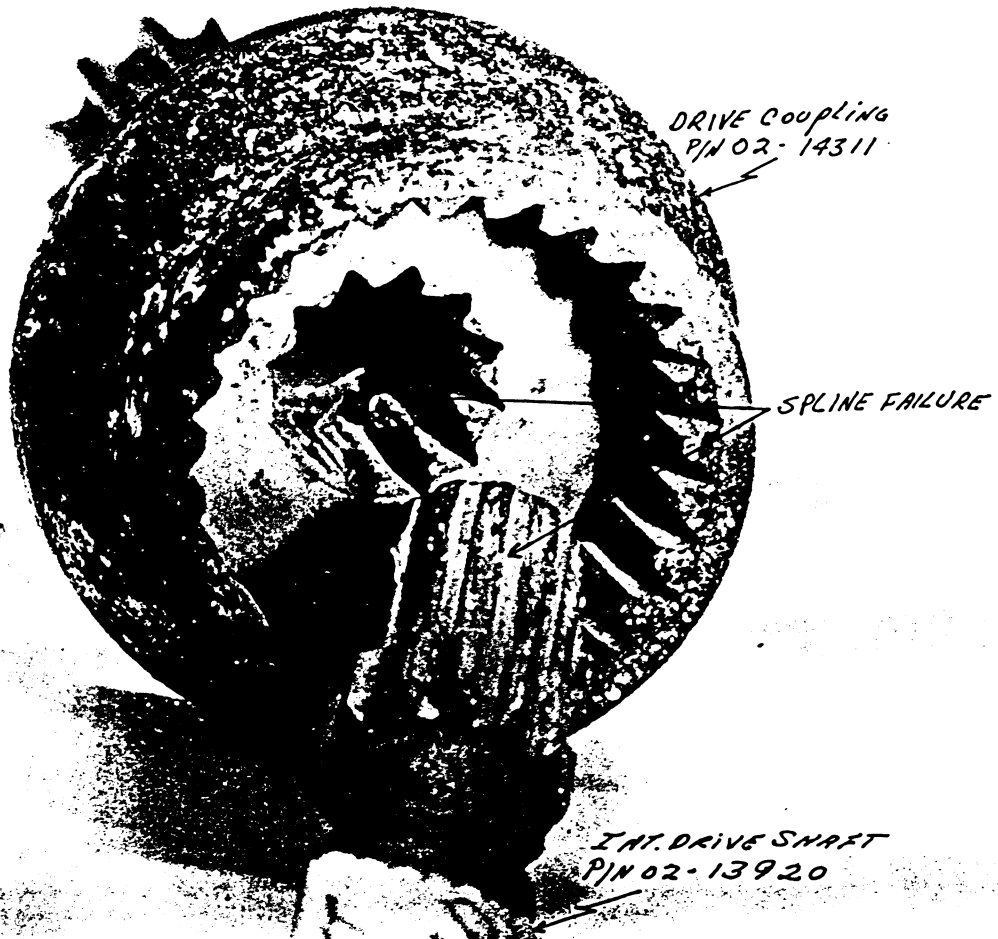


R'VN. 105-31116, -1 THRU 12
F/C DRIVE SHAFT: F/C SIN 41441

INCL. 11.


DRIVE COUPLING
P/N 02-14311
SPLINE FAILURE
INT. DRIVE SHAFT
P/N 02-13920

INV. 62.

DEPARTMENT OF THE ARMY
U.S. ARMY AERONAUTICAL DEPOT MAINTENANCE CENTER
CORPUS CHRISTI, TEXAS 78419

Chemical-Metallurgical Division
Laboratory Report Number 71MX178

19 August 1971

SUBJECT: RVN Log Number 105-31116
T55-L7 Engine, S/N LE04198
Failure of Fuel Control
Drive Shaft Coupling, P/N 02-14311
Internal Drive Shaft, P/N 02-13920

HISTORY: The subject engine was reported to have failed in flight. The magnesium and aluminum components of the engine were destroyed in the post crash fire. Teardown analysis of the remaining components disclosed the failure of the splined coupling between the internal drive shaft and drive shaft coupling of the fuel control. The total time for this engine was reported to be 1368 hours and the time since overhaul was 172 hours. The TT and TSO for the fuel control are unknown.

OBJECTIVE: To determine the mode and cause of the fuel control coupling failure.

ANALYSIS:

1. The damage to the male splines on the internal drive shaft and the female splines on the drive shaft coupling occurred by abrasive wear (See Incl 14 and Incl 15). This is a form of progressive or time dependent damage in which time is a function of coupling design and the torque transmitted by the coupling. This coupling is located in the fuel system and is not lubricated. The damage to both the male and female splines is typical of spline failures in unlubricated splines or the splines in couplings where the lubricating system has failed.

2. The cause of the coupling failure cannot be determined because of fire damage and the absence of positive information on the materials and specified properties of the splines. The failure was probably initiated by either fretting corrosion or the introduction of a foreign abrasive material into the coupling. In either case, abrasive wear would occur at an increasing rate until one of the splines (the male splines on the internal drive shaft) failed. The acceleration of the wear rate results from the retention of wear particles in the coupling.

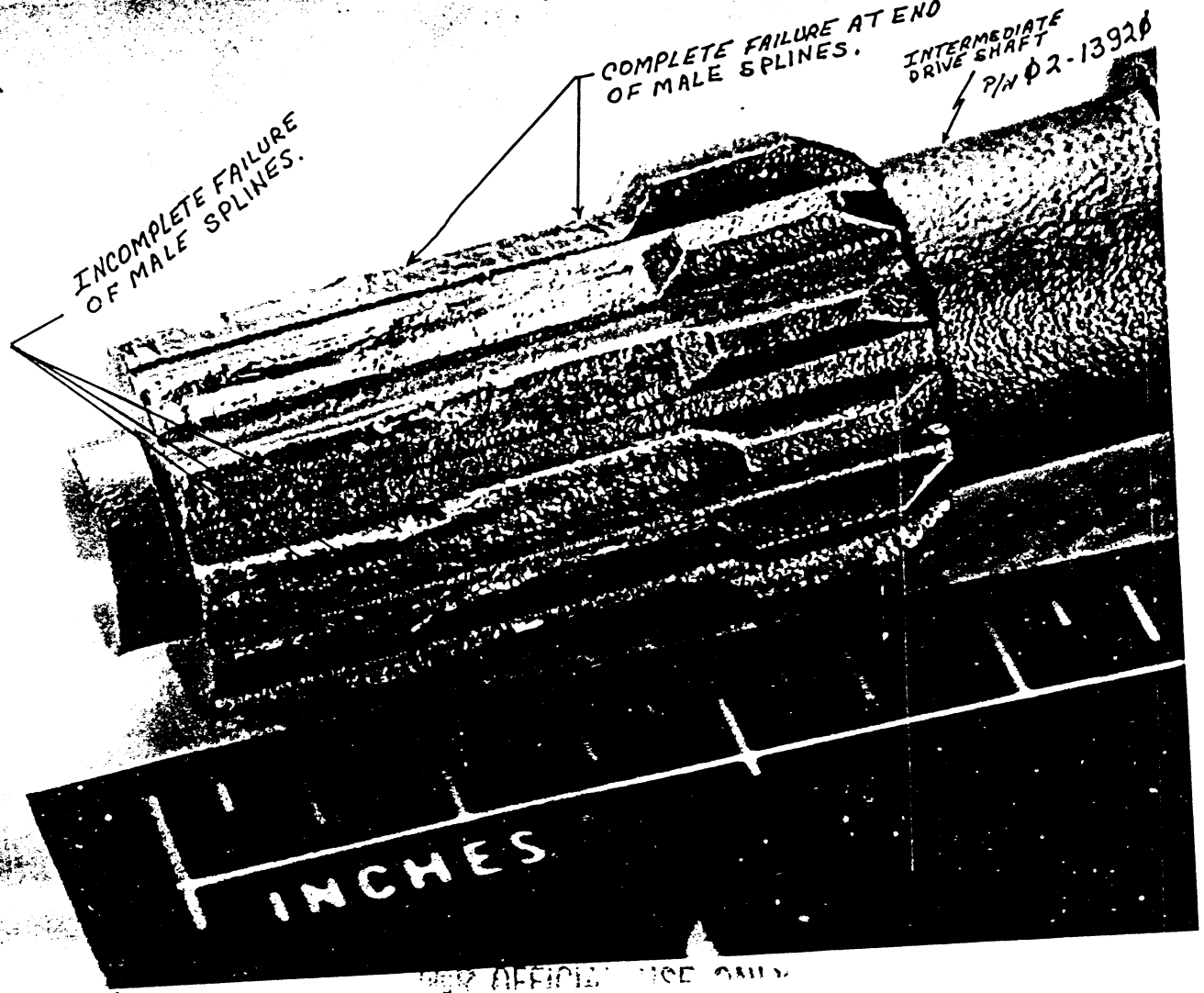
3. Metallographic examination of sections through the splines indicated that both splines had received surface hardening treatments. The male splines on the internal drive shaft appeared to be carburized AISI 9310 (AMS 6260) or a similar carburizing steel. Microhardness measurements indicate some decarburization about 0.001 inches at the surface but below that, a hardness which is substantially the same across the diameter of the shaft, about R_C 40. The female splines in the drive shaft coupling appear to be nitrided AMS 6470 or a similar nitriding steel. Microhardness measurement on a section of the coupling indicates the coupling was probably nitrided nitralloy. The average hardness of the surface is R_C 54 and the average hardness of the core was R_C 30. The loss of hardness in both components was caused by overtempering and decarburization during the post crash fire.

RECOMMENDATION:

No history of failures or impending failures in this coupling is available. The total operating time and time since overhaul for the fuel control are unknown and probably can not be determined with certainity. Because the failure of the internal drive shaft splines can result in engine failure, the effect of operating time on wear damage in this coupling should be evaluated. This evaluation should include the removal and inspection of the drive shaft coupling and internal drive shaft from 10 or more high time fuel controls with known operating times. Any splines showing a preceptable wear depth should be submitted to the laboratory for metallurgical evaluation.

W. H. ROBERTS
METALLURGIST

E. E. JUELG, CHIEF
CHEM/MET DIVISION


INCOMPLETE FAILURE OF MALE SPLINES.
COMPLETE FAILURE AT END OF MALE SPLINES.
INTERMEDIATE DRIVE SHAFT P/N Ø2-1392Ø
INCHES

INCL. 14.

FOR OFFICIAL USE ONLY

DRIVE SHAFT COUPLING
P/N ϕ2-14311

FOR OFFICIAL USE ONLY

INCL. 15.

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

REFERENCE OR OFFICE SYMBOL	SUBJECT	
SAVAE-QA	Inspection of All T-55 Fuel Controls	

FROM: CH/MATL ANAL DIV DATE: 27 Aug 71 CMT 1
T. Adams/ps/2902

XXXX THRU: DFQ

TO: CH/MAINT QUAL CONT DIV

1. This division completed a teardown investigation on the engines and fuel controls of a CH-47 accident. Fatalities were involved.

2. It was determined from the results of this investigation that the primary cause of engine failure was the failure of the intermediate drive shaft in the fuel control, P/N 02-13920, from extensive wear between the lower shaft splines and the female splines in the drive coupling.

3. On 23 August 1971, another T-55 fuel control was inducted for teardown investigation. The results of this failure was identical to the above failure.

4. Mr. Shipley, fuel control supervisor, has verbally advised that he estimates that he is experiencing approximately 30% rejection rate on this intermediate drive shaft, P/N 02-13920, on all T-55 fuel controls processed through the fuel control shop.

5. In view of the above, request that the work specifications be reviewed to insure that all T-55 fuel controls received at ARADMAC are inspected 100% for excessive wear of the intermediate drive shaft and drive coupling.

Eugene A. Wilson

EUGENE A. WILSON
Chief, Materiel Analysis Division

Incl 16

DA FORM 1 FEB 62 2496 REPLACES DD FORM 96, EXISTING SUPPLIES OF WHICH WILL BE ISSUED AND USED UNTIL 1 FEB 63 UNLESS SOONER EXHAUSTED.

GPO: 1970—381-701