

AFR 110-14 AIRCRAFT ACCIDENT INVESTIGATION REPORT

NUCLEAR REGULATORY COMMISSION

Bucket No. _____ Official Ex. No. 110

in the matter of PFS

Stat. _____ IDENTIFIED ☒

Applicant ☒ RECEIVED ☒

F-16C, #88-0408101 _____ REJECTED _____

3 April 1990 _____ WITHDRAWN _____

DATE 7/1/02 Witness _____

Clerk _____



DOCKETED
USNRC

2003 JAN 15 AM 11:34

OFFICE OF THE SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

342-94-229
17-30-86-4-1

KUNSAN AB, REPUBLIC OF KOREA

PFS Exh. 110

56887

USAF MISHAP REPORT

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Additional Substantiating Data Reports

Statement of Damage to Private Property

Orders Appointing Investigating Board

Programs (Fallout-Impact Area, etc.)

Photographs

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

AF FORM 711 PREVIOUS EDITION IS OBSOLETE.

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AFTO Form 781 Series

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Diagrams (Fallout-Impact Area, etc.)

Photographs

A

B

C

AIRCRAFT FLIGHT MISHAP REPORT									
To be filled out for principal aircraft involved. Appropriate items only should be filled out on secondary aircraft.									
1. MISHAP CLASS <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> DEST		2. ACFT MOD & SERIAL NO F-16C 88-0408		3. DATE 90-04-03		4. UNIT CONTROL NO 8 TFW 6-A-2		5. ACFT ASSIGNMENT/STATUS CODE PACAF/CC	
PILOT(S) INVOLVED (FLIGHT CREW)									
OPERATOR AT CONTROLS									
A. LAST NAME INITIALS HOWELL, STEPHEN R.					B. COMPONENT REG AF				
C. POSITION IN AIRCRAFT AT TIME OF MISHAP <input checked="" type="checkbox"/> FRONT SEAT <input type="checkbox"/> LEFT SEAT <input type="checkbox"/> REAR SEAT <input type="checkbox"/> RIGHT SEAT <input type="checkbox"/> JUMP SEAT					D. NATIONALITY USA		E. AGE 34		
F. MAJCOM, NAF, DIV, WG, SQ ASSIGNED PACAF, 7 AF, 8 TFW, 80 TFS					G. MAJCOM, NAF, DIV, WG, SQ ATTACHED FOR FLYING SAME				
OTHER PILOT									
A. LAST NAME INITIALS N/A					B. COMPONENT				
C. POSITION IN AIRCRAFT AT TIME OF MISHAP <input type="checkbox"/> FRONT SEAT <input type="checkbox"/> LEFT SEAT <input type="checkbox"/> REAR SEAT <input type="checkbox"/> RIGHT SEAT <input type="checkbox"/> JUMP SEAT					D. NATIONALITY		E. AGE		
F. MAJCOM, NAF, DIV, WG, SQ ASSIGNED					G. MAJCOM, NAF, DIV, WG, SQ ATTACHED FOR FLYING				
OTHER PILOT									
A. LAST NAME INITIALS N/A					B. COMPONENT				
C. POSITION IN AIRCRAFT AT TIME OF MISHAP <input type="checkbox"/> FRONT SEAT <input type="checkbox"/> LEFT SEAT <input type="checkbox"/> REAR SEAT <input type="checkbox"/> RIGHT SEAT <input type="checkbox"/> JUMP SEAT					D. NATIONALITY		E. AGE		
F. MAJCOM, NAF, DIV, WG, SQ ASSIGNED					G. MAJCOM, NAF, DIV, WG, SQ ATTACHED FOR FLYING				
OTHER PILOT									
A. LAST NAME INITIALS N/A					B. COMPONENT				
C. POSITION IN AIRCRAFT AT TIME OF MISHAP <input type="checkbox"/> FRONT SEAT <input type="checkbox"/> LEFT SEAT <input type="checkbox"/> REAR SEAT <input type="checkbox"/> RIGHT SEAT <input type="checkbox"/> JUMP SEAT					D. NATIONALITY		E. AGE		
F. MAJCOM, NAF, DIV, WG, SQ ASSIGNED					G. MAJCOM, NAF, DIV, WG, SQ ATTACHED FOR FLYING				
CLEARANCE									
FROM KUNSAN AB, ROK					TO KUNSAN AB, ROK				
<input type="checkbox"/> VFR <input checked="" type="checkbox"/> IFR <input checked="" type="checkbox"/> LOCAL <input type="checkbox"/> PT TO PT					<input type="checkbox"/> DIRECT <input type="checkbox"/> AIRWAYS <input type="checkbox"/> NO CLEARANCE <input type="checkbox"/> NA				
11. DURATION OF FLIGHT HOURS 0 TENTHS 5			12. TYPE OF MISSION DFM			13. ALTITUDE/ELEVATION 24000' MSL/AGL			
14. PHASE OF OPERATION IN FLIGHT ACROBATICS					15. TYPE OF MISHAP FIRE IN FLIGHT				
16. METEOROLOGICAL CONDITIONS					<input checked="" type="checkbox"/> VMC <input type="checkbox"/> SIMULATED IMC <input type="checkbox"/> TRANSITION <input type="checkbox"/> IMC <input type="checkbox"/> ON TOP <input type="checkbox"/> VFR IN IMC CONDITIONS				
17. AIRFIELD DATA APPLICABLE TO TAKEOFF AND LANDING MISHAPS OCCURRING WITHIN 2 MILES OF AIRFIELD									
A. FIELD ELEVATION (Feet)			B. COMPOSITION OF RUNWAY <input type="checkbox"/> ASPHALT <input type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER (Specify)						
C. LENGTH OF RUNWAY (Feet)		D. RUNWAY HEADING		E. DISTANCE OF TOUCHDOWN FROM RUNWAY (Feet)		F. SURFACE CONDITION <input type="checkbox"/> DRY <input type="checkbox"/> WET <input type="checkbox"/> OTHER (Specify)			
G. LENGTH OF OVERRUN		H. COMPOSITION OF OVERRUN (Specify)		I. BARRIER TYPE USED <input type="checkbox"/> YES <input type="checkbox"/> NO LOCATION					
J. CONDITIONS AFFECTING OCCURRENCE (If for example type of instrument or lighting approach used obstructions, barrier, airspeed ground weight, forced landing)									

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TAB LETTER	USAF MISHAP REPORT CHECKLIST AND INDEX	NOT APPLICABLE	APPLICABLE NOT ATTACHED	ATTACHED
I. FACTS				
A	AF FORM 711			XXX
B	AF FORM 711A	XXX		
C	AF FORM 711B			XXX
D	AF FORM 711C			XXX
E	AF FORM 711D	XXX		
F	AF FORM 711E	XXX		
G	FLIGHT AND PERSONNEL RECORDS			XXX
H	AFTO FORM 781 SERIES			XXX
I	MATERIEL DEFICIENCY REPORT			XXX
J	TECHNICAL OR ENGINEERING EVALUATIONS OF MATERIEL (<i>Department of Defense</i>)			XXX
K	DD FORM 175 OR AUTHORIZED SUBSTITUTE FLIGHT PLAN FORMS (<i>See AFR 40 16</i>)	XXX		
L	DD FORM 365F WEIGHT AND BALANCE CLEARANCE FORM F			XXX
M	CERTIFICATE OF DAMAGE (<i>List of parts damaged</i>) MANHOURS REQUIRED TO REPAIR, AND COST			XXX
N	TRANSCRIPTS OF RECORDED COMMUNICATIONS			XXX
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P	STATEMENT OF DAMAGE TO PRIVATE PROPERTY			XXX
Q	ORDERS APPOINTING INVESTIGATING BOARD			XXX
R	DIAGRAMS (<i>Fallout-impact area etc.</i>)			XXX
S	PHOTOGRAPHS			XXX
II. BOARD OR INVESTIGATOR ANALYSIS				
T	INVESTIGATION, ANALYSIS, FINDINGS AND RECOMMENDATIONS			XXX
U	STATEMENTS AND TESTIMONY OF WITNESSES AND PERSONS INVOLVED			XXX
V	REBUTTALS	XXX		
W	TECHNICAL AND ENGINEERING EVALUATIONS OF MATERIEL (<i>Contractors</i>)			XXX
X	AF FORM 711F	XXX		
Y	AF FORM 711G			XXX
Z	BOARD PROCEEDINGS	56892	XXX	

WHENEVER "APPLICABLE BUT NOT ATTACHED" COLUMN IS MARKED FOR ANY OF THE ABOVE ITEMS, INFORMATION MUST BE ENTERED UNDER REMARKS TO INDICATE WHAT ACTION HAS BEEN TAKEN OR WILL BE TAKEN TO OBTAIN THE REQUIRED ATTACHMENT. LETTERED TABS SHOWN ABOVE WILL BE INSERTED FOR CORRESPONDING ATTACHED ITEMS, I.E., TAB C WILL ALWAYS BE USED FOR INDIVIDUAL FLIGHT RECORDS, TAB N FOR TRANSCRIPTS OF RECORDED COMMUNICATIONS. TABS WILL BE OMITTED ON THOSE ITEMS NOT APPLICABLE.

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TAB H

AFTO FORM 781 SERIES

ENGINE HISTORY.....H-1 - H-2

ENGINE HISTORY

<u>DATE</u>	<u>REMARKS</u>
7 Apr 89	Engine received at General Dynamics, Fort Worth, Texas
28 Jul 89	TCTO 551 C/W - Replacement of main engine control variable stator vane lever arm. TCTO 570 C/W - Borescope inspection of combustor assemblies TCTO 553 C/W - Remove and replace suspect main engine control TCTO 572 C/W - Inspection of fuel/oil cooler tube flange and cover plate bolts.
31 Jul 89	TCTO 566 C/W - Inspection of hydraulic pumps for TCTO 2J-F110-530 compliance
2 Aug 89	Engine installed in aircraft 88-0408
7 Aug 89	Leak check performed of all lines/joints broken after acceptance test
21 Aug 89	Aircraft accepted by U.S. Air Force
11 Sep 89	Aircraft transferred to Kunsan AB, KOR
9 Nov 89	TCTO 580 C/W - Inspection of fuel manifold P/N 1276M53601 and 1276M52601 by pressure test
24 Nov 89	Local TCTO L890013 C/W - One time inspection of LPT fairing
27 Nov 89	TCTO 576 C/W - Visual inspection of hydraulic pumps P/N 1155M46P07 and 1156N46P08 Vickers model #RPV3-104-3D head port relief valve P/N 408597
5 Dec 89	50-hour inspection performed
10 Dec 89	TCTO 584 C/W - Inspection of fuel manifold sectors
11 Dec 89	TCTO 583 C/W - Inspection of turbine frame outer fairing segments and outer fairings.
22 Dec 89	Removed and replaced augments fan temperature control for hung start.
27 Dec 89	Local TCTO L890014 C/W - Inspection of main chip detector for installation, proper locking, and security

DATEREMARKS

31 Jan 90	50-hour inspection performed TCTO 581 C/W - Nondestructive inspection of hydraulic pump head port relief valve
1 Feb 90	Local TCTO L900001 C/W - Identification and recording of all first stage rotor blades stamped with or without the letter 'R' on the blade.
12 Feb 90	Removed and replaced broken anti-ice sensor
15 Feb 90	Removed and replaced fuel filter and indicator for popped delta 'P' indicator
23 Feb 90	TCTO 593 C/W - Removal of main fuel pump from service
26 Feb 90	Removed and replaced pyrometer for engine fault #65
28 Feb 90	Removed and replaced PTO shaft carbon seal for oil leak
5-7 Mar 90	#1 Phase Inspection performed 50-hour engine inspection performed Removed and replaced two divergent seals
6 Mar 90	TCTO 593C C/W - Inspection of data plate on main fuel pump TCTO 550C C/W - Increase torque values on augments fuel filter discharge port and augments fuel control fuel supply tube from 50-70 in-lbs to 110-120 in-lbs. TCTO 581C C/W - Identification by part number and serial number of hydraulic pump head port relief valves that do not require nondestructive inspection

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TAB I

MATERIAL DEFICIENCY REPORT

SERVICE REPORT (SR)	I-1
MISHAP CONTROL NUMBER MESSAGE FOR SR	I-2

(Aft)

^A ^1=
^110=90 0415 C1 8TFW
^115=N/A
^130=90/04/16
^140=4710-01-200-5571
^150=AUGMENTOR FUEL PUMP TO AUGMENTOR FUEL CONTROL FUEL SUPPLY TUBE
^155=GENERAL ELECTRIC
^160=8TFW/MAOR
^170=1295M72G01
^180=UNK
^200=NEW
^210=UNK
^220=236.0
^245=F110-GE-100
^250=509828
^260=88-0408
^280=YES
^290=27GDD

520
F16C

315=MILTON CALDWELL JR., TSGT, AV 782-4937
070=90/04/17

300=EXHIBIT NOT AVAILABLE

310=NARRATIVE: THE ENGINE ENTERED THE SHOP FOR INVESTIGATION TO DETERMINE THE CAUSE OF ENGINE FAILURE DURING AN AIRCRAFT MISHAP. DURING TEARDOWN OF THE ENGINE, DISCOVERED FUEL LEAKING FROM THE FLANGE OF THE FUEL TUBE. TCTOS M-F110-550, 550C. AND 598 HAVE BEEN ISSUED TO CORRECT THE PROBLEM OF LEAKAGE IN THIS TUBE. HOWEVER, FUEL CONTINUES TO LEAK FROM THESE FLANGES, CAUSING A BUILD UP OF FUEL IN THE ENGINE BAY, RESULTING IN ENGINE FIRES. RESTRICTIONS HAVE BEEN ISSUED TO STOP AUGMENTOR OPERATIONS UNTIL THE PROBLEM IS RESOLVED. REQUEST THE FLANGE ON THE TUBE ARE INSPECTED FOR PROPER SEATING CHARACTERISTICS OR SIGNS OF IMPROPER TORQUING PROCEDURES. THE ITEM IS AT GENERAL ELECTRIC IN HHD ON EXHIBIT.

1-GE
4-MAOR
18/11/90
F-

#1

19-APR-1990 03:53:05

NEWMAIL

From: INFO5::TFW8
To: CASSITY, VEROS, TFW8
Subj: ADDITIONAL INFORMATION

1. FOR SERVICE REPORT "90 0415 C1 BTFW" PLEASE ADD THE FOLLOWING DATA TO THE SUBJECT: MISHAP CONTROL NUMBER BTFW 6-A-2.
2. PLEASE FORWARD ANY INFORMATION CONCERNING THIS REPORT TO US AS SOON AS POSSIBLE. THANKS, RAY

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TAB J

Technical and Engineering Evaluations of Material (DOD)

ASD Findings.....J-1 - J-2

17 Apr 90

Memorandum for Mishap Board

Subject: Findings from Crash Site and Teardown of ESN 509-828

1. This memorandum documents the two phases of investigation conducted on the in-flight failure of ESN 509-828.

2. Crash Site Findings:

a. The engine was found resting on the 3 o'clock position, aft-looking forward, and basically intact. The augmentor liner and exhaust nozzle section were bent at a 45 degree angle from the engine. The attached controls and accessories were intact with signs of impact damage and heating. The accessory gearbox was found several feet from the engine and was split into two halves.

b. The fan inlet guide vane actuator was never found and both the inlet struts and guide vanes were spread all over the area.

c. The stage one fan blade assembly and forward centerbody separated from the stage two assembly on impact. Stages two and three fan blade assemblies suffered from broken and separated blades.

d. The exhaust nozzle was found to have impact damage and heat distress. The nozzle position was determined to be fully closed.

e. The chip detector was never located and the fan turbine discharge temperature sensor was intact.

f. The augmentor fuel control suffered impact and fire damage. The flange on the control side of the tube showed signs of impact damage when the tube was bent. Additional inspection of the flange was performed in the engine shop.

3. Jet Engine Intermediate Maintenance (JEIM) Shop Teardown Findings:

a. The fan frame was ovalized with the second and third stages containing mud and debris. Several blades were found loose and damaged due to impact.

b. The number two bearing showed signs of heat distress.

c. The fan shaft was sheared during impact separating the fan from the low pressure turbine.

d. The number three bearing was severely distressed with only .19 of 20 bearings remaining. The bearing cage was also separated from the assembly upon impact. The bearings were deformed and black in color. The high pressure rotor could not be rotated by hand.

e. The fuel nozzles were pressure tested with fuel and a leak was found in one fuel nozzle. Examination of the nozzle revealed that the top of the nozzle suffered impact damage. This same nozzle also separated from the combustor due to impact damage. The fuel nozzle pigtail was capped off and the pressure test was repeated with no additional leaks.

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f. The high pressure compressor suffered FOD damage from mud and debris that entered the compressor. Several blades were broken and missing.

g. The combustor appeared normal when viewed with a rigid borescope.

h. The high pressure turbine blades were inspected and were found to be normal.

i. The number four roller bearing showed signs of high heat distress and all of the bearings had popped out during impact.

k. The number five bearing showed signs of high heat distress. The number five bearing sump also had signs of heat distress.

l. Examination of the augmentor fuel control to augmentor fuel tube interface revealed that the seal had blown through and that fuel had flown over the surface.

m. During examination of the exhaust nozzle a hydraulic line was found that had burst due to weakening from the in-flight fire.

4. ASD/YZYE Analysis:

a. ESN 509-828 suffered a fuel leak from the augmentor fuel tube where the tube attaches to the augmentor fuel control. The fuel collected in the bottom aircraft panels and vapors from this area migrated into the augmentor area. During augmented flight, these vapors were ignited and the fire traveled forward to ignite the collected fuel. This resulted in an in-flight fire that destroyed wiring and weakened one of the exhaust nozzle hydraulic lines. This hydraulic line burst and allowed all the lubrication from the system to be depleted. Without lubrication of all of the bearings rapidly degraded prior to impact.

SIGNED

EDWIN D. MORELAND, Capt, USAF
F110-GE-100 Project Engineer

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TAB N

TRANSCRIPTS OF RECORDED COMMUNICATIONS .

TRANSCRIPT OF COMMUNICATIONS - WACO 41.....N-1 - N-8
TRANSCRIPT OF COMMUNICATIONS - SOF.....N-9 - N-20
TRANSCRIPT OF COMMUNICATIONS - RAPCON.....N-21 - N-29

1. Subject & Date: Voice Communications, WACO 41, F-16C, Flight Lead, Kunsan AB Korea, 3 April 1990

2. Recording Facility: WACO 41, F-16C, Heads Up Display-Aircraft Video Tape Recorder (AVTR).

3. Time Source: Time sequence taken directly from the AVTR. Time coordinated with the electronic tape marker on the Kunsan Radar Approach Control (RAPCON) tape recorders. [Note: there was no master time source for Kunsan RAPCON, Kunsan Tower, Kunsan SOF and WACO 41, so the RAPCON time was selected the master. Times shown in the following were adjusted forward thirteen (13) seconds from those shown on the HUD AVTR.] All times shown are in local time; i.e., universal coordinated time plus nine (9) hours.

4. Identification and Abbreviations Used.

WACO 41, F-16C, 8TFW, Flight Lead: WACO 41.

WACO 42, F-16C, 8TFW, Mishap Aircraft: WACO 42

8 TFW Supervisor of Flying: SOF.

Kunsan Radar Approach Control: APP.

Editorial comments, not a part of the recording: "[]".

Unintelligible voice communication: "****".

Pause (open mike): "....".

5. Period: From the "knock it off" call by WACO 42 (17:09.43 I) until both aircraft, WACO 41 & 42, are established on Kunsan SOF frequency and communicating with one another (17:18.23 I). Thereafter, the SOF and Kunsan RAPCON voice recorder transcripts (this Tab) contain all remaining recorded information.

<u>TIME</u>	<u>IDENT</u>	<u>COMMUNICATION</u>
17:09.43	WACO 42	KNOCK IT OFF, KNOCK IT OFF
17:09.45	WACO 41	ONE, KNOCK IT OFF
17:09.48	WACO 41	TWO, HAVE YOU GOT A PROBLEM?
17:09.49	WACO 42	I'VE GOT AN ENGINE LIGHT, AH, ENGINE WARNING.
17:09.52	WACO 41	COPY, TURN LEFT, REFERENCE EAST.
17:10.00	WACO 42	ROGER, IT SEEMS OKAY.
17:10.06	WACO 41	CHECK OIL PRESSURE.
17:10.08	WACO 42	OKAY, OIL'S GOOD, NOZZLE'S GOOD, R-P-M'S GOOD HYDRAULIC'S GOOD, F-TIT'S GOOD.
17:10.17	WACO 41	COPY, CHECK YOUR TEST PAGE.
17:10.27	WACO 42	NOTHING. F-C-R.

17:10.28	WACO 41	COPY ALL.
17:10.31	WACO 42	...THAT'S THE RADAR THOUGH.
17:10.38	WACO 41	COPY... BUTTON FOUR GO.
17:10.41	WACO 42	SAY AGAIN.
17:10.29	WACO 41	BUTTON EIGHT GO.
17:10.42	APPLOW APPROACH, YOU CAN FLY RUNWAY HEADING AND AT THE DEPARTURE END OF THE RUNWAY TURN RIGHT HEADING ZERO NINE ZERO, CLIMB AND MAINTAIN FIVE THOUSAND.
17:10.53	WACO 41	WACO CHECK, WACO ROLLOUT SOUTH -EAST, REFERENCE ONE THREE ZERO DEGREES.
17:11.01	WACO 42	ONE, TWO
17:11.03	WACO 41	GO AHEAD.
17:11.05	WACO 42	COME AND JOIN UP ON ME AND CHECK OUT MY NOZZLE.
17:11.08	WACO 41	COPY, ROLL OUT... START A RIGHT HAND TURN TO ONE FIVE ZERO DEGREES.
17:11.16	WACO 42	ROG
17:11.18	WACO 41	ONE IS ONE MILE IN TRAIL
17:11.23	APP	JACKEL THREE ONE CONTACT ARRIVAL CONTROLLER THREE NINETY ONE NINE, THREE NINER ONE NINER.
17:11.28	WACO 41	WHAT'S THE POSITION OF YOUR NOZZLE?
17:11.33	WACO 42	WELL, THEY'RE PRETTY MUCH CLOSED.
17:11.37	WACO 41	COPY...ROLL OUT, AND ONE'S CLOSING.
17:11.50	WACO 42	THREE HUNDRED FORTY KNOTS.
17:11.55	WACO 41	ROLL OUT..
17:12.03	WACO 41	APPROACH, WACO TWO ONE
17:12.08	APP	[STEPPED ON BY WACO 42] OK, CONFIRM THE CALL SIGN WACO FOUR ONE AND GO AHEAD SIR.
17:12.09	WACO 42	I TAKE THAT BACK, IT'S NOT AN ENGINE WARNING LIGHT, IT'S AN ENGINE FIRE LIGHT, R-P-M, I MEAN F-TIT'S GOOD.

17:12.15 WACO 41 COPY.

17:12.16 WACO 42 COME UP HERE AND CHECK ME OVER.

17:12.18 WACO 41 COPY.

17:12.21 WACO 42 PULLING IT BACK TO MIN PRACTICAL SEEING IF IT WILL GO OUT.

17:12.22 APP [STEPPED ON BY WACO 42]
WACO FOUR ONE BELIEVE CALLING KUNSAN,
GO AHEAD.

17:12.25 WACO 42 THREE HUNDRED KNOTS.

17:12.28 WACO 41 APPROACH, WACO.

17:12.31 APP. WACO FOUR ONE , KUNSAN, HOW DO YOU HEAR,
YOU'RE LOUD AND CLEAR?

17:12.34 WACO 41 COPY, WE'RE FIFTEEN MILES TO THE NORTHEAST
DECLARING AN EMERGENCY FOR AN ENGINE FIRE
LIGHT.

17:12.40 APP. OK, UNDERSTAND THE EMERGENCY AIRCRAFT IS
FOUR ONE?

17:12.44 WACO 4 COPY, AND YOU DO HAVE AN ENGINE THAT
LOOKS LIKE IT'S IN THE AFTERBURNER
SECTION.
[FIRST INDICATION VISUALLY OF A FIRE]

17:12.49 WACO 42 OK, NOW I'VE GOT A DADGUM ENGINE LUBE
LOW.

17:12.50 WACO 41 COPY, TURN EAST.

17:12.51 WACO 42 WELL IT LOOKS LIKE WE'RE GOING TO HAVE
TO TAKE IT ON BACK TO...

17:12.53 WACO 41 [WITH EMPHASIS]
TWO, TURN EAST!

17:12.57 WACO 42 ROGER, I'M GOING TO GO AHEAD AND PLAN ON
DOING JUST A STRAIGHT-IN.

17:13.02 WACO 41 [WITH AUTHORITY]
OKAY TWO, LISTEN TO ME, YOU HAVE A FIRE THAT
LOOKS LIKE IT'S IN THE AFTERBURNER SECTION...
[INTERRUPTED BY APP].

17:13.07 APP. WACO FOUR ONE, KUNSAN, WHEN YOU GET A CHANCE.

17:13.12 WACO 42 OK, COMING BACK TO IDLE.

17:13.14	WACO 41	COPY. CONTINUE YOUR TURN TO EAST.
17:13.17	WACO 42	ROGER
17:13.23	WACO 42	HOW'S IT DOING?
17:13.30	WACO 41	OK, YOU HAVE A FIRE, CONTINUING IN THE AFERBURNER SECTION.
17:13.36	APP.	WACO FOUR ONE, KUNSAN.
17:13.40	WACO 41	TANK INERTING. KUNSAN STAND-BY!
17:13.48	WACO 41	WHAT'S THE CONDITION OF YOUR F-TIT?
17:13.50	WACO 42	F-TIT'S RISING, HOW FAR ARE WE FROM HOME HERE?
17:13.52	WACO 41	TEN ER AN, SIX MILES.
17:13.53	WACO 42	THERE GOES MY HYDRAULIC/OIL PRESSURE...I'M GOING TO BE GETTING OUT OF THIS...
17:13.55	WACO 41	OKAY, COPY, I'M CHASING YOU.
17:13.56	WACO 42	OKAY...YOU GO...I'M ALL BATTENED UP, MY HELMET'S ON GOOD, GOT A HYDRAULIC/OIL PRESSURE LIGHT, CALL THE SOF WHEN I GET OUT, AND GET ME SOME RESCUE GOING, PLEASE.
17:13.59	WACO 41	GOTCHA. YOU'RE ABOUT FOUR MILES TO FEET DRY. [CHANGING TO SOF VHF]
17:14.01	WACO 42	GO OVER SOME THINGS WITH ME.
17:14.04	WACO 42	I'M COMING BACK TO IDLE.
17:14.05	WACO 41	COPY, KUNSAN SOF, WACO FOUR ONE.
17:14.14	SOF.	WACO FOUR ONE, SOF, GO AHEAD.
17:14.15	WACO 41	GOT AN AIRCRAFT, RIGHT OVER THE FIELD, ENGINE IS ON FIRE, HAS BEEN ON FIRE FOR ABOUT A MINUTE, LOOKS LIKE HE'S GOING TO HAVE TO GET OUT OF IT..
17:14.27	SOF	COPY THAT, YOU V-M-C AT THIS TIME?
17:14.30	WACO 41	NEGATIVE, WE'RE AT TWENTY FOUR THOUSAND DIRECTLY OVER THE FIELD. [ENTERED CLOUDS AT ABOUT 24,500]

17:14.36	SOF.	COPY THAT, THE CONTROLLED BAILOUT AREA IS AROUND THE ONE ONE ZERO DEGREES RADIAL, RECOMMEND YOU PROCEED EAST FOR BAILOUT.
17:14.52	WACO 42	[WACO 42 SWITCHES TO KUNSAN SOF UHF] KUNSAN SOF, KUNSAN SOF, WACO FOUR TWO.
17:14.53	WACO 41	ONE ONE TEN, WHAT RANGE? [VHF] [STEPPED ON BY NUMBER TWO]
17:14.57	SOF.	WACO FOUR TWO, SOF, GO AHEAD. [VHF & UHF]
17:15.00	WACO 41	[HEARS SOF, THINKS ITS FOR HIM] YES, THIS IS WACO FOUR ONE.
17:15.01	WACO 42	MY ENGINE'S <u>GONE</u> ...E-P-U IS RUNNING, I WILL BE EJECTING EVENTUALLY.
17:15.05	WACO 41	WE'RE NOW SOUTHEAST OF THE FIELD
17:15.10	WACO 41	THE FIRE IS CONTINUING IN THE AFTERBURNER...AND TWO WHAT IS YOUR STATUS? TWO YOUR STATUS?
17:15.12	WACO 42	10 MILES EAST OF THE BASE, ON THE ZERO EIGHT ZERO DEGREES FOR TEN MILES, I'LL PROBABLY BE EJECTING, I WANNA GET DOWN LOW BEFORE I EJECT.
17:15.26	SOF.	COPY THAT WACO FOUR TWO, UNDERSTAND WACO FOUR TWO HAS THE FIRE.
17:15.30	WACO 41	THAT'S AFFIRMATIVE.
17:15.33	WACO 41	WACO FOUR TWO WHAT IS YOUR STATUS?
17:15.37	WACO 41	TWO. YOUR STATUS.
17:15.40	WACO 41	SOF, ARE YOU TALKING TO WACO FOUR TWO?
17:15.42	SOF.	THAT'S AFFIRM...HE SAYS IT STILL IS ON FIRE IN THE AFTERBURNER SECTION. IS THAT AFFIRM?

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17:15.40	WACO 41	THAT'S AFFIRMATIVE...WHAT FREQ ARE YOU TALKING TO HIM ON? [SECOND PART STEPPED ON BY WACO 42].
17:15.48	WACO 4	WACO FOUR TWO AM I STILL ON FIRE?
17:15.57	SOF.	BOTH WACO'S GET ON VICTOR ONE FOUR.
17:16.03	WACO 41	WACO TWO, GO TO VICTOR ONE FOUR.
17:16.05	WACO 42	SOF, WACO FOUR TWO, WITH YOU [SOF VICTOR]
17:16.11	WACO 42	SOF WACO FOUR TWO (VHF),
17:16.12	WACO 42	SOF WACO FOUR TWO ON UNIFORM (UHF).
17:16.16	WACO 41	OKAY, WACO FOUR TWO ARE YOU UP? (VHF)
17:16.17k	SOF.	WACO FOUR TWO, SOF ON UNIFORM, GO AHEAD.
17:16.19	WACO 42	WHAT EXACTLY IS THE WEATHER?
17:16.24	SOF.	THE WEATHER IS NOW AT ONE THOUSAND FEET IS THAT WHAT YOU'RE ASKING?
17:16.27	WACO 42	THATS AFFIRMATIVE, I DON'T THINK THIS IS THE TIME TO BE DOING AN SFO.
17:16.27	WACO 41	WACO FOUR TWO, FOUR ONE. [STEPPED ON]
17:16.36	WACO 42	SOF, WACO FOUR TWO AGAIN, TELL ME WHERE EXACTLY THE CONTROLLED, AH, BAILOUT AREA IS AGAIN.
17:16.44	SOF.	UNDERSTAND YOU'RE OVER THE CONTROLLED BAILOUT AREA NOW.
17:16.46	WACO 42	NEGATIVE, I WANT TO KNOW, I WANT YOU TO TELL ME WHERE THE CONTROLLED BAILOUT AREA IS.
17:16.53	SOF.	ROGER, IT'S ON THE ONE ONE ZERO RADIAL.
17:16.53	WACO 41	WACO FOUR TWO, FOUR ONE
17:17.00	WACO 42	OK, GOT IT. FOR HOW MANY MILES?

17:17.02 SOF. STAND-BY.

17:17.09 WACO 41 SOF, WACO FOUR TWO, WHAT CHANNEL ARE YOU TALKING TO HIM ON?

17:17.12 SOF UNIFORM.

17:17.15 SOF. WACO FOUR TWO, IT'S BETWEEN TEN AND TWENTY MILES ON THE ONE ONE ZERO RADIAL.

17:17.19 WACO 42 COPY THAT.

17:17.22 WACO 42 I'M NOW HEADING, AH, WEST. WILL BE MAKING A TURN, AH, APPROXIMATELY*** DEGREES BACK ON THE ONE ONE ZERO RADIAL. I WILL BE EJECTING. *** TO THE SOUTH FROM THE NORTH (UHF).

17:17.22 WACO 41 WACO FOUR TWO, FOUR ONE [CHAN 8, STEPPED ON BY WACO 42]

17:17.37 SOF. WACO'S IF ABLE, CONTACT ME ON VICTOR FOURTEEN.

17:17.41 WACO 41 WACO FOUR ONE IS UP, I'M NOT TALKING TO WACO TWO.

17:17.43 SOF. ROGER, HE'S ON UNIFORM FOURTEEN. [EVERYONE ONE SOF VHF]

17:17.45 WACO 41 WACO FOUR TWO, FOUR ONE [CHAN 8]

17:17.46 WACO 42 OK, SOF WACO FOUR TWO, I'M UP ON VICTOR FOURTEEN, CAN YOU READ ME?

17:17.51 SOF. ROGER, READ YOU LOUD AND CLEAR... WACO'S ARE YOU HOLDING HANDS?

17:17.56 WACO 41 AFFIRMATIVE...WACO FOUR TWO, WACO FOUR ONE

17:18.00 WACO 42 OKAY GO AHEAD, AM I STILL ON FIRE.

17:18.02 WACO 41 YES, YOU HAVE A SMALL FIRE BURNING IN THE AFT PORTION OF YOUR AFTERBURNER SECTION.

17:18.07 WACO 42 I'M GONNA TRY TO START THIS THING ONE MORE TIME TO SEE WHAT HAPPENS.

17:18.10 WACO 41 COPY, IS THE ENGINE RUNNING NOW?

17:18.12	WACO 42	NEGATIVE.
17:18.14	WACO 41	COPY, THE FIELD IS NORTHWEST FOR FOURTEEN.
17:18.17	WACO 42	ROGER.
17:18.19	SOF.	WACOS SAY ALTITUDE.
17:18.21	WACO 42	SEVEN POINT ZERO FOR WACO TWO.
17:18.23	WACO 41	WE'RE SEVEN POINT ZERO, WE'RE CONTROLLABLE.

END OF TRANSCRIPT

TRANSCRIPT

1. SUBJECT AND DATE: Aircraft Mishap, WACO 42, F-16C, Kunsan AB, Korea,
3 April 1990
2. RECORDING FACILITY: Kunsan AB Control Tower, Supervisor of Flying Radio
Position (frequencies 124.1, 245.1 and 269.9)
3. SOURCE OF TIME ENTRIES: Electronic markers on the voice recorder tape from
an internal system clock set by Kunsan Tower, using a
manual time hack from Kunsan RAPCON. Where the same
communication occurs on Kunsan RAPCON's voice recorder
tapes, the RAPCON's electronic marker was used to aid
in correlating events. Time is local (India) and
equals universal coordinated time plus nine hours.
4. IDENTIFICATIONS AND ABBREVIATIONS USED:

WACO 42, F-16C, Mishap Aircraft: WACO 42
WACO 41, F-16C, Flight Lead: WACO 41
Supervisor of Flying: SOF
SOF frequency 124.1 MHz: VHF
SOF frequency 245.1 MHz: UHF
Kunsan RAPCON discrete frequency for local emergency aircraft: Chan 12
Kunsan Radar Approach Controller: Approach
BTFW Assistant Deputy Commander, Operations: Vegas
Unintelligible radio communication: * * *
Internal communication (non radio) set between brackets: "< >"
Editorial comments to clarify are enclosed in brackets: "[]"
Kunsan RAPCON Coordinator: CI
Kunsan Tower Flight Data controller: FD
5. PERIOD: From initial contact by WACO 41 flight until five minutes after
the last WACO 42 contact. All transmissions made over any radio
frequency are capitalized.

TIME	IDENT	COMMUNICATION
17:14.05	WACO 41	COPY. KUNSAN SOF, WACO FOUR ONE [VHF]
.14	SOF	THIS IS SOF, WACO FOUR ONE, GO AHEAD [VHF]
.15	WACO 41	GOT AN AIRCRAFT RIGHT OVER THE FIELD, ENGINE IS ON FIRE FROM THE . . . HAS BEEN ON FIRE FOR ABOUT A MINUTE. LOOKS LIKE HE'S GONNA HAVE TO GET OUT OF IT. [VHF]
.17	SOF	COPY THAT, ARE YOU V-H-F AT THIS TIME? [VHF]
.30	WACO 41	NEGATIVE, WE'RE AT TWENTY FOUR THOUSAND DIRECTLY OVER THE FIELD [VHF]
.36	SOF	COPY THAT. THE CONTROLLED BAILOUT IS AROUND THE ONE ONE ZERO RADIAL, RECOMMEND YOU PROCEED EAST FOR BAILOUT [VHF]
.52	WACO 42	KUNSAN SOF, KUNSAN SOF, WACO FOUR TWO [UHF]
.57	SOF	WACO FOUR TWO, SOF, GO AHEAD [UHF & VHF]
17:15.00	WACO 41	YES, THIS IS WACO FOUR ONE [VHF]
.01	WACO 42	MY ENGINE'S GONE . . . I-P-U IS RUNNING. I WILL BE EJECTING . . . SOON [UHF]
.10	WACO 41	FIRE IS CONTINUING IN THE AFTERBURNER [VHF]
.12	WACO 42	TEN MILES EAST OF BASE IN THE, AH, ZERO EIGHT ZERO FOR TEN MILES. I'LL PROBABLY BE EJECTING. WANNA GET DOWN LOW BEFORE I EJECT [UHF]
.26	SOF	COPY THAT, WACO FOUR TWO. UNDERSTAND WACO FOUR TWO HAS A FIRE? [VHF & UHF]
.30	WACO 41	THAT'S AFFIRMATIVE [VHF]
.31	WACO 42	FOUR ONE, AM I STILL ON FIRE? [UHF]
.33	WACO 41	WACO FOUR TWO, WHAT'S YOUR STATUS? [Chan 8]
.37	WACO 41	TWO, YOUR STATUS [Chan 8]
.40	WACO 41	SOF, ARE YOU STILL TALKING TO WACO FOUR TWO? [VHF]
.42	SOF	THAT'S AFFIRM. HE IS STILL ON FIRE IN THE AFTERBURNER SECTION. IS THAT AFFIRM? [VHF]
.46	WACO 41	THAT'S AFFIRMATIVE [VHF]

17:15.48 WACO 42 WACO FOUR TWO, AM I STILL ON FIRE? [UHF]

[The following 15 seconds includes in-facility Tower communications]

.50 CI < Haven't got that information yet, go ahead >

.52 FD < Yeah, reference Waco Four Two, he's got a fire on board the aircraft >

.56 CI < Okay >

.57 SOF BOTH WACOS, KEY ON VICTOR FOURTEEN [VHF & UHF]

.58 FD < Just passing it to you >

17:16.00 CI < Right. You got that directly off the SOF? >

FD < Right >

.05 WACO 42 SOF, WACO FOUR TWO WITH YOU [VHF]

.05 CI < Neil, do you see that guy? >

.11 WACO 42 SOF, WACO FOUR TWO. [VHF]

.12 WACO 42 SOF, WACO FOUR TWO ON UNIFORM [UHF]

.17 SOF WACO FOUR TWO, SOF ON UNIFORM, GO AHEAD [UHF & VHF]

.19 WACO 42 WHAT EXACTLY IS THE WEATHER? [UHF]

.24 SOF THE WEATHER IS NOW AT A THOUSAND FEET. IS THAT WHAT YOU ARE ASKING? [UHF & VHF]

.27 WACO 42 THAT'S AFFIRMATIVE. I DON'T THINK THIS IS THE TIME TO BE DOING AN S-F-D [UHF]

.36 WACO 42 SOF, UH, WACO FOUR TWO AGAIN. TELL ME WHERE EXACTLY THE CONTROLLED, AH, BAILOUT AREA IS AGAIN [UHF]

.44 SOF UNDERSTAND YOU'RE OVER THE CONTROLLED BAILOUT AREA NOW? [UHF & VHF]

.46 WACO 42 NEGATIVE. I WANT TO KNOW, I WANT YOU TO TELL ME WHERE THE CONTROLLED BAILOUT AREA IS [UHF]

.53 SOF ROGER, IT'S ON THE ONE ONE ZERO RADIAL [UHF & VHF]

17:17.00 WACO 42 OKAY, GOT IT. FOR HOW MANY MILES? [UHF]

.02 SOF STAND BY [UHF & VHF]

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17:17.09 WACO 41 SOF, WACO FOUR TWO, WHICH CHANNEL YOU TALKING TO HIM ON? [UHF]

17:17.12 SOF UNIFORM

.15 SOF WACO FOUR TWO, IT'S BETWEEN TEN AND TWENTY MILES ON THE ONE ONE ZERO RADIAL [UHF & VHF]

.19 WACO 42 COPY THAT [UHF]

.22 WACO 42 I'M NOW HEADING, AH, WEST. WILL BE MAKING A TURN, AH, APPROXIMATELY * * * DIABLES TO GET BACK ON THE ONE ONE ZERO RADIAL. I WILL BE EJECTING * * * TO THE SOUTH FROM THE NORTH [UHF]

.37 SOF WACOS, IF ABLE, CONTACT ME ON VICTOR FOURTEEN [UHF & VHF]

.41 WACO 41 WACO ONE IS UP. I'M NOT TALKING TO WACO TWO [VHF]

.43 SOF ROGER. HE'S ON UNIFORM FOURTEEN [UHF & VHF]

.46 WACO 42 OKAY, SOF, WACO FOUR TWO. I'M UP ON VICTOR FOURTEEN. CAN YOU READ ME? [VHF]

.51 SOF ROGER, READ YOU LOUD AND CLEAR [VHF]

.54 SOF WACOS, ARE YOU HOLDING HANDS? [VHF]

.56 WACO 41 AFFIRMATIVE [VHF]

.57 WACO 41 WACO TWO, WACO ONE [UHF]

17:18.00 WACO 42 OKAY, GO AHEAD. AM I STILL ON FIRE? [VHF]

.02 WACO 41 YES, YOU HAVE A SMALL FIRE BURNING IN THE AFT PORTION OF YOUR AFTERBURNER SECTION [VHF]

.07 WACO 42 I'M GONNA TRY TO START THIS THING ONE MORE TIME, SEE WHAT HAPPENS [VHF]

.10 WACO 41 COPY. IS THE ENGINE RUNNING NOW? [VHF]

.12 WACO 42 NEGATIVE [VHF]

.14 WACO 41 COPY. THE FIELD IS NORTHWEST FOR FOURTEEN [VHF]

.17 WACO 42 ROGER [VHF]

.19 SOF WACO, SAY ALTITUDE [VHF]

17:18.21 WACO 42 SEVEN POINT ZERO FOR WACO TWO [VHF]

.23 WACO 41 WE'RE SEVEN POINT ZERO. WE'RE CONTROLLABLE [VHF]

.32 WACO 41 OKAY, WACO TWO, IT LOOKS LIKE THE FIRE IS OUT NOW [VHF]

.35 WACO 42 OKAY, WELL I JUST SHUT THE THROTTLE OFF [VHF]

.38 WACO 41 COPY [VHF]

.38 WACO 42 * * * TO SEE IF IT WOULD START AGAIN [VHF]

.41 WACO 41 PASSING SIX THOUSAND [VHF]

.43 WACO 42 COPY THAT [VHF]

.44 SOF WACOS, CONFIRM THE J-F-S IS RUNNING IN SEC AND THE THROTILE IS ABOVE OFF [VHF]

.50 WACO 42 AFFIRMATIVE, THE J-F-S IS, THE J-F-S IS ON, ENGINE IS IN SEC [VHF]

.56 WACO 41 CHECK YOUR ATTITUDE [VHF]

.58 WACO 42 COPY [VHF]

17:19.02 WACO 41 CONTINUE YOUR LEFT HAND TURN [VHF]

.05 WACO 42 OKAY [VHF]

.07 WACO 41 CONTINUE YOUR LEFT HAND TURN [VHF]

.09 WACO 42 GOT IT [VHF]

.10 WACO 41 OKAY, NOW. IT LOOKS LIKE THE FIRE HAS PROGRESSED FORWARD ABOUT TO WHERE THE TAIL HOOK IS [VHF]

.15 WACO 42 THE TAIL HOOK [VHF]

.16 WACO 41 THE JUNCTION OF THE TAIL HOOK [VHF]

.18 WACO 42 TELL YOU WHAT. I'M NOT GONNA BE SO QUICK TO TRY TO, AH, OUT, MY ENGINE IS RUNNING AT * * * ZERO R-P-MS [VHF]

.24 WACO 41 COPY, ROLL OUT [VHF]

.25 WACO 42 MY F-TIT IS FAIRLY LOW [VHF]

.26 WACO 41 ROLL OUT [VHF]

.30 WACO 41 BASE IS, AH, NOSE FOR TWELVE MILES [VHF]

17:19.32 WACO 42 O'AY, LET'S, UH, LET'S NOT BE SO QUICK TO GET OUT OF THIS THING [VHF]

.36 WACO 41 O'AY, RIGHT HAND TURN [VHF]

.38 WACO 42 I'VE GOT A TACAN [VHF]

.42 WACO 42 E-F-U FUEL IS NINETY PERCENT [VHF]

.46 WACO 42 LET'S GO AHEAD AND GET DOWN A LITTLE BIT LOWER HERE [VHF]

.49 WACO 41 COPY. YOU'RE TEN MILE FINAL [VHF]

.55 SOF WACOS, RECOMMEND YOU CONTACT RADAR, SINGLE FREQUENCY APPROACH, ON TWELVE, GET VECTORS BACK HERE TO LAND [VHF]

17:20.10 WACO 42 WACO TWO, GOING TO ONE TWO [VHF]

.25 UNKNOWN TWO . . . [SOF switching through to Chan 12]

Edit [SOF on channel 12, 369.9 MHz]

.38 APPROACH TWO ZERO ZERO FOUR WACO FOUR TWO. TWO THOUSAND SEVEN HUNDRED, TWO ZERO ZERO, TWENTY SEVEN HUNDRED

.44 WACO 42 TWO ZERO ZERO [Chan 12]

.47 WACO 41 O'AY, THAT'S A VECTOR AWAY FROM THE FIELD [CHAN 12]

.50 WACO 42 GEAR'S COMING DOWN, ONE, GEAR'S COMING DOWN [VHF]

.54 WACO 41 COPY [Chan 12]

.55 WACO 42 O'AY, I'VE GOT THREE GUN-FN, HOW'S THE FIRE DOING [VHF]

.57 APPROACH YOU WANT A SEVEN MILE FINAL FOR THE PAR, IS THAT CORRECT, SIR?

.59 WACO 42 THAT'S AFFIRMATIVE, JUST GET ME SOMETHING TO GET ME DOWN [VHF]

17:21.02 WACO 41 O'AY, THE FIRE LOOKS LIKE IT'S SMOLDERING BUT IT'S NOT PROGRESSING ANY FURTHER [VHF]

.06 APPROACH WACO FOUR TWO, APPROACH, I COPY. THE SEVEN MILE REQUEST FOR THE PAR, IS THAT CORRECT? [Chan 12]

.12 WACO 42 THAT'S AFFIRM. GET ME TURNED ON TO A FINAL RIGHT NOW [Chan 12]

17:21.15 APPROACH WACO FOUR TWO, MAINTAIN TWO THOUSAND THREE HUNDRED, IF
ABLE

.19 WACO 42 UH, WACO FOUR TWO IS UNABLE THIS POINT [VHF]

.30 WACO 42 SORRY ABOUT THAT, ONE [Chan 12]

.31 WACO 41 COPY [Chan 12]

.33 WACO 42 WACO, HOW'S THE FIRE? [VHF]

.35 WACO 41 OKAY. IT'S NOT GETTING ANY BIGGER BUT IS CONTINUING
TO, UH, SHOLDER IN THE AFT SECTION [VHF]

.40 WACO 42 OKAY [VHF]

.42 WACO 41 G-C-A, VECTORS [VHF]

.44 WACO 41 G-C-A VECTORS TO THE FIELD [Chan 12]

.46 WACO 42 I'M STILL ON THE ONE FOUR ZERO RADIAL. SO, WE NEED TO
BACK UP HERE [SOF VHF]

.50 APPROACH WACO FOUR TWO, THIS IS MUNSAN. DID YOU WANT A SEVEN
MILE FINAL FOR THE PAR, SIR? [Chan 12]

.52 WACO 41 AFFIRMATIVE [Chan 12]

.53 WACO 42 * * * AFFIRMATIVE FOR WACO FOUR TWO. SEVEN, SIX MILE
FINAL WILL BE FINE [Chan 12]

.59 APPROACH WACO FOUR TWO, ROGER, VECTORS FOR THE FINAL TURN, UH,
FLY HEADING OF ONE SIX ZERO FOR THE FINAL, MAINTAIN TWO
THOUSAND THREE HUNDRED FOR WACO FOUR TWO [Chan 12]

17:22.07 WACO 42 ONE SIX ZERO, TWO POINT THREE, WACO FOUR TWO
[Chan 12]

.13 APPROACH AND UNDERSTAND YOU'RE STILL A FLIGHT AND FOUR ONE WILL
BE GOING AROUND, IS THAT CORRECT? [Chan 12]

.16 WACO 41 THAT'S AFFIRMATIVE [Chan 12]

.17 APPROACH OKAY, ROGER THAT, FOUR ONE. ON YOUR LOW APPROACH IT
WILL BE A RIGHT TURN ZERO NINE ZERO, TWO THOUSAND SEVEN
HUNDRED ON THE GO, FOR WACO FOUR ONE [Chan 12]

.23 WACO 42 * * * ON FINAL NOW, IF THAT'LL WORK [Chan 12]

.31 APPROACH JAKAL THREE ONE, CLIMB AND MAINTAIN FLIGHT LEVEL TWO
TWO ZERO, STANDBY, EMERGENCY IN PROGRESS [Chan 12]

17:22.36 SOF WACO FOUR ONE, SOF [VHF]

.36 APPROACH WACO FOUR ONE, TURN RIGHT HEADING THREE FOUR ZERO FOR THE, UH, ONE CONTINUOUS TURN TO FINAL [Chan 12]

.42 WACO 41 GO AHEAD [VHF]

.44 WACO 41 SOF, WACO FOUR ONE, GO AHEAD [VHF]

.46 SOF YEAH, FOUR TWO, CONFIRM THAT YOU STILL HAVE GOOD RESPONSE FROM THE FLIGHT CONTROLS. BE AWARE OF DEGRADED RESPONSE ON FINAL WHEN YOU SLOW DOWN [VHF]

.49 WACO 41 COPY ALL [VHF]

.50 WACO 42 YEAH, I'M GETTING SOME SHOCK AND FUMES IN THE COCKPIT, NOW, NOW ZERO OIL PRESSURE [Chan 12]

.54 WACO 41 COPY [VHF]

.55 WACO 42 I'M MAKING THE TURN TO FINAL [Chan 12]

.59 WACO 41 OKAY, YOU'RE ON . . . [VHF]

17:23.01 WACO 42 CHECKING OUT [Chan 12]

.02 SOF WACO FOUR TWO, OXYGEN AT HUNDRED PERCENT [VHF]

.12 WACO 41 SOF, WE HAVE A BAIL OUT [VHF]

.13 APPROACH WACO FOUR TWO, TURN RIGHT HEADING THREE SIX ZERO, IF ABLE, FOR PAR APPROACH CONTINUE [Chan 12]

.14 WACO 41 SOF, WE HAVE A BAIL OUT, PRESENT POSITION, GOOD CHUTE [VHF]

.18 SOF COPY BAIL OUT PRESENT POSITION. HOW MANY MILES AWAY FROM THE FIELD? [VHF]

.22 WACO 41 STANDBY [VHF]

.25 APPROACH WACO FOUR TWO, TURN RIGHT HEADING THREE SIX ZERO, IF ABLE, IF YOU WANT THE Fnk [Chan 12]

.28 WACO 41 STAND BY [Chan 12]

.31 WACO 41 APPROACH, WE HAVE A BAIL OUT [Chan 12]

.33 APPROACH FOUR TWO, ROGER [Chan 12]

.35 VEGAS SOF, VEGAS UHF, WHERE IS HE NOW? [UHF]

17:23.36 WACO 41 GOOD CHUTE, WACO FOUR TWO IS IN HIS CHUTE [Chan 12]

.44 WACO 41 WACO FOUR ONE HAS LOST THE TACAN [Chan 12]

.47 APPROACH WACO FOUR ONE, I STILL GOT YOU ON RADAR, SIR, EIGHT MILES SOUTH OF THE FIELD [Chan 12]

.52 WACO 41 OVER THE PILOT NOW, MARK MY POSITION [Chan 12]

.54 APPROACH FOUR ONE, IT IS MARKED, SIR [Chan 12]

.57 WACO 41 COPY, AND IT LOOKS LIKE HE IS GOING DOWN FEET DRY [Chan 12]

17:24.03 APPROACH FOUR ONE, ROGER [Chan 12]

.07 SOF FOUR ONE, SAY POSIT [VHF]

.09 APPROACH FOUR ONE, I'VE GOT YOU MARKED ON THE ONE SIXTY SIX RADIAL AT, AH, SEVEN MILES [Chan 12]

.12 WACO 41 COPY [Chan 12]

.14 SOF COPY, ONE SIXTY SIX AT SEVEN MILES [VHF]

.23 APPROACH AND JAI'AL THREE ONE, ARE YOU ON TOP? [Chan 12]

.26 WACO 41 APPROACH, I'M OVER THE CHUTE NOW [Chan 12]

.30 APPROACH STAND BY FOR JAI'AL THREE ONE, AND FOUR ONE, GO AHEAD, SIR [Chan 12]

.32 WACO 41 I'M OVER THE CHUTE NOW, PRESENT POSITION [Chan 12]

.38 APPROACH FOUR ONE, THANKS [Chan 12]

.48 WACO 41 SOF, WACO FOUR ONE [VHF]

.50 SOF WACO FOUR ONE, GO [VHF]

.52 WACO 41 PILOT'S ON THE GROUND, CURRENT POSITION [VHF]

.57 SOF COPY THAT. WE GOT A ONE SIXTY SIX FOR SEVEN MILES, IS THAT WHAT YOU SHOW [VHF]

17:25.01 WACO 41 YEAH I'M NOT RECEIVING THE TACAN AT THIS TIME [VHF]

.03 SOF OKAY, CALL UP, UH, STEER POINT TWENTY. REFERENCE, UH . . . [VHF]

.06 WACO 41 I'VE LOST THE I-N-S, TOO [Chan 12]

17:25.10 WACO 41 AND SOF, I'VE LOST THE (H-S [VHF]

.12 APPROACH AND WACO FOUR ONE, APPROACH, ARE YOU IN BETWEEN THE LAYERS AND ABLE TO MAINTAIN V-F-R?

.16 WACO 41 THAT'S AFFIRMATIVE, I'M V-F-R AT THIS TIME [Chan 12]

.19 APPROACH FOUR ONE, ROGER, MAINTAIN V-F-R ADVISE IF UNABLE [Chan 12]

.21 WACO 41 COPY [Chan 12]

.22 WACO 41 AND APPROACH, I'M GOING TO NEED NO-GYRO VECTORS P-A-R [Chan 12]

.29 APPROACH FOUR ONE, ROGER, YOU READY TO COME IN NOW? [Chan 12]

.31 WACO 41 FOUR ONE, AFFIRMATIVE [Chan 12]

.33 APPROACH FOUR ONE, ROGER, NO-GYRO VECTORS, UH, TURN RIGHT TO FINAL [Chan 12]

.36 WACO 41 WACO'S RIGHT TURN [Chan 12]

.38 APPROACH WACO, DESCEND AND MAINTAIN TWO THOUSAND THREE HUNDRED [Chan 12]

.41 WACO 41 WACO [Chan 12]

.42 APPROACH JAFAL, YOU ON TOP? [Chan 12]

.46 APPROACH JAFAL, MAINTAIN V-F-R ON TOP, RADAR SERVICE TERMINATED, FREQUENCY CHANGE APPROVED, GOOD DAY [Chan 12]

.53 VEGAS SOF, VEGAS, U-H-F [UHF]

.56 SOF VEGAS, SOF, GO [UHF]

.58 VEGAS IS THE CHOPPER MOVING YET? [UHF]

17:26.00 SOF UH, WE HAVE PUT THE CALL INTO H-TAC. STAND BY FOR CONFIRMATION [UHF]

.04 VEGAS ROG, I'LL BE IN THE COMMAND POST [UHF]

.08 WACO 41 APPROACH, WACO FOUR ONE [Chan 12]

.10 APPROACH WACO FOUR ONE, UH, WELL LEFT OF P-A-R FINAL AND I NEED YOU TO MAINTAIN TWO THOUSAND THREE HUNDRED OR MAINTAIN V-F-R, GO AHEAD, SIR [Chan 12]

17:26.16 WACO 41 COPY TWO THOUSAND FEET AND I'M GONNA NEED NO-GYRO
VECTORS FOR A P-A-R [Chan 12]

.20 APPROACH FOUR ONE, ROGER, I HAD YOU IN A RIGHT TURN, WOULD YOU
LIKE A BOX PATTERN, UH, BACK AROUND, SIR? [Chan 12]

.24 WACO 41 AFFIRMATIVE [Chan 12]

.26 APPROACH OKAY, WACO FOUR ONE, ROGER, UH, GE A LEFT BOX PATTERN
BACK TO FINAL. TURN LEFT, UH, MAKE A LEFT TURN TO, AH,
DOWNWIND, SIR [Chan 12]

.33 WACO 41 WACO [Chan 12]

.34 APPROACH WACO FOUR ONE, MAINTAIN V-F-R, UH, ALTITUDE WILL BE
YOUR DISCRETION [Chan 12]

.38 WACO 41 WACO'S LEFT TURN [Chan 12]

17:27.19 APPROACH WACO FOUR ONE, STOP TURN [Chan 12]

.21 WACO 41 WACO [Chan 12]

.24 APPROACH AND FOUR ONE, I UNDERSTAND YOU DID LOSE YOUR NAVAIDS
BUT YOU ARE NOT AN EMERGENCY, IS THAT CORRECT?
[Chan 12]

.29 WACO 41 I AM NOT AN EMERGENCY. I'LL TAKE NO-GYRO VECTORS
[Chan 12]

.32 APPROACH FOUR ONE, ROGER, THIS'LL BE VECTORS FOR THE P-A-R
FINAL APPROACH COURSE. AND HOW LONG A FINAL DID YOU
WANT, SIR? [Chan 12]

.36 WACO 41 TEN MILES [Chan 12]

.37 APPROACH ROGER THAT [Chan 12]

.51 SOF WACO FOUR ONE, SOF, VICTOR, ARE YOU IN CONTACT AT ALL
WITH FOUR TWO? HAVE YOU HEARD ANYTHING FROM HIM?
[VHF]

.56 WACO 41 NEGATIVE [VHF]

17:28.00 SOF WACO FOUR ONE, WHAT WERE CONDITIONS IN THE AREA? WERE
YOU ABLE TO HOLD V-F-R IN THAT AREA?

.05 APPROACH WACO FOUR ONE, TURN LEFT

.08 WACO 41 STAND BY, SOF [VHF]

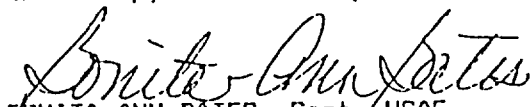
.10 WACO 41 YEAH, ABLE . . . [VHF]

56921

17:28.11 APPROACH WACO FOUR ONE, TURN LEFT
.12 WACO 41 WACO FOUR ONE [Chan 1.]
.14 WACO 41 YOU'RE ABLE TO HOLD V-T 1: IN THAT AREA BETWEEN ABOUT A
THOUSAND FEET AND, UH, FOUR THOUSAND FEET. THERE'S A
SCATTERED DECI. UNDERMINI THAT. [VHF]
.24 SDF DAY, COPY THAT

END OF TRANSCRIPT

As custodian of the original recording, I hereby certify this to be a true and exact copy of transcript thereof.



EUNICE-ANN BATES, Capt, USAF
Chief, Air Traffic Control Operations
1982 Communications Squadron

TRANSCRIPT

1. SUBJECT AND DATE: Aircraft Mishap, WACO 42, F-16C, Kunsan AB, Korea,
3 April 1990
2. RECORDING FACILITY: Kunsan AB Radar Approach Control (RAPCON), ASR #2
position
3. SOURCE OF TIME ENTRIES: Electronic markers on the voice recorder tape from
clock set by Kunsan RAPCON using manual time hack from
the Korean Tactical Air Control Center. Time is in
local (India) time which is universal coordinated time
plus nine (9) hours.
4. IDENTIFICATION AND ABBREVIATIONS USED:

Kunsan RAPCON Approach Control: APPROACH
Kunsan RAPCON Coordinator: CI
Kunsan RAPCON Arrival Control: AR
Kunsan RAPCON Final Control: FC
Kunsan Control Tower: TWR
WACO 41, F-16C, flight lead: WACO 41
WACO 41, F-16C, Mishap aircraft: WACO 42
JAPAL 31, F-16C: JAPAL 31
Kunsan Supervisor of Flying: SOF
Unintelligible radio communications: * * *
Kunsan Fire Chief: CHIEF 1
Internal communication between Tower and RAPCON set with brackets: "< >"
Editorial comments to clarify are enclosed in brackets: "[]"
5. PERIOD: From initial contact with WACO 41 flight until five minutes after
last WACO 42 contact. All transmissions made over any radio
frequency are capitalized.

TIME	IDENT	COMMUNICATION
17:12.03	WACO 41	APPROACH, WACO TWO ONE
	Edit	[WACO 41 and WACO 42 contact APPROACH on Chan 8, 370.9 MHz]
.08	APPROACH	OLAY, CONFIRM THE CALL SIGN WACO FOUR ONE AND GO AHEAD SIR
.22	APPROACH	AH, WACO FOUR ONE, I BELIEVE, CALLING KUNSAN, GO AHEAD
.28	WACO 41	APPROACH, WACO
.31	APPROACH	WACO FOUR ONE, KUNSAN, HOW DO YOU HEAR? YOU'RE LOUD AND CLEAR
.34	WACO 41	COPY, WE'RE FIFTEEN MILES TO THE NORTHEAST DECLARING AN EMERGENCY FOR AN ENGINE FIRE LIGHT
.40	APPROACH	OLAY, UNDERSTAND THE EMERGENCY AIRCRAFT IS FOUR ONE
.44	WACO 41	COPY, AND YOU DO HAVE AN ENGINE . . . AH, IT LOOKS LIKE IT'S IN THE AFTERBURNER SECTION
.51	APPROACH	< we got an emergency on Waco Four One >
.53	WACO 41	TWO, TURN EAST
.55	TWR	< Is he inbound? >
.56	ARR	< See him now >
17:13.04	APPROACH	< Nah, I don't have anything yet >
.05	CI	< Do you have * * * >
.07	APPROACH	AND WACO FOUR ONE, KUNSAN, WHEN YOU GET A CHANCE
.16	APPROACH	< I don't know, I don't know which one, I don't even know >
.23	APPROACH	< A warning light on the engine there, in one of 'em >
.28	CI	< Awk, oh, warning light . . . >
.36	APPROACH	WACO FOUR ONE, KUNSAN
.38	WACO 41	KUNSAN, STAND BY
.42	APPROACH	< He said to stand by, talkin to his other guy * * * >
.59	WACO 41	GOTCHA YOU'RE ABOUT FOUR MILES TO FEET DRY

17:14.01 Edit [WACO 41 changes to SOF VHF, Chan 14]

.52 Edit [WACO 42 changes to SOF UHF, Chan 14, 245.1 MHz. Not in contact with RAPCON]

17:15.33 WACO 41 WACO FOUR TWO, WHAT'S YOUR STATUS?

.37 WACO 41 TWO, YOUR STATUS

17:16.21 APPROACH < I see him but I'm not talking to him. He's fifteen miles * * * I know * * * I have a feeling it's something urgent there the way he was talking >

.50 CI < This one right here >

.53 WACO 41 WACO FOUR TWO, FOUR ONE

Edit [WACO 41 on RAPCON Chan 8, 370.9 MHz, trying to communicate with WACO 42 on UHF]

17:17.42 WACO 41 WACO FOUR TWO, FOUR ONE

.45 WACO 41 WACO FOUR TWO, FOUR ONE

17:18.03 APPROACH < You know, uh, you may want to get to Osan. Have them, uh, may have to get the Search and Rescue guys or Command Post. Or Command Post. Ah * * * thanks >

.51 APPROACH < Right, ah, he is going to try to come in, right, okay >

17:19.22 APPROACH < Yeah, go ahead >

.50 CI < * * * where is he now >

.53 APPROACH < There he is - fifteen >

.58 APPROACH < * * * oh, now he's out there over water >

17:20.00 APPROACH < That's tower * * * >

.08 APPROACH < * * * yeah * * * >

.15 WACO 41 WACO CHECK

.18 WACO 42 WACO'S UP

Edit [WACO 41 and 42 now both on local Chan 12 (UHF) and SOF VHF]

.21 WACO 41 RADAR SERVICE, RADAR SERVICE, WACO ONE, FOURTEEN

17:20.25 APPROACH WACO FOUR TWO, THIS IS KUNSAN APPROACH, GO AHEAD

.30 WACO 42 I'M AN EMERGENCY, I NEED IMMEDIATE RADAR VECTORS TO THE FIELD. I WANT [or I'm on] A SEVEN MILE BASE LEG

.36 APPROACH WACO FOUR TWO, ROGER, UH, FLY HEADING ONE, CORRECTION FLY HEADING TWO SEVEN, CORRECTION, TWO ZERO ZERO FOR WACO FOUR TWO. TWO THOUSAND SEVEN HUNDRED, TWO ZERO ZERO, TWENTY SEVEN HUNDRED

.44 WACO 42 TWO ZERO ZERO

.47 WACO 41 OKAY, THAT'S A VECTOR AWAY FROM THE FIELD

.54 WACO 41 COPY

.56 ARRIVAL < He wants one directly to the field >

.57 APPROACH YOU WANT A SEVEN MILE FINAL FOR THE P-A-R IS THAT CORRECT, SIR?

17:21.02 APPROACH < Stand by >

.06 APPROACH WACO FOUR TWO, APPROACH, I COPIED A SEVEN MILE REQUEST FOR A P-A-R, IS THAT CORRECT?

.15 APPROACH WACO FOUR TWO, MAINTAIN TWO THOUSAND THREE HUNDRED, IF ABLE

.30 WACO 42 SORRY ABOUT THAT, ONE

.31 WACO 41 COPY

.44 WACO 41 G-C-A VECTORS TO THE FIELD

.48 APPROACH < Stand by >

.50 APPROACH WACO FOUR TWO, THIS IS KUNSAN. DID YOU WANT A SEVEN MILE FINAL FIR, UH, THE P-A-R, SIR?

.53 WACO 42 AFFIRMATIVE FOR WACO FOUR TWO. SEVEN, SIX MILE FINAL WILL BE FINE

.57 TWR < Arrival, Tower >

.58 APPROACH < Stand by >

.59 APPROACH WACO FOUR TWO, ROGER, VECTORS FOR THE FINAL TURN, FLY HEADING ONE SIX ZERO FOR FINAL MAINTAIN TWO THOUSAND SEVEN HUNDRED FOR WACO FOUR TWO

17:22.07 WACO 42 ONE SIX ZERO TWO POINT THREE, WACO FOUR TWO

.13 APPROACH AND UNDERSTAND YOU'RE STILL A FLIGHT AND WACO FOUR ONE WILL BE GOING AROUND. IS THAT CORRECT?

.16 WACO 41 THAT'S AFFIRMATIVE

.17 APPROACH OKAY, ROGER THAT, FOUR ONE. ON YOUR LOW APPROACH IT WILL BE A TURN TO ZERO NINE ZERO, TWO THOUSAND SEVEN HUNDRED ON THE GO FOR WACO FOUR ONE

.23 WACO 42 * * * FINAL NOW, IF THAT'LL WORK

.26 JAKAL 31 APPROACH, JAKAL THREE ONE, ON THE GO IN A RIGHT TURN ZERO NINE ZERO, CLIMBING TO FIVE THOUSAND

.31 APPROACH JAKAL THERE ONE, CLIMB AND MAINTAIN FLIGHT LEVEL TWO TWO ZERO. STAND BY. EMERGENCY IN PROGRESS

.35 JAKAL 31 ROGER

.36 APPROACH WACO FOUR ONE, TURN RIGHT HEADING THREE FOUR ZERO FOR THE, UH, ONE CONTINUOUS TURN ON TO FINAL

.46 APPROACH TO TWR < About eight miles to fly. is WACO 41, a flight of two four two is full stop, four one is going around back to radar >

.50 TWR < W B >

.50 WACO 42 I'M GETTING SOME SMOKE AND FUMES IN THE COCKPIT NOW, NOW * * * ZERO OIL PRESSURE

.55 WACO 42 I'M MAKING THE TURN TO FINAL

.57 APPROACH ROGER

.59 APPROACH TO TWR < Smoke and fumes in the cockpit. Oil pressure problems >

17:23.01 WACO 42 I'M CHECKING OUT

.04 TOWER < Oil pressure problems >

.06 APPROACH < Yeah, oil pressure problems. Smoke and fumes in the cockpit >

.09 TOWER < W B >

.13 APPROACH WACO FOUR TWO, TURN RIGHT HEADING THREE SIX ZERO, IF ABLE, FOR THE P-A-R IF YOU WANT TO CONTINUE

17:23.19 APPROACH < He's on and off frequency is the deal here . . .
yep . . . >

.25 APPROACH WACO FOUR TWO, TURN RIGHT HEADING THREE SIX ZERO. IF
ABLE, IF YOU WANT THE F-A-R

.28 WACO 41 STAND BY

.31 WACO 41 APPROACH, WE HAVE A BAIL OUT

.33 APPROACH FOUR TWO, ROGER

.34 APPROACH < He's bailing out now. He's about eight miles to the
south >

.36 WACO 41 GOOD CHUTE. WACO FOUR TWO IS IN HIS CHUTE

.41 TOWER < W B >

.44 WACO 41 WACO FOUR ONE HAS LOST THE TACAN

.49 APPROACH WACO FOUR ONE, I'VE STILL GOT YOU ON RADAR, SIR, EIGHT
MILES SOUTH OF THE FIELD

.51 WACO 41 COPY

.52 WACO 41 OVER THE PILOT NOW. MARK MY POSITION

.54 APPROACH FOUR ONE, IT IS MARKED, SIR

.57 WACO 41 COPY AND LOOKS LIKE HE'S GOING DOWN, FEET DRY

17:24.03 APPROACH FOUR ONE, ROGER

.09 APPROACH FOUR ONE, I'VE GOT YOU MARKED ON THE ONE SIXTY SIX
RADIAL AT, MMMH, SEVEN MILES

.12 WACO 41 COPY

.15 APPROACH < He reports that four two is going down, uh, feet dry
they're over land, a good chute >

.21 TOWER < W B >

.23 APPROACH AND JAKAL THREE ONE, ARE YOU ON TOP

.26 JAKAL 31 JAKAL THREE ONE, AFFIRMATIVE . . . FOUR THOUSAND

.26 WACO 41 APPROACH, I'M OVER THE CHUTE NOW

.30 APPROACH STANDBY FOR JAKAL THREE ONE. AND FOUR ONE, GO AHEAD
SIR

17:24.32 WACO 41 I'M OVER THE CHUTE NOW, PRESENT POSITION

.38 APPROACH FOUR ONE, THANKS

Edit [background conversation referencing radial and distance]

.58 APPROACH < I got seven, yeah seven >

17:25.05 TOWER < Chief One, Tower >

.06 WACO 41 I'VE LOST THE I-N-S, TOO

.12 APPROACH AND WACO FOUR ONE, APPROACH, ARE YOU IN BETWEEN LAYERS AND ABLE TO MAINTAIN V-F-R?

.15 TOWER < Stand by, I'll give you a * * * >

.16 WACO 41 THAT'S AFFIRMATIVE. I'M V-F-R AT THIS TIME

.19 APPROACH FOUR ONE, ROGER. MAINTAIN V-F-R, ADVISE IF UNABLE

.21 WACO 41 COPY

.22 WACO 41 AND APPROACH, I'M GONNA NEED NO-GYRO VECTORS TO P-A-R

.26 TOWER < Arrival, Tower >

ARRIVAL < Stand by >

.29 APPROACH FOUR ONE, ARE YOU READY TO COME IN NOW

.31 WACO 41 AFFIRMATIVE

.33 APPROACH WACO FOUR ONE, ROGER, NO-GYRO VECTORS, AH, TURN RIGHT TO FINAL

.36 WACO 41 WACO IN A RIGHT TURN

.38 APPROACH WACO DESCEND AND MAINTAIN TWO THOUSAND THREE HUNDRED

.41 WACO 41 WACO

.42 JAKAL 31 JAKAL YOU ON TOP

.43 JAKAL 31 APPROACH, JAKAL'S ON TOP

.46 APPROACH JAKAL, MAINTAIN V-F-R ON TOP. RADAR SERVICE TERMINATED, FREQUENCY CHANGE APPROVED, GOOD DAY

.49 JAKAL 31 ROGER

17:25.53 APPROACH < WACO FOUR ONE is an actual no-gyro, seven miles south of the field, left of final, no-gyro F-A-R, full stop

.57 TOWER < W B >

17:26.03 CI < You got him in a right turn? >

.05 APPROACH < Yes >

.09 WACO 41 APPROACH, WACO FOUR ONE

.10 APPROACH WACO FOUR ONE, WELL LEFT OF F-A-R FINAL AND I NEED YOU TO MAINTAIN TWO THOUSAND THREE HUNDRED OR MAINTAIN V-F-R, GO AHEAD SIR

.16 WACO 41 COPY TWO THOUSAND FEET AND I'M GOING TO NEED NO-GYRO VECTORS FOR A F-A-R

.20 APPROACH FOUR ONE, ROGER, I HAD YOU IN A RIGHT TURN AND WOULD YOU LIKE A BOX PATTERN, UH, BACK AROUND SIR?

.24 WACO 41 AFFIRMATIVE

.26 APPROACH OKAY, WACO FOUR ONE, ROGER. UH BE A LEFT BOX PATTERN BACK TO FINAL. TURN LEFT, UH, MAKE A LEFT TURN TO, UH, A DOWNWIND, SIR

.33 WACO 41 WACO

.34 APPROACH WACO FOUR ONE MAINTAIN V-F-R. UH, ALTITUDE WILL BE YOUR DISCRETION

.38 WACO 41 WACO'S LEFT TURN

.51 APPROACH < Okay, he is currently six miles southwest of the field, WACO FOUR ONE >

.54 TOWER < Chief One, Ground >

Edit [Fire Chief on IER, overheard on Tower-RAPCON request/acknowledge circuit]

.56 APPROACH < Waco Four One >

17:27.02 APPROACH < You got Command Post guys. uh, Search and Rescue coming down >

.07 CI < Yeah, we're in good shape >

.19 APPROACH WACO FOUR ONE, STOP TURN

.21 WACO 41 WACO

17:27.24 APPROACH AND FOUR ONE, I UNDERSTAND YOU DID LOSE YOU NAV AIDS BUT
ARE NOT AN EMERGENCY, IS THAT CORRECT

.29 WACO 41 I AM NOT AN EMERGENCY. I'LL TAKE, UH, NO-GYRO VECTORS

.32 APPROACH FOUR ONE, ROGER. NO-GYRO VECTORS FOR THE F-A-R FINAL
APPROACH COURSE. HOW LONG A FINAL DO YOU WANT, SIR

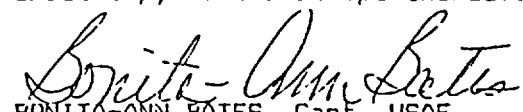
.36 WACO 41 TEN MILES

.37 APPROACH ROGER THAT

17:28.01 APPROACH < He's ready for a ten final, no-gyro actual here >

END OF TRANSCRIPT

As custodian of the original recording, I hereby certify this to be a true and exact copy of transcript thereof.

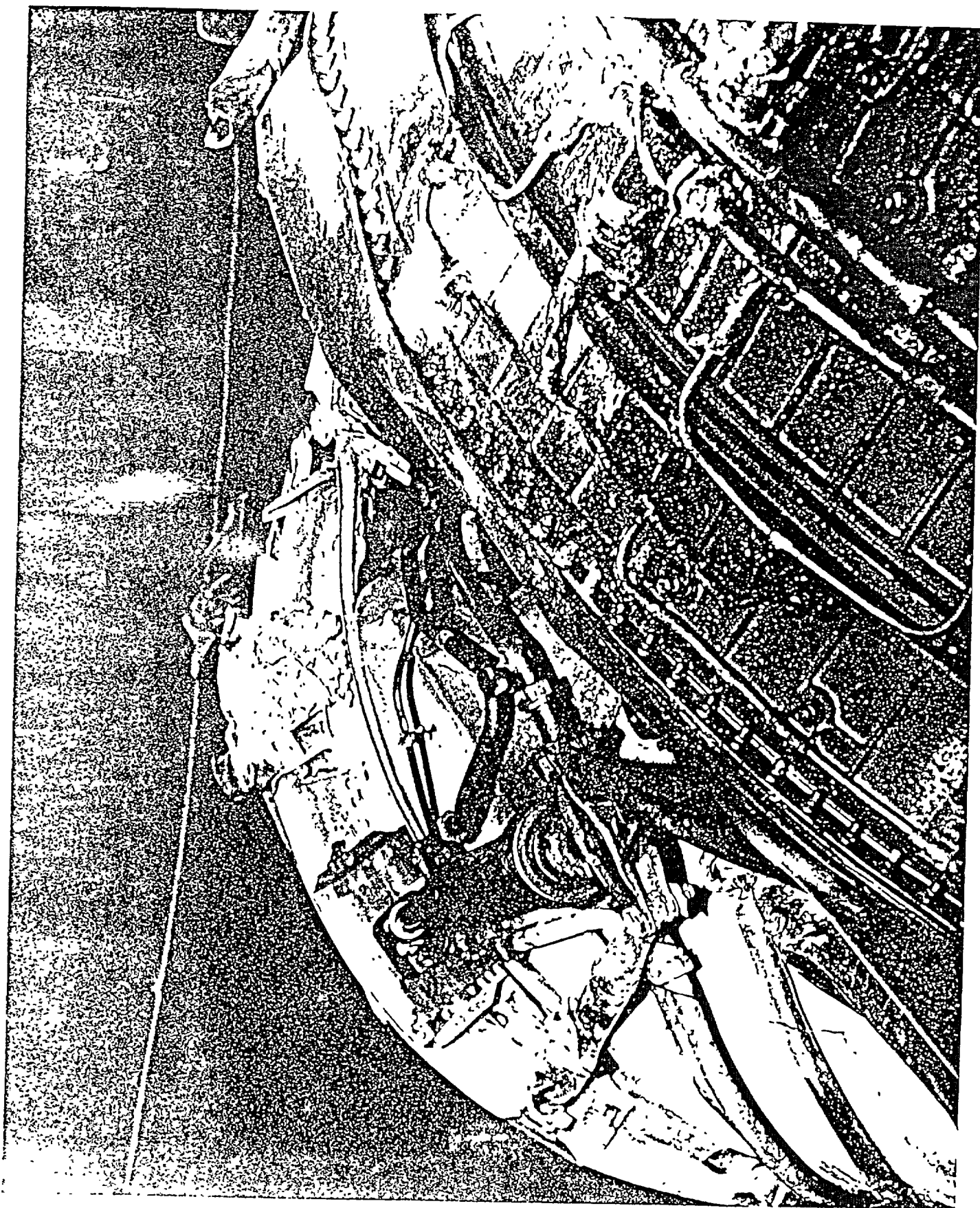

RONITA-ANN BATES, Capt, USAF
Chief, Air Traffic Control Operations
1982 Communications Squadron

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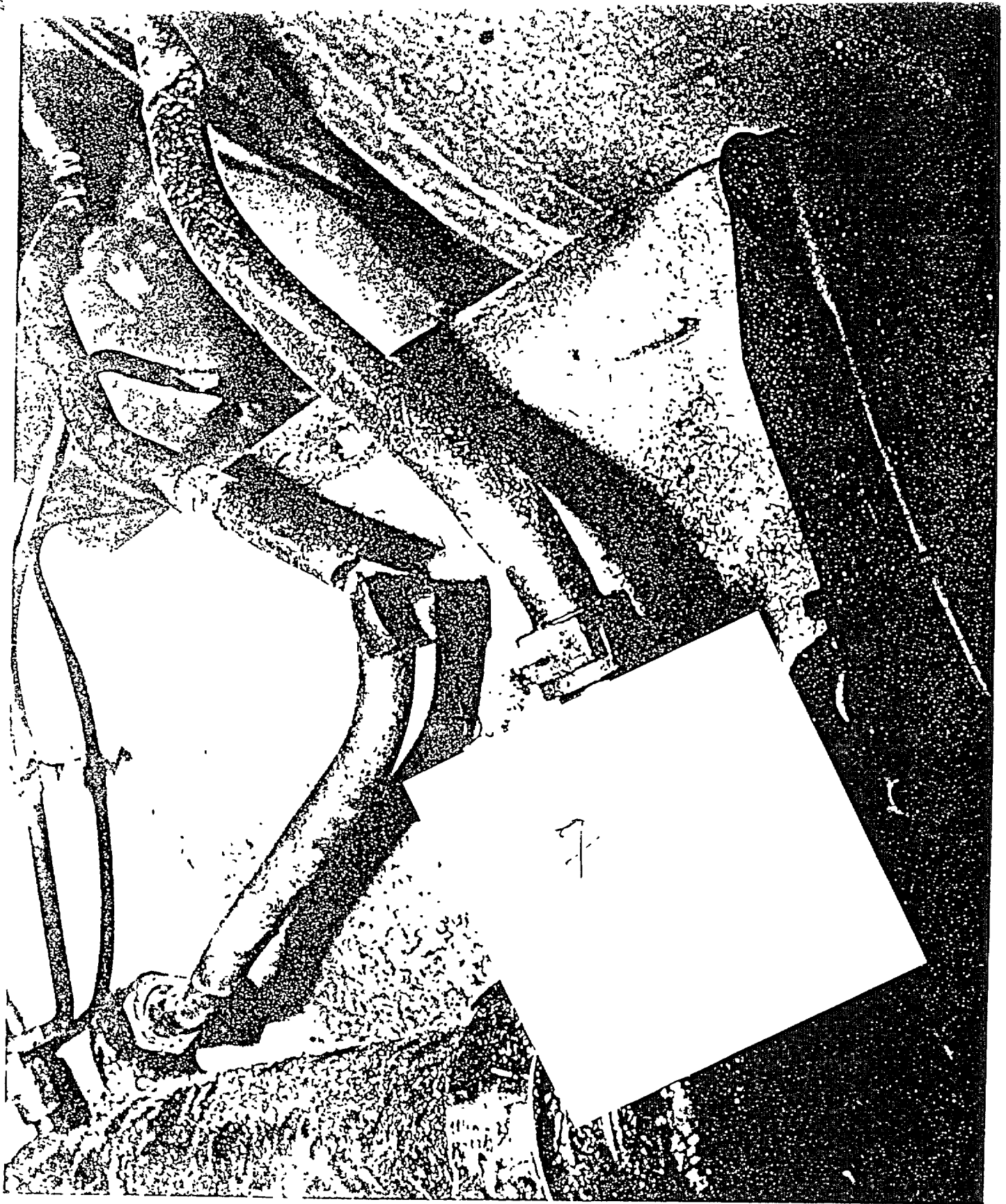
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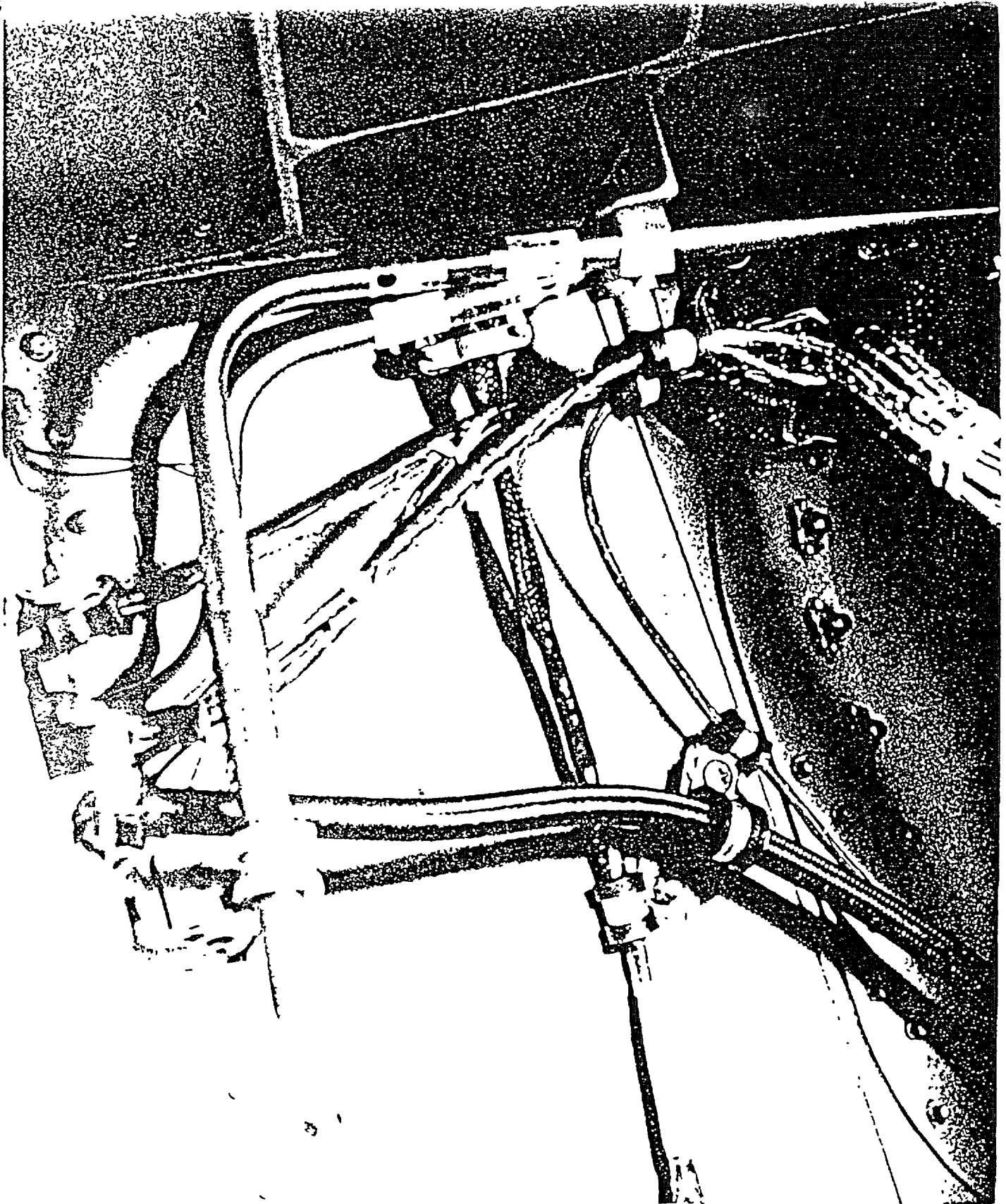


HYDRAULIC ROD END PRESSURE TUBE AND 4 O'CLOCK NOZZLE ACTUATOR

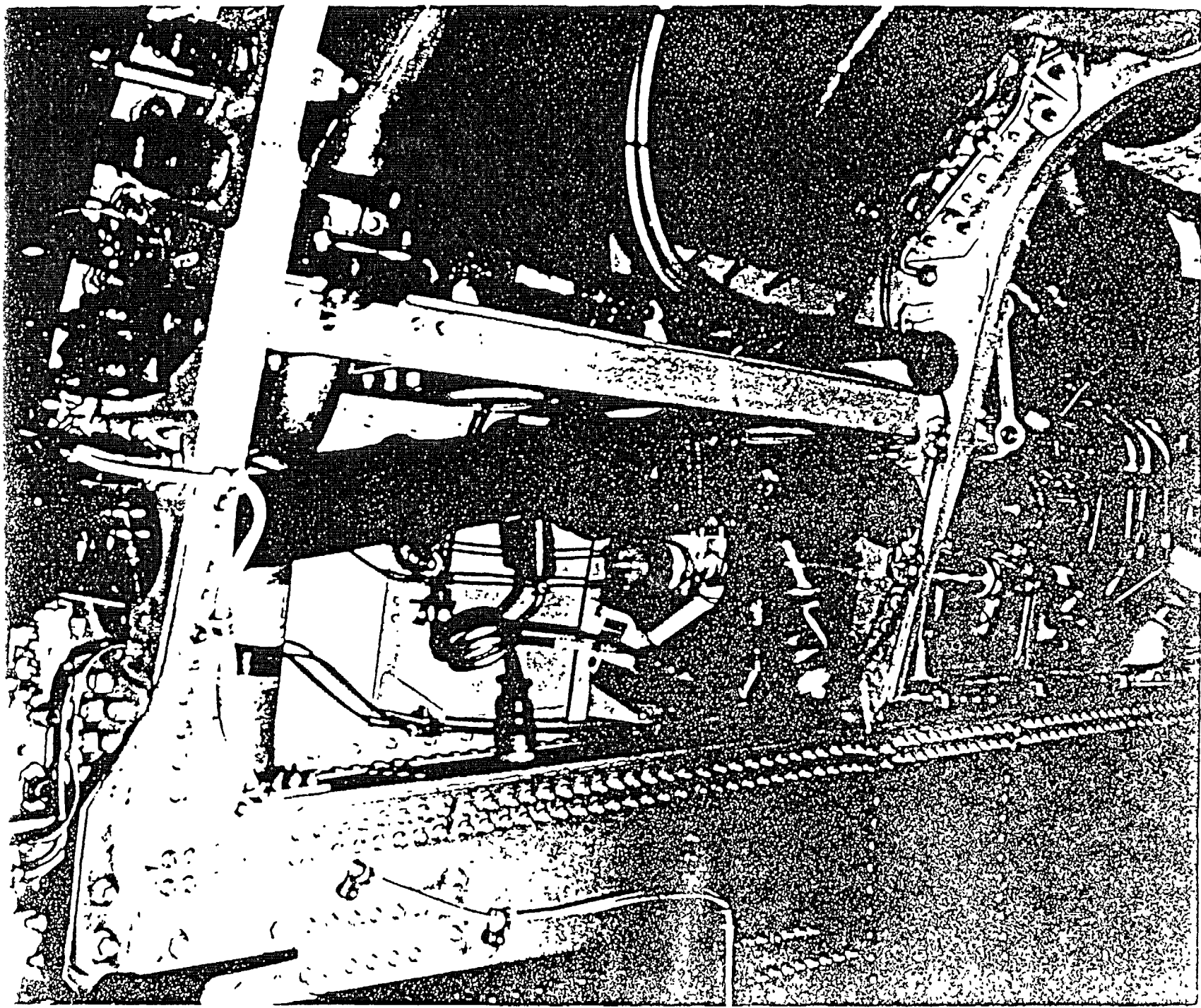
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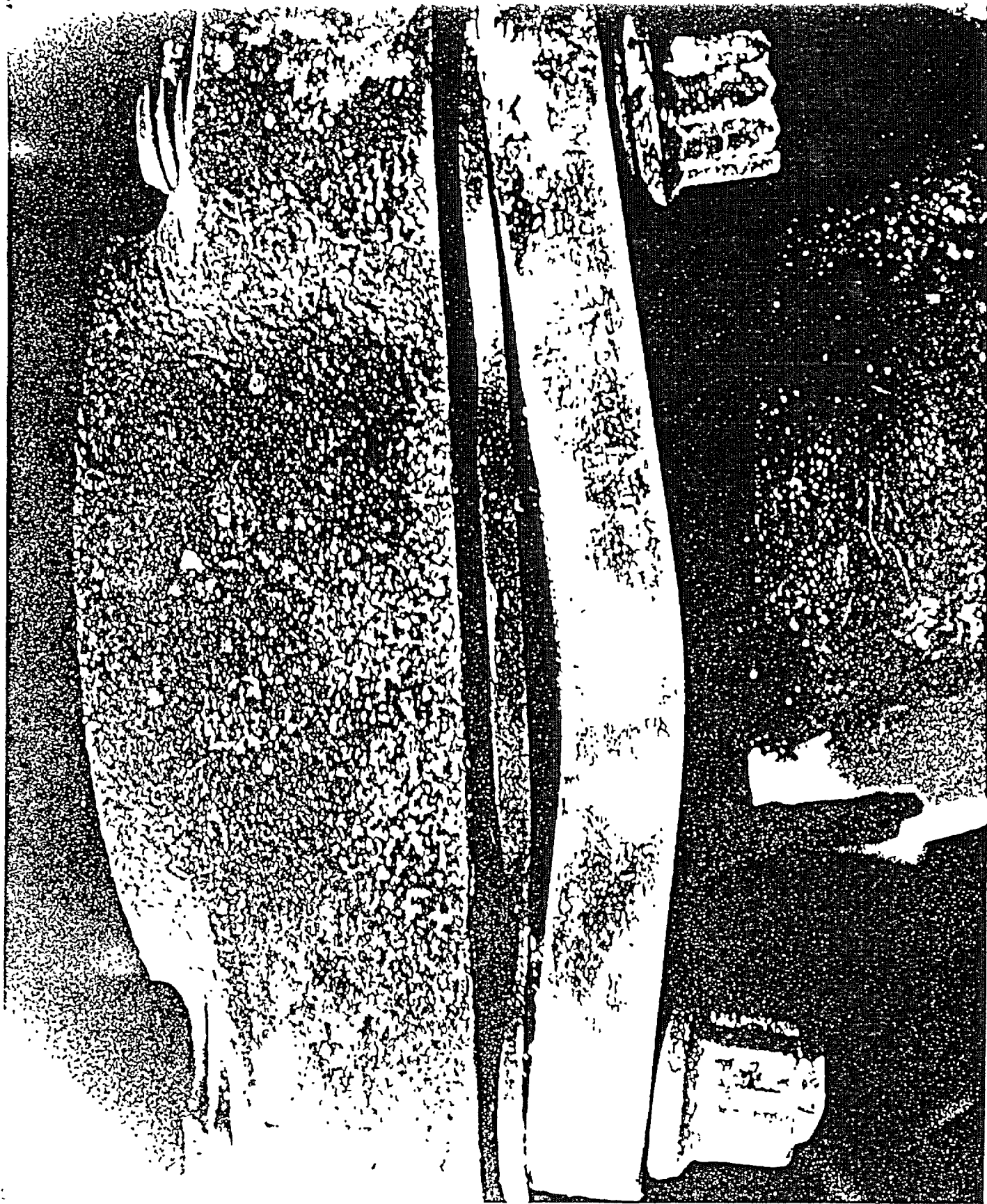
HYDRAULIC ROD END PRESSURE TUBE



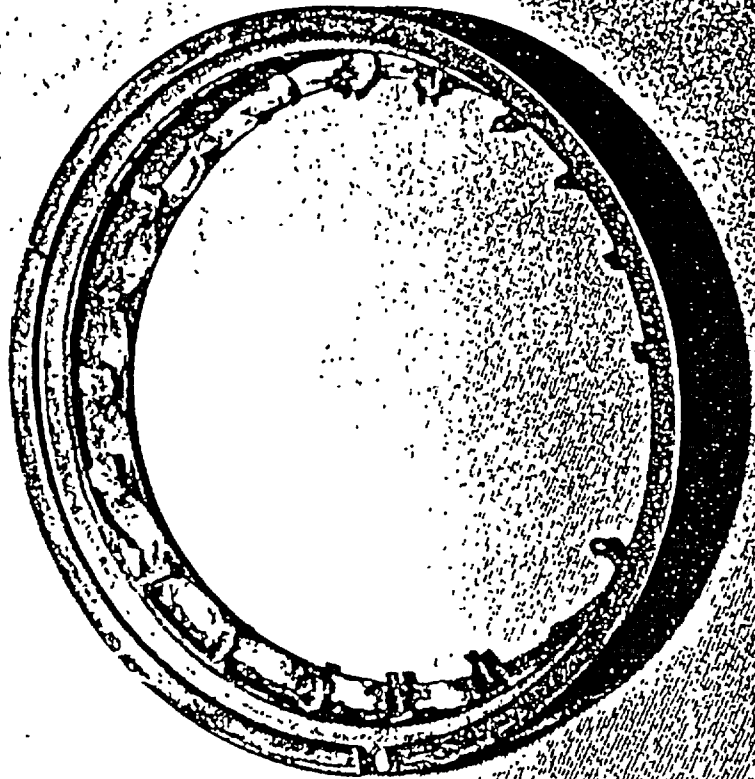
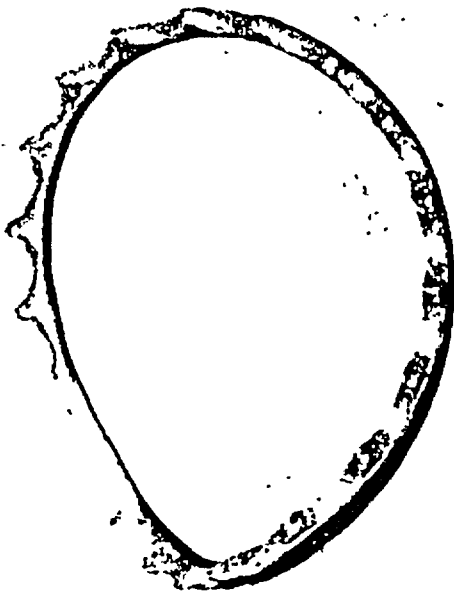
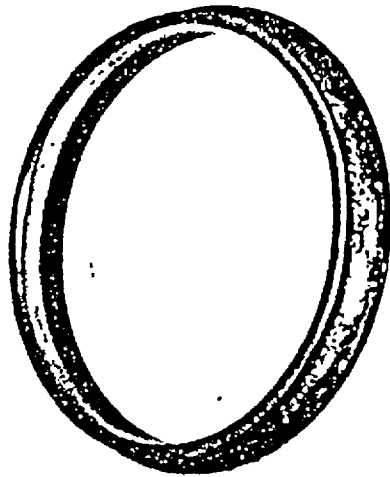
CSMU WIRING



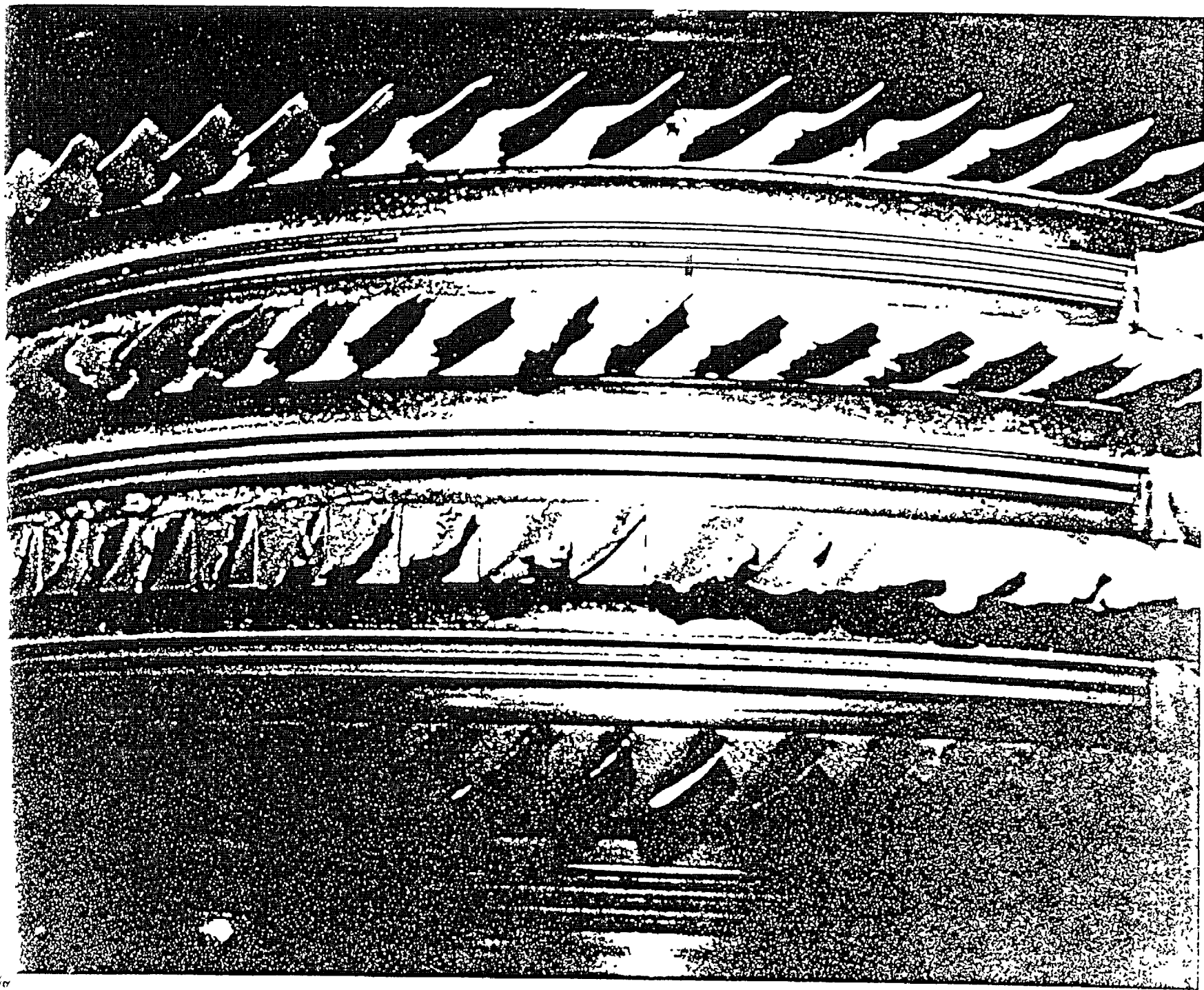
CSJU WIRING



AUGMENTOR FUEL CONTROL HIGH PRESSURE INLET

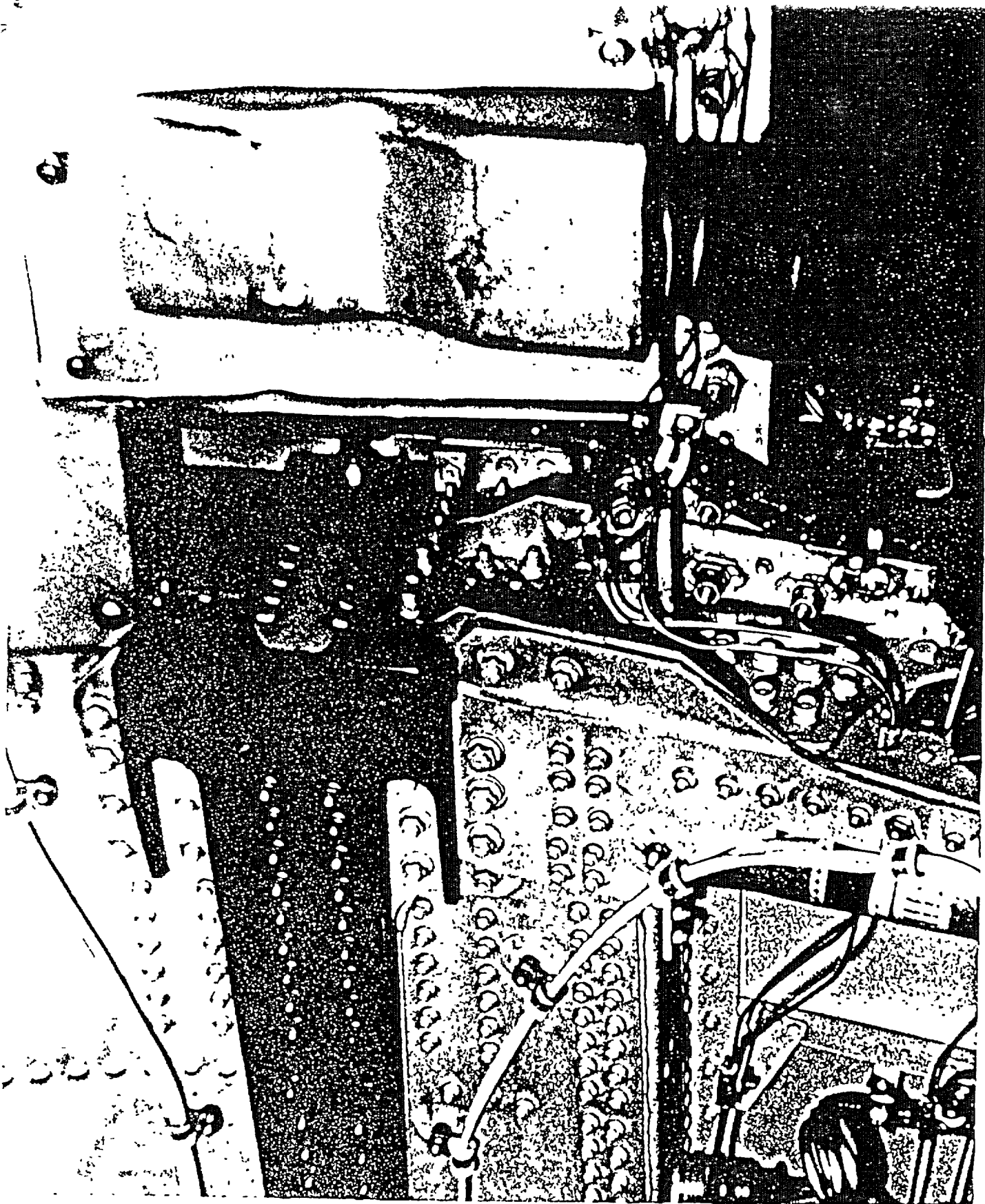


MAIN THRUST BEARING DISASSEMBLED



ENGINE ROTOR

56939



3 O'CLOCK ACCESS HOLE