AIRCRAFT ACCIDENT

IDENTIFICATION

NO.

841

NE:05:rdt
A25/1

12660
31 DEC 1952

~~RESTRICTED~~
~~SECURITY INFORMATION~~

FIFTH ENDORSEMENT on NAS New Orleans AAR Ser 7-52 of 10 Oct 1952 on JRB-4 Bu No 65132

From: Chief of Naval Air Training
To: Chief of Naval Operations (Op-53)

Subj: Aircraft Accident Report; forwarding of

1. Forwarded.

2. The conclusion of the Aircraft Accident Board is concurred in.

3. The following specific comments are submitted regarding the five recommendations made by the Board:

a. Re-design of Selector Handle:
Concur. It is further recommended that a fuel-quantity gauge be installed which would automatically indicate the fuel remaining in the tank selected.

b. Re-design of Fuel System:
Re-design of the Beechcraft fuel system is not recommended. The use of the individual tanks is the only practical means of assisting the pilot in accurately checking the fuel consumption and the fuel remaining during flight. The present fuel system affords accurate flight planning and gives adequate warning of impending fuel exhaustion.

c. Re-location of Instruments and Switches:
Concur, insofar as it is practical.

d. Construction of Training Planes for Protection of Crew:
Concur.

e. Strength of Seat Construction:
JRB/SNB Change No. 67 provides for the installation of seats to withstand 20 G's. This change is to be installed in all JRB/SNB's, except SNB-3E and SNB-3P models, as the planes go through overhaul.

841 1

10-10
JRB

12660
31 DEC 1952

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JBM

4. In conclusion, it is recommended that pilots make a practice of switching fuel tanks prior to entering the traffic pattern for landing. This would afford the opportunity to check and re-check the tank selected; and, it would provide sufficient altitude to take corrective action in case of a mistake in selection.

J. P. Fitzsimmons

J. P. FITZSIMMONS
Chief of Staff

Copy to:
BUAER (2)
CO NAS New Orleans
COMFART
CO NATRU NAS New Orleans
Naval Aviation Safety Activity
CNARESTRA

841 2

RESTRICTED

NE/3 N-3.71:mr
A25-1
Ser TR- 14373

~~RESTRICTED~~
~~SECURITY INFORMATION~~

5 DEC 1952

FOURTH ENDORSEMENT on NAS New Orleans AAR 7-52 of 10 OCT 1952 on JRB-4
BUNO 85132

From: CNARESTRA
To: CNO (Op-53)
Via: CNATRA

Subj: Aircraft Accident Report; forwarding of

1. Forwarded, concurring in the conclusion of the Aircraft Accident Board. CNARESTRA is of the opinion that the changes suggested in recommendations (a) and (b) of the Aircraft Accident Report should be given consideration for possible changes to the SNB/JRB type aircraft.

2. Also, it is recommended that consideration be given to the design of a standard fuel gauge which would always indicate fuel remaining in the tank selected.

J L Kane

J. L. KANE
CHIEF OF STAFF

Copy to:
BUAER (2)
Naval Aviation Safety Activity
CO NAS New Orleans
COMMART
CO MAIRD NAS New Orleans

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~~RESTRICTED~~

37:ejg/A25

7157
6 NOV 1952

THIRD ENDORSEMENT on NAS New Orleans Aircraft Accident Report
7-52 of 20 Oct 1952

From: Commander, Marine Air Reserve Training
To: Chief of Naval Operations (Op-53)
Via: (1) Chief of Naval Air Reserve Training
(2) Chief of Naval Air Training

Subj: Aircraft Accident Report; forwarding of

1. Forwarded.

2. Commander, Marine Air Reserve Training, concurs with the conclusions and recommendations of the Aircraft Accident Board and endorsements attached thereto with the exception of recommendations (b) and (c) contained in paragraph 33. Although these changes would be desirable in the interest of flight safety, it is the opinion of COMART that such changes would not be practical due to the expense of redesign and installation.

3. It is recommended that this accident and its causes be given extensive publication in all units operating SNB/JRB type aircraft.

(b) (6) [redacted]

(b) (6) [redacted]

Copy to:
BUAER (2)
U. S. Naval Aviation Safety Activity
CO NAS New Orleans Louisiana
CO MAirD NAS New Orleans

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~~RESTRICTED~~
~~SECURITY INFORMATION~~

NA57/RCR/jw
A9-8/1
Ser [illegible]34

20 Oct 1952

SECOND ENDORSEMENT on NAS New Orleans Aircraft Accident Report 7-52 of 20 Oct 1952

From: Commanding Officer, NAS, New Orleans
To: Chief of Naval Operations (Op-53)
Via: (1) Commander, Marine Air Reserve Training
(2) Chief of Naval Air Reserve Training
(3) Chief of Naval Air Training

Subj: Aircraft Accident Report; forwarding of

1. Forwarded.

2. The Commanding Officer, Naval Air Station, New Orleans, Louisiana, concurs with the conclusions and recommendations of the Aircraft Accident Board.

3. The following local action has been taken:

a. Attention of all pilots is being directed to the danger of selecting the tank opposite to that desired, especially at night.

b. Maintenance has been directed to work out a local fix that will permit positive determination by feel of the direction in which the tank selector is pointed.

c. Tank numbers are being painted in white block numerals on tabs projecting outboard of the present numerals which are covered up by the selector handle.

(b) (6) [redacted]

Copy to:
BUAER (2)
CNATRA
CNARESTRA (2)
COMART
U. S. Naval Aviation Safety Activity
CO, MAD, NAS, New Orleans

841 5

~~RESTRICTED~~

TFN:fcw
A25
Ser 537
21 Oct 1952

~~RESTRICTED~~
~~SECURITY INFORMATION~~

FIRST ENDORSEMENT on NAS, New Orleans, La. Aircraft Accident Report 7-52 of 20 Oct 1952.

From: Commanding Officer, Marine Air Detachment, MARTC, U. S. Naval Air Station, New Orleans, Louisiana
To: Chief of Naval Operations (OP 53)
Via: (1) Commanding Officer, Naval Air Station, New Orleans, Louisiana
(2) Commander, Marine Air Reserve Training Command
(3) Chief of Naval Air Reserve Training Command
(4) Chief of Naval Air Training

Subj: Aircraft Accident Report, forwarding of

1. Forwarded.

2. The Commanding Officer, Marine Air Detachment, concurs with the conclusions and recommendations of the Aircraft Accident Board.

(b) (6) [redacted]

y to:
Aer (2)
CNATRA
CNARESTRA (2)
COMART
S. Naval Aviation Safety Activity

~~RESTRICTED~~

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AIRCRAFT ACCIDENT REPORT [redacted]

THE AIRCRAFT ACCIDENT BOARD SHALL SUBMIT THIS REPORT TO THE C.O. OF THE ACTIVITY CONDUCTING THE INVESTIGATION. IT SHALL THEN BE FORWARDED BY THE C.O. IN ACCORDANCE WITH CURRENT AIR INSTRUCTIONS.

1. DATE OF ACCIDENT	HOUR	2. ACTIVITY SUBMITTING REPORT	3. AND SERIAL NO.
10 October 1952	1627 CST	NAS, New Orleans, Louisiana	7-52

4. MODEL A/C	BUNO	CHECK DAMAGE TO A/C	5. HOMEBASE (SQUADRON OR A/C)
JRB-4	85132	[x] a. [ ] b. [ ] c. [ ] d. [ ] e.	NAS, New Orleans, Louisiana

6. NAME OF UNIT OPERATING THE A/C	BASED AT	7. CHAIN OF COMMAND	8. STATION ATTACHED
Marine Air Detachment	NAS, New Orleans, Louisiana	CO, MAD, New Orleans, CO, NAS, New Orleans, COMAIRESTRA, CNAIRESTRA, CNATRA, CNO	MAD, New Orleans, Louisiana

9. LOCATION OF ACCIDENT
1.5 miles ESE of NAS, New Orleans, Louisiana

V. PERSONNEL INVOLVED (Including name and injury code of those injured, not incidental to acc.)

FULL NAME, RANK, SERVICE, FILE NO. (First person in command first)	B. PILOT	C. POSITION	D. INJURY
(b) (6) [redacted], LTJOL, USMC, (b) [redacted]	Pilot	Pilot Seat	A
(b) (6) [redacted], MSGT, USMC, (b) [redacted]	Passenger	Co-pilot Seat	A
(b) (6) [redacted] 1STLT, USMCR-O, (b) (6)	Passenger	Passenger Compartment	A
(b) (6) [redacted], PFC, USMCR-O, (b) (6)	Passenger	Passenger Compartment	A
(b) (6) [redacted], PFC, USMCR-O, (b) (6)	Passenger	Passenger Compartment	A
(b) (6) [redacted], PFC, USMCR-O, (b) (6)	Passenger	Passenger Compartment	B

10. PILOT EXPERIENCE	TOTAL ALL MODELS	TOTAL THIS MODEL	LAST 12 MONTHS ALL MODELS	LAST 6 MONTHS ALL MODELS	LAST 6 MONTHS THIS MODEL	INSTRUMENT RATE: Standard
TOTAL HOURS	2708.6	317.7	147.2	51.6	18.7	PILOT AGE: 31
INSTRUMENT HOURS			15.6	3.1	3.1	DATE DESIGNATED: 5 April 1942
NIGHT HOURS			16.3	0.0	0.0	
CV LANDINGS			0	0	0	

11. CHECK IF: [x] INCIDENT TO FLIGHT [ ] NOT INCIDENT TO FLIGHT | 12. PURPOSE OF FLIGHT: MOT and transportation of personnel | CODE: 1010 | 13. TIME IN FLIGHT: 02-33

14. TYPE OF ACCIDENT: Crash landing due to fuel exhaustion | CODE: B | 15. MANEUVER INVOLVED: Approach to landing

16. WEATHER	CEILING	VISIBILITY	17. DARKNESS	18. CLEARANCE FLIGHT
[x] VFR [ ] IFR	Clear	10	[ ] YES [x] NO	VFR

19. WIND DIRECTION	FORCE	20. ANGLE OF IMPACT	STOPPING DISTANCE	SPEED OF IMPACT	21. DID FIRE ENSUE (IMPACT)
170°	6 Kts.	090°	471 feet	75 Knots	[ ] YES [x] NO

22. AIRCRAFT AND ENGINE DATA (Fill in all data in every case of material failure or malfunction, actual or suspected)

HISTORY	SERVICE TOUR	TOTAL NUMBER OF OVERHAULS	MONTHS IN THIS TOUR	FLT HOURS SINCE OVERHAUL	FLT HOURS SINCE ACCEPTANCE	TYPE OF CHECK LAST PERFORMED	FLT HOURS SINCE CHECK	NO. DAYS SINCE CHECK
AIRCRAFT	3	2	13	583.5	2280.0	90-hour	20.4	10
ENGINE 1		4		934.7	3742.2	90-hour	20.4	10
ENGINE 2		4		1175.9	2742.3	90-hour	20.4	10
ENGINE 3								
ENGINE 4								

WAS THIS A/C BEEN DAMAGED IN PREVIOUS ACCIDENT(S) DURING PRESENT SERVICE TOUR? [ ] YES [x] NO | IF YES, GIVE DATE(S) OF PREVIOUS ACCIDENT(S)

23. CONTRIBUTORY FACTORS (Check or fill in only one primary "P" factor, all others secondary "S")

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P	S		P	S		P	S	
[x]	[ ]	PILOT (OR CREW) ERROR	[ ]	[ ]	MATERIAL FAILURE OR MALFUNCTION	[ ]	[ ]	
[ ]	[ ]	ERROR OF OTHER PERSONNEL	[x]	[ ]	Design of fuel system	[ ]	[ ]	

24. CHECK CONDITIONS INVOLVED IN THIS ACCIDENT (Check other)

[ ] X-WIND, STACKWASH, SLIPSTREAM, TURBULENCE [ ] PITCHING OR ROLLING DECK [ ] COMMUNICATION DIFFICULTY [ ] AIRPORT HAZARD [ ] ROUGH SEAS [x] TERRAIN CONDITIONS

25. EMERGENCY CONDITIONS

[ ] IMMEDIATE FORCED LANDING [ ] PRECAUTIONARY LANDING [ ] ENGINE FAILURE [x] FUEL EXHAUSTION OR NEAR EXHAUSTION

26. PERSONNEL SAFETY EQUIPMENT USED

[x] PARACHUTE [ ] EJECTION SEAT [x] SHOULDER HARNESS [x] SAFETY BELT [ ] EXPOSURE SUIT [ ] WALKIT [ ] PROTECTIVE HELMET [ ] OXYGEN MASK [ ] LIST OTHERS

27. ENCLOSURES AND DISTRIBUTION CHECK OFF LIST.

CHECK	ENCLOSURES	CHECK	NO.	DISTRIBUTION BY COMMANDING OFF.
	STATEMENTS: PILOT		ORIG.	CNO (OP-51) VIA CHN. OF COND.
	LSO			~~[illegible]~~
(1)	ORG. OFF.		2cc	BUAER DIRECT
(2)	CAT. OFF.			CHECK AND LIST OTHERS AS REQUIRED
	WITNESSES		1 cc	U. S. Naval Aviation Safety Activity (Direct)
(3)	OTHERS		1 cc	CNATRA (Direct)
	PHOTOGRAPHS		2 cc	CNAIRESTRA (Direct)
	DRAWINGS		2 cc	NAS, New Orleans, La.
	WEATHER REPORT		2 cc	Log books
	LOADING MANIFEST		1 cc	COMAIRESTRA (Direct)

(b) (6) [redacted]

(b) (6) [redacted], USNR, 1315
Operations Officer

(b) (6) [redacted]
(b) (6) [redacted], USNR, 1355
Aircraft Maintenance Officer

(b) (6) [redacted]
(b) (6) [redacted], USN
[redacted]

(b) (6) [redacted]
(b) (6) [redacted], USNR, 1315
Training Officer

OCT 20 1952

29. The accident. On 10 October 1952 LTCOL (b) (6) USMC, (b) , Commanding Officer of the Marine Air Detachment at New Orleans, Louisiana, filed a clearance with the Naval Air Station, New Orleans Operations Officer to depart at 1400 on a round robin flight to Lake Charles, Louisiana. The weather was clear; the plane was in excellent mechanical condition, and all gasoline tanks were topped off; the pilot was qualified, and all clearance procedures and requirements had been complied with, including a listing on the DD-175 form and on the Part "C" of the Flight Data Sheet of the names of the passengers who were to be picked up at Lake Charles.

The purpose of the flight was flight proficiency training for LTCOL (b) (6) and SGT (b) , who flew as observer with non-crew number flight orders. In addition to flight proficiency, this flight was scheduled to pick up the four passengers at Lake Charles and transport them to the Naval Air Station, New Orleans, for their scheduled drill weekend training.

At approximately 1620, the plane returned from Lake Charles and entered the traffic pattern from Point X-RAY. The pilot carried on a normal radio conversation with the Navy tower operator and at no time indicated that he was having any difficulty. As the plane turned onto a wide base leg, the pilot reported gear down and locked and acknowledged receipt of clearance to land on Runway Number 28. Immediately thereafter, the plane was observed by the tower operator to disappear behind the trees. The tower operator reported a crash, and rescue operations commenced.

In the vicinity of the aircraft at the time the plane was seen to disappear by the tower operator, a witness heard both engines quit. Other witnesses on the ground between this point and the place where the wreckage was found also state that the engines were not operative.

During the descent, the plane was on a heading of about 045 degrees; it probably was the intention of the pilot to steer towards a clearing or toward the canal or railroad tracks so as to make an emergency landing. The first impact was made when the plane flew through the top of a willow tree and broke off branches approximately twenty feet above the ground. After passing through the tree, the plane was pulled up and over a house, and 60 feet from the first impact, the port wing was sheared off on a telephone pole between ribs nine and ten, and the extended landing gear broke several utility wires which were about 35 feet above the street. The plane continued on a heading of 045 degrees for 168 feet and in a slightly right wing low attitude struck the roof of another house with the under side of the left wing. The JRB continued on for 200 feet, where it struck the concrete side of a drainage canal at an angle of impact between the flight path and the terrain of about 80 degrees and with the right wing down in a 45 degree bank. The plane struck on the starboard wing, starboard engine and starboard side of the aircraft nose, and nosed over before sliding sideways up the embankment against the left wing. No fire followed the crash.

30. Damage to the aircraft. Upon initial impact with the willow tree, only very minor damage was sustained; however, it is estimated that the speed of the aircraft at this time was 75 knots in a glide with both engines dead and the landing gear extended. This impact and the increase in the plane's altitude to clear the house further reduced the flying speed of the Beechcraft. The second impact was made with a utility pole and carried away the port wing tip and undoubtedly reduced the airspeed, probably to 68 knots. The landing flaps were up, and the aircraft stalled down on top of the roof of the second house where the port wing was scraped on the underside as it slid across the roof.

During the last 200 feet, the nose of the plane was falling through a stall as the plane descended to the level of the drainage ditch. The fourth impact was the most severe; however, it did not result in a complete deceleration of the aircraft, and sufficient force remained to curl the port wing as the aircraft slid 40 feet up a 45 degree slope of the railroad embankment in

an inverted position. This fourth impact was against the concrete wall of the drainage ditch, and the port wing and engine absorbed most of the force of the impact; however, it is believed that this impact caused the passenger seats to tear out of the plywood deck, and as the plane nosed over and the top of the fuselage crashed into the ground, the passengers were killed or injured by blows on the head. The top of the fuselage above the cockpit peeled off during the sliding, and the pilot and passenger in the co-pilot's seat were killed when their heads came in contact with the ground. Other damage, as described in the Maintenance Officer's statement, occurred during this final impact.

Consideration was given to the possibility that the seats failed at a "G" force of somewhat less than five "G's." No test could be conducted to determine this condition, nor is this Board familiar with the requirements for this feature of a Navy Beechcraft. It is noted that none of the safety belts failed, and yet the seats did, as can be seen in Enclosure (3C). It is assumed that the passengers would not have been killed if these seats had not failed.

The deaths of the two persons in the cockpit probably could have been prevented if this training aircraft had had some type of an overhead reinforcement similar to that provided in many other trainers for protection of the pilot in the event of a nose over.

31. The investigation. Upon arrival at the scene of the accident, it was readily apparent from the statements of witnesses and the condition of the propellers that the engines had not been operative prior to and during the crash. Immediate examination of the wreckage indicated that this accident was the direct result of fuel exhaustion, and the Maintenance Officer was instructed to complete the investigation during salvage operations. Enclosure (1) gives a complete and detailed explanation of the findings.

All other phases of this flight were investigated, including the prior maintenance of this aircraft, previous flights, fueling before this flight, weight and balance, weather conditions and the pilot's qualifications and physical condition. None of these factors were found to be involved in this accident. It was noted that LTCOL (b) had nosed over an SNB-5 aircraft at Naval Air Station, Patuxent River, Maryland, on 2 August 1951.

The following facts are considered to be significant in determination of the cause of this accident.

a. Engine fuel selector was on "BOTH."

b. Master ignition switch was "ON."

c. Fuel tank selector was on Number Three Tank.

d. Fuel level gauge tank selector switch was on Number Two Tank.

e. The wreckage came to rest in such a position that any gasoline in the fuel lines ran toward the fuel selector valve and could not run out. These lines indicated that the fuel line from Tank Three and the fuel line from the selector valve to the engines contained no gasoline. The other three lines did contain fuel.

32. The analysis. After consideration of the evidence in this accident, the following account seems to this Board to describe the conditions during the last thirty seconds of this flight.

LTCOL (b), in JRB-4, Bureau Number 65132, approached Naval Air Station, New Orleans, for a landing after having flown from Naval Air Station, New Orleans, to Lake Charles, Louisiana, and return. Fuel tanks Three, Four and One, had been used during most of the trip but had not been run dry; Tank Number Two was full as he entered the downwind leg. As the pilot went through his check-off list, he turned the fuel gauge to Tank Two which showed full, and he put the gas selector on what he thought was Tank Two. However, the tank selector handle was 180 degrees off and was actually on Tank Three.

He then completed the check-off list, including putting down the landing gear. As he came abreast of the approach end of Runway Number 28, he was about one-half mile wider than is standard for this approach and at 400 to 500 feet altitude. At this point he reported "Gear down and locked, turning base leg." Immediately thereafter the engines quit as Tank Number Three ran dry. A quick glance at the fuel selector and the fuel gauge indicated to the pilot that nothing was wrong there. Because of the low altitude, the slow air speed and the gear being down, he found himself descending rapidly at a rate in excess of 1200 feet per minute. Directly ahead of his position, he could see a clear area in which a landing might be made. Ten seconds after the engines quit, he was dodging trees and houses; twenty seconds after they quit, he had crashed. The pilot never had time to get the engines running again, to pull up the landing gear or to lower the flaps, and the landing area within range of his glide was entirely unsuitable for landing because of the numerous houses.

The safety belts and shoulder harness belts did not fail in themselves; however, the seats to which they were attached failed completely, and the injuries were a direct result of this failure of the personnel safety equipment.

While this accident is considered to be a result of pilot error in that the pilot allowed the engines to quit because of fuel exhaustion on one tank, it is considered that poor design of the gasoline selector valve handle was a contributing factor in this accident; this important feature of a multi-engine aircraft has never been incorporated in this plane.

33. Conclusions and recommendations. It is the conclusion of this Board that the primary cause of this accident was pilot error in that the pilot allowed his aircraft to run out of gas on a tank at too low an altitude to effect recovery. The design of the fuel system in the JRB/SNB was a contributing factor. In addition, the variation in the Beechcraft's cockpit configurations possibly contributed to the inability of the pilot to take corrective action in the very few seconds available.

No recommendations for local action are made. A change in the local traffic pattern will only increase the very hazardous conditions which exist at this field.

The following recommendations are made regarding possible means of preventing future accidents of this kind within this unit and the naval organization at large.

a. Immediate re-design of the gas selector handle to make it possible to read the tank number of the tank being used and to make it readily apparent by sight and feel which tank has been selected.

b. Re-design of the Beechcraft fuel system to eliminate the numerous times that most pilots allow both engines to quit by connecting the two small auxiliary tanks through the main tanks and connecting the Port Main to the port engine and the Starboard Main to the starboard engine.

c. Re-location of the instruments in Beechcrafts into a standard pattern so that a pilot in this training program does not have to conduct a search prior to each flight to locate the starter switches, the ignition switches, the gas gauge selector and indicator, the landing gear switch and many other necessary items.

d. All training planes should be constructed so as to offer adequate protection to the crew in cases of the plane being nosed over onto its back.

e. It is recommended that tests be conducted to determine the strength of the seat construction in this type aircraft to ensure that they will withstand forces in proportion to that expected of the safety belts.

34. The rank requirement for the Senior Member of the Aircraft Accident Board, as outlined in paragraph A2b of enclosure (1) to Aviation Circular Letter 63-50, is impracticable to meet inasmuch as an officer of appropriate rank is not available for service as Senior Member of the Aircraft Accident Board.

RESTRICTED
SECURITY INFORMATION

U. S. NAVAL AIR STATION
NEW ORLEANS, LOUISIANA

N57/AGB/WJB:rr
15 October 1952

MEMORANDUM

From: Aircraft Maintenance Officer
To: Senior Member, Aircraft Accident Board

Subj: JRB-4 BUNO 85132; Crash, Damage and Inspection; report of

Encl: (1) Photostat of fuel system installation
(2) Photograph of fuel tank selector valve and lines - Inverted
(3) Photograph of fuel tank selector valve and lines - Normal
(4) Photograph of fuel tank selector valve and lines - Side View
(5) Photograph of fuel tank selector valve and lines - Disassembled
(6) Photograph of cockpit engine selector and cross-feed valve
(7) Photograph of cockpit tank selector valve
(8) Photograph of cockpit tank selector valve shaft
(9) Photograph of fuel tank level gauge selector switch

1. The subject aircraft was involved in a crash landing in the Gentilly section of New Orleans, La., at Mirabeau Avenue and Peoples Avenue Canal on 10 October 1952. After striking trees, a telephone pole and rooftop of a house, the aircraft crash landed on the east concrete embankment of the canal. The aircraft struck head-on and slightly to starboard, then rolled and twisted up the embankment and ended up in an inverted position, nose slightly down and facing in a northwesterly direction.

2. The general investigation of the extent of damage revealed the following: (Inspection and disassembly was conducted at the scene)

a. Starboard Wing Group:

(1) Starboard outer wing panel broken off at the center section.

(2) Starboard outer panel wing tip was damaged.

(3) Starboard engine and landing gear were torn from the center section wing. Propeller secure, both blades bent back.

(4) Starboard center section wing was broken off from the fuselage. Center section main spar truss was broken off at the fuselage.

(5) Starboard aileron was broken off from the outer panel.

(6) Starboard flap was in the up position and broken off at the root of the outer panel.

b. Port Wing Group:

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(1) Port outer panel was twisted and severely damaged to the inboard attachment point of the center section. The outer panel tip had been torn off and was found between the telephone pole and the damaged house.

(2) Port center section wing at the leading edge had rivets sheared at point of attachment to fuselage approximately twelve (12) inches on the upper and lower surface.

(3) Port aileron twisted and broken.

(4) Port flap was in the up position, twisted and broken outboard from the outer panel root.

(5) Port engine torn from the center section wing. The propeller was secure, with one blade bent back and one blade straight but nicked on leading edge near tip.

(6) Port Landing Gear down and locked, and intact except for a bent slide tube and truss tube #27 broken. The wheel well doors were not damaged.

ENCLOSURE (1) TO NAS NEWORLEANS AAR 7-52

RESTRICTED
SECURITY INFORMATION

c. Tail Group:

(1) Starboard rudder and vertical stabilizer were not damaged.

(2) Horizontal stabilizer was not damaged.

(3) Elevator was not damaged, but the elevator connecting link was broken.

(4) Port rudder and vertical stabilizer were twisted and buckled throughout entire length.

(5) The tail alighting gear was not damaged.

d. Body Group:

(1) The bottom of the fuselage was crushed inward to bulkhead #3. The pitot tube was not damaged.

(2) The bottom of the fuselage between Bulkheads #3 and #8 had minor damage.

(3) The bottom of the fuselage was broken between Bulkheads #8 and #9.

(4) The bottom of fuselage between Bulkheads #9 and #15 was not damaged.

(5) The top of the fuselage from Bulkheads #1 to #5 was completely crushed.

(6) The top of the fuselage was extensively damaged between Bulkheads #5 and #8 but not crushed.

(7) The top of the fuselage was torn between bulkheads #8 and #9 and wrinkled between #9 and #11.

(8) The top of the fuselage between Bulkheads #11 and #14 was not damaged.

(9) The top of the fuselage between Bulkheads #14 and #15 was wrinkled.

(10) In the passenger compartment, the four passenger seats had been torn from their moorings to the deck.

(11) In the pilot's compartment, the instrument panel and control pedestal were crushed inward and aft.

(12) The radio gear located in the aft compartment remained secure and received only minor damage.

e. The aircraft had sustained Class "A" Strike Damage.

f. An inspection of the flight controls, switches, selectors and safety equipment revealed the following:

(1) Generators ON.

(2) Engine fuel selector on BOTH

(3) Cross-feed OFF

(4) Parking brake OFF

(5) Tail wheel LOCKED

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(6) Ignition Switches:

(a) Master: ON

(b) Port engine: BOTH ON

(c) Starboard engine: OFF

(7) Fuel tank selector on Number Three Tank (Port Auxiliary).

(8) Primer on Port Engine.

(9) Automatic pilot selector - OFF position

(10) Mixture controls both engines FULL RICH, friction lock ON

(11) Throttles 3/4ths OPEN, friction lock ON

(12) Propellers FULL INCREASE RPM. Friction lock ON

(13) Battery switches ON

(14) Fuel level gauge tank selector switch on Number Two Tank (Starboard Main)

(15) Landing and take off check-off list was secured in its normal position.

(16) Landing gear switch DOWN

(17) Wing flap switch Neutral (center position)

(18) Engine cowl flaps closed.

(19) Manifold heat in the mid-position.

(20) Altimeter setting: 30.12

841 13

(21) Gyros caged

(22) Oil shutters - Cold

(23) Cabin heat: ON

(24) Oil by-pass: OFF

(25) Vacuum selector - Starboard engine

(26) Shoulder harness and lap belts in pilot's compartment were locked, but had been cut to remove the bodies.

(27) Elevator tab, Nose Down 14°.

(28) Rudder tab Neutral.

(29) Aileron tab setting undetermined.

(30) Air speed selector on static pressure.

g. A detailed disassembly and inspection of the fuel system revealed the following:

(1) Port main fuel tank (#1) ruptured and contained a few ounces of fuel.

(2) Port auxiliary tank (#3) was not damaged and contained approximately five (5) quarts of fuel.

(3) Starboard main fuel tank (#2) was ruptured, and contained approximately one pint of fuel.

(4) Starboard auxiliary fuel tank (#4) was not ruptured, and contained approximately 1 quart of fuel.

(5) The fuel tank selector valve was not damaged and was found to be on Number Three (port auxiliary) fuel tank.

(6) The fuel lines leading from the port main (#1), starboard main (#2), starboard auxiliary (#4) and to the fuel tank selector valve were found to be full of trapped fuel.

(7) The line leading from the port auxiliary (#3) to the tank selector valve contained a few drops of fuel.

(8) The fuel line leading from the tank selector valve to the hand pump was empty. The position of the lines and the tank selector valve at the time of inspection is shown by enclosures (2), (3), (4) (5) and (6).

(9) The fuel tank selector valve, the lines from the tanks to the selector valve, and the line leading from the selector valve to the hand pump were properly installed and secured. When inspected, the selector valve was found to be positioned on the port auxiliary tank (#3). The control linkage from the fuel tank selector valve to the selector pointer in the pilot's compartment was found to be properly installed and secured. The control linkage was found to be slightly bent approximately three (3) degrees from normal, as shown in enclosure (8).

(10) The fuel hand pump and lines were properly installed; functionally tested and found to operate satisfactorily.

(11) The engine selector valve which had been found in the normal for flight "BOTH ON" position was properly installed; functionally tested and found to operate satisfactorily.

(12) The lines leading from the engine selector to the port and starboard engine fuel strainers had been broken and both fuel strainers were torn from the engines.

(13) The port and starboard engine driven fuel pumps operate satisfactorily.

(14) Port engine carburetor was buckled at the mounting flange.

(15) Starboard engine carburetor was broken open at throat.

(16) The primer was found to be selected on the port engine, and when tested, was found to operate satisfactorily.

(17) Cross-feed valve which had been found in the OFF position was properly installed and found to operate satisfactorily.

(18) This aircraft did not have a nose tank installation.

(19) The fuel tank transmitters were found to be properly installed and when tested operated normally.

(20) The fuel level gauge was broken. The fuel level gauge selector switch which had been found on the Number Two (starboard main) tank was properly installed, functioned properly, but the electrical leads were broken.

(21) When inspected and tested, all components and lines of the fuel system which had not been damaged during the crash were found to be properly installed, secured, safetied and functioned in a normal

satisfactory manner. There was no evidence of external fuel leakage throughout the system; all the tank strainers, the engine strainers and the carburetor finger strainers were clean and contained no foreign matter.

(22) The fuel tanks contained no foreign matter and all of the remaining fuel obtained from the tanks or trapped in the lines was tested by a water sensitive indicator and was found to contain no contamination.

(23) Inspection of the damaged carburetors revealed no indication of malfunctioning. There was no fuel found in either carburetor.

(24) The engine fuel strainers contained no fuel.

(25) The conclusion drawn from the analysis of the fuel system positively indicated that both engines failed due to fuel starvation. Since fuel had spilled from the ruptured tanks at the scene of the crash, it is apparent that a considerable quantity of fuel was available in the tanks prior to the crash. The aircraft had been properly pre-flighted prior to the first flight of the day and all fuel tanks were full. On its return from the morning flight of 1.6 hours' duration, the aircraft had been serviced with sixty-four (64) gallons of fuel. The last flight of 2.5 hours' duration would have normally consumed approximately one hundred (100) gallons of fuel.

h. An inspection and test of the ignition system and components revealed the following:

(1) The ignition switch had been found with the master ignition switch ON, port engine BOTH ON, and starboard engine OFF. The ignition switch operation was found to be normal. The continuity check could not be made because the leads were broken. However, no evidence was observed to indicate that the leads had been grounded or broken prior to the crash. The leads attached to switch were installed properly.

(2) On the Port Engine:

(a) The port and starboard magnetoes tested satisfactorily.

(b) The ignition harness which was severed at the engine mount tested satisfactorily except where the leads were broken or damaged.

(c) The spark plugs were installed properly and those which were not damaged tested satisfactorily.

(d) The distributor blocks were found normal.

(3) On the Starboard Engine:

(a) The port magneto was broken.

(b) The starboard magneto tested satisfactorily.

(c) The ignition harness tested satisfactorily.

(d) The distributor blocks were found normal.

(e) The spark plugs in the starboard engine were installed properly and those that were not damaged tested satisfactorily.

(4) A complete inspection and functional test of the ignition components that were not damaged during the crash indicated that the entire system was properly installed and operating in a normal satisfactory manner.

i. The port and starboard engines were inspected for evidence of internal mechanical failure.

(1) The inspection revealed that prior to the crash, the engines were apparently normal in all respects. Both engines suffered major damage during crash. The propellers were found to be in the Full Increase RPM position. Since failure of both engines had been observed and reported prior to the crash and failure of both engines can be contributed to either ignition failure, fuel exhaustion or total engine mechanical failure, a further analysis of the other engine damages would not tend to clarify the contributing factors causing the crash.

j. The flight and power plant controls, rods, linkages, cables, bellcranks and surfaces which were not damaged during the crash were found to be properly installed and indicating no malfunctioning, but normal in all respects.

k. There were no failures of the shoulder harness or safety belts.

l. This aircraft had thirteen (13) months in service and had logged 583.4 hours of flight time since overhaul. A review of the flight data sheets and the discrepancy reports indicated that no fuel system or engine malfunctioning had occurred during the past 90 days.

(1) Since the last routine 90 hour check which was completed on 30 September 1952, there had been only one reported discrepancy: a low landing gear oleo strut.

(2) The aircraft had logged 23.5 hours since the last check.

m. A summary of the investigation from the facts obtained positively indicated that power failure of both engines during the landing approach was caused by fuel starvation. The fuel starvation may have been caused by running one tank dry or selecting to an empty tank during the landing approach.

(b) (6) [redacted]
(b) (6) LCDR, USNR
AIRCRAFT MAINTENANCE OFFICER

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(b) (5), (b) (6)

(b) (5), (b) (6)

(b) (6), (b) (5)

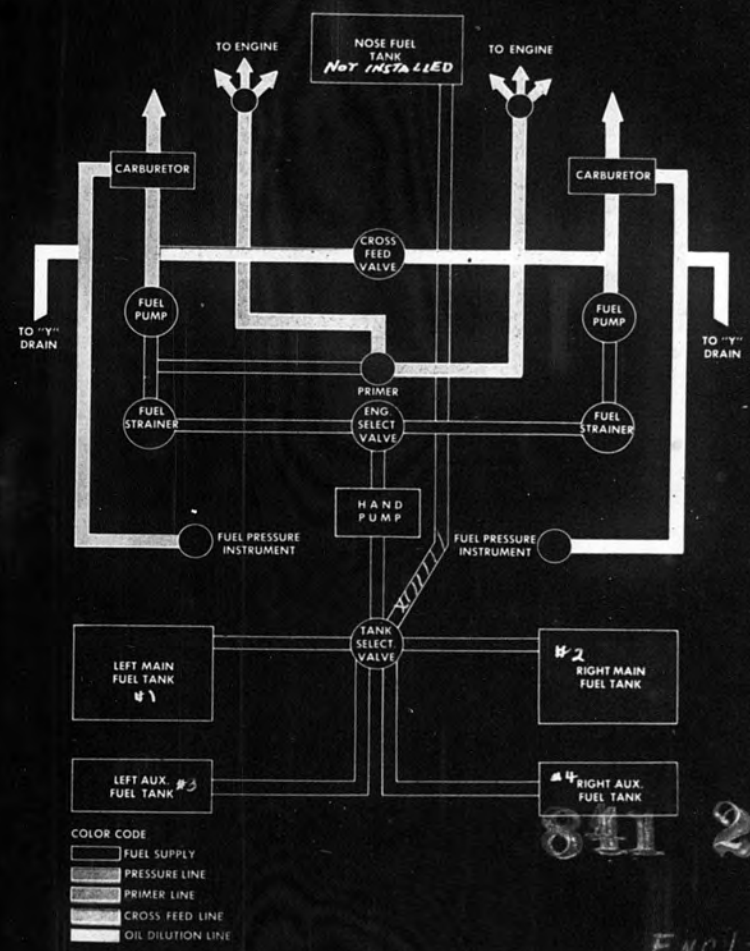
(b) (6), (b) (5)

(b) (6), (b) (5)

(b) (6), (b) (5)

FUEL SYSTEM DIAGRAM

OF JRB-4 85132



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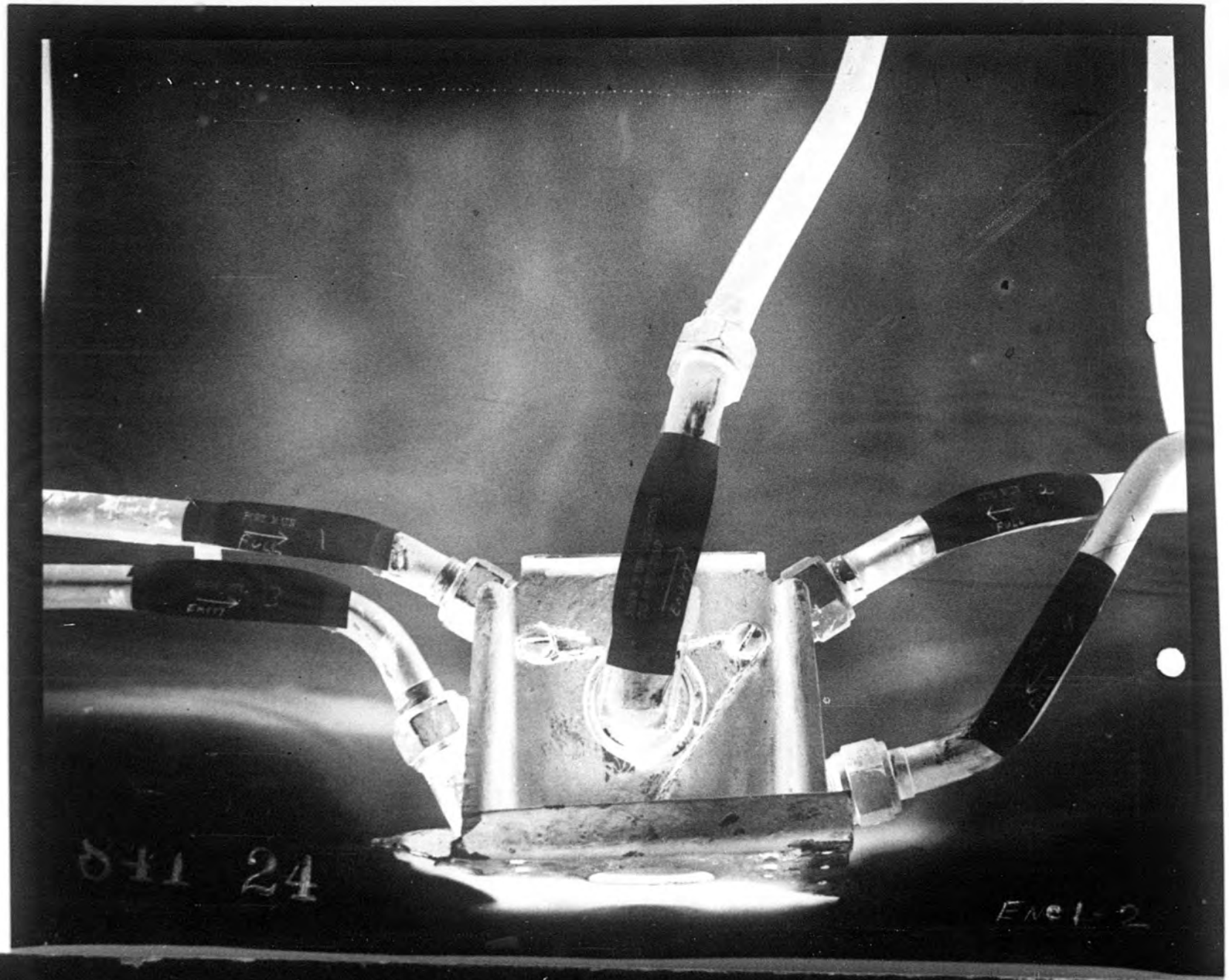
ENCL-1

Figure 5-13. Fuel System.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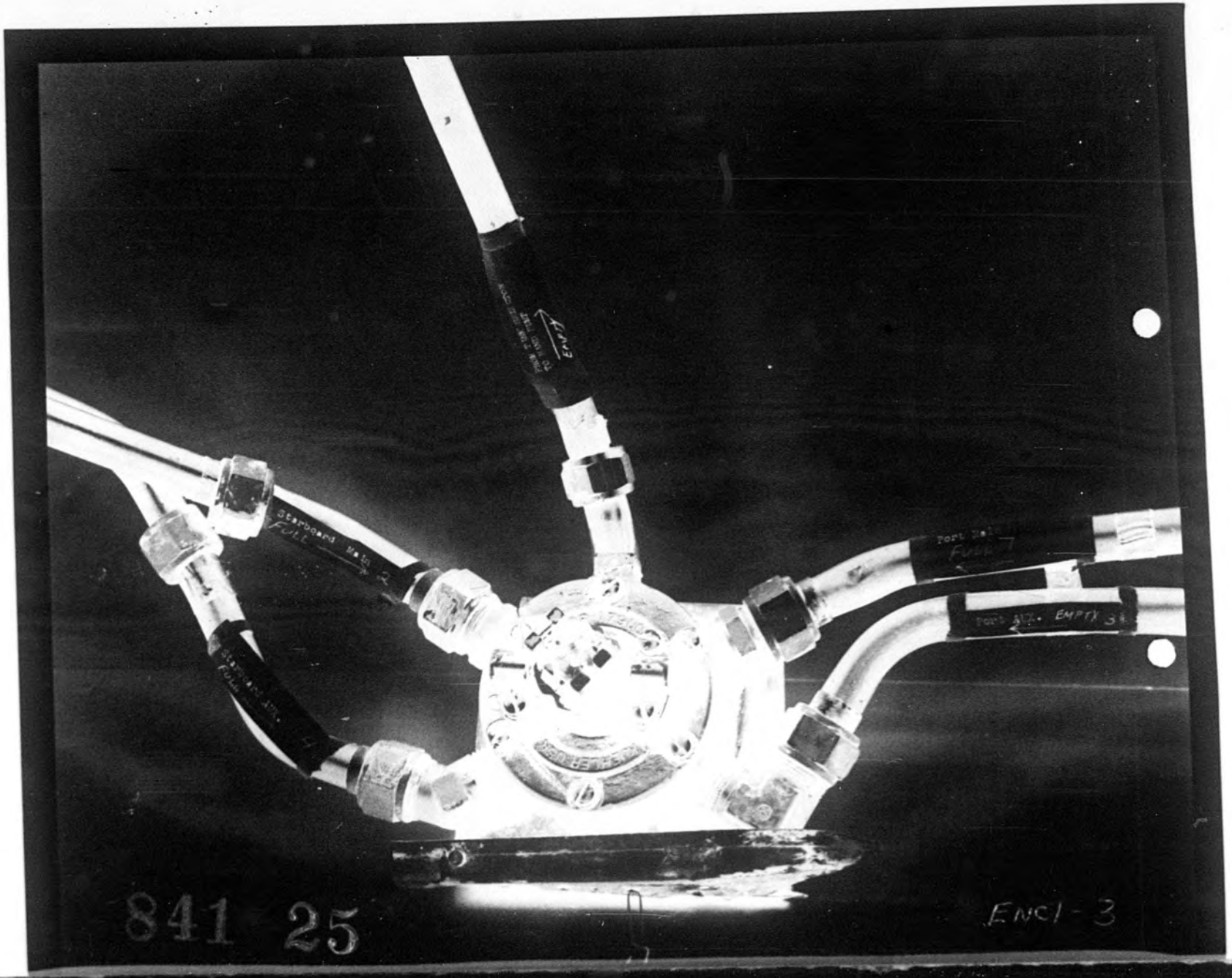
Encl-2


Starboard Main
FULL
Port AUX. EMPTY
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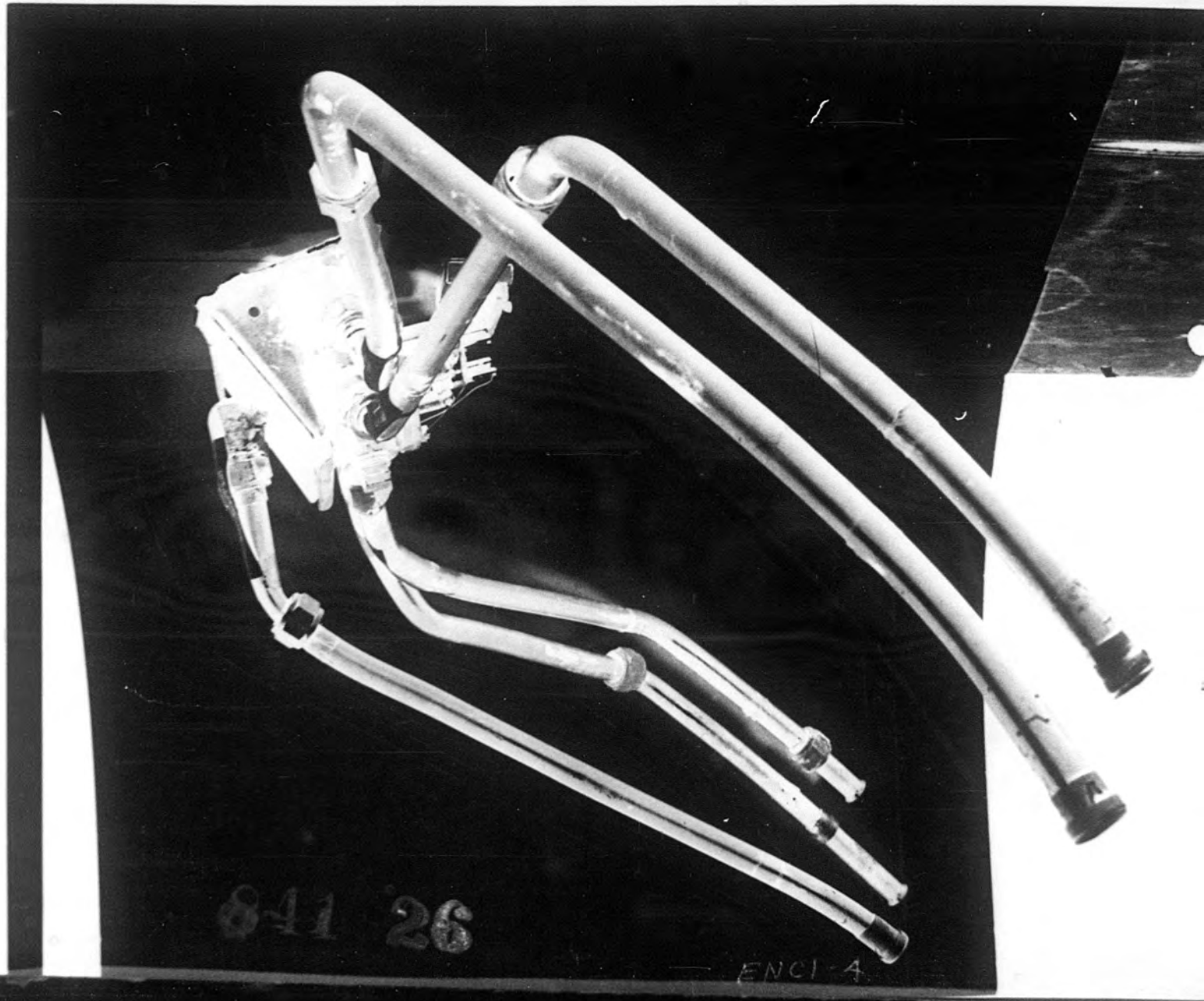
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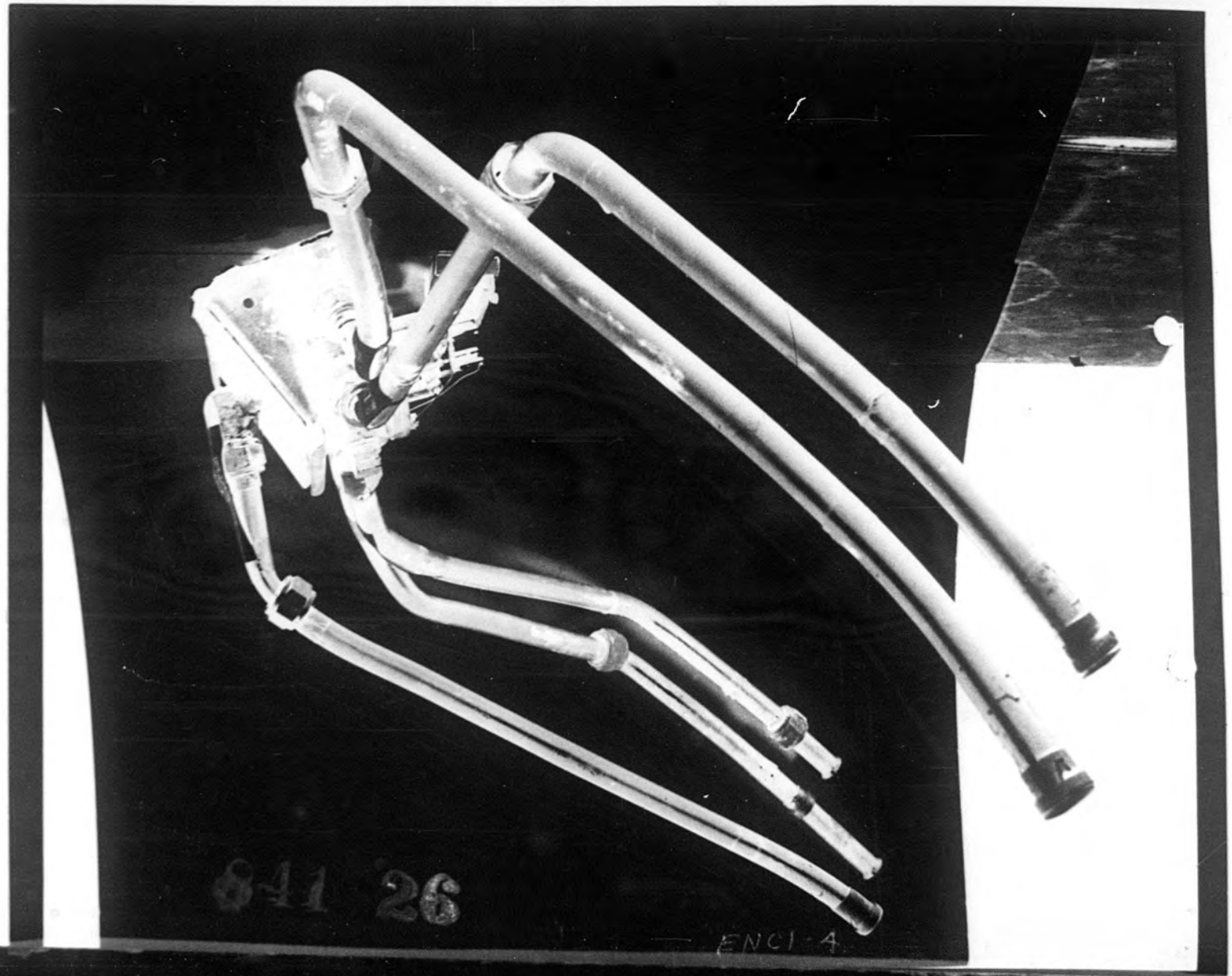
ENCI-A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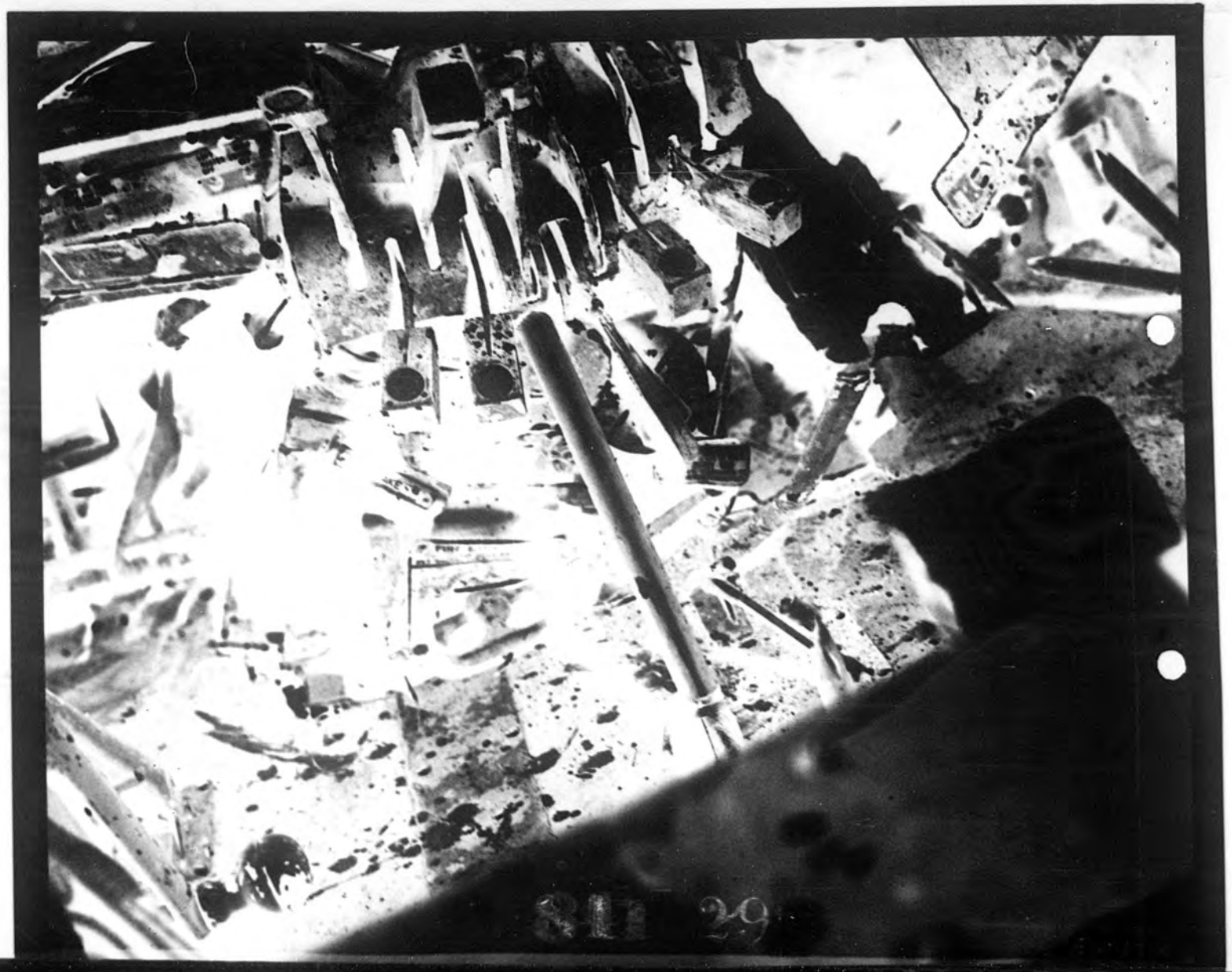
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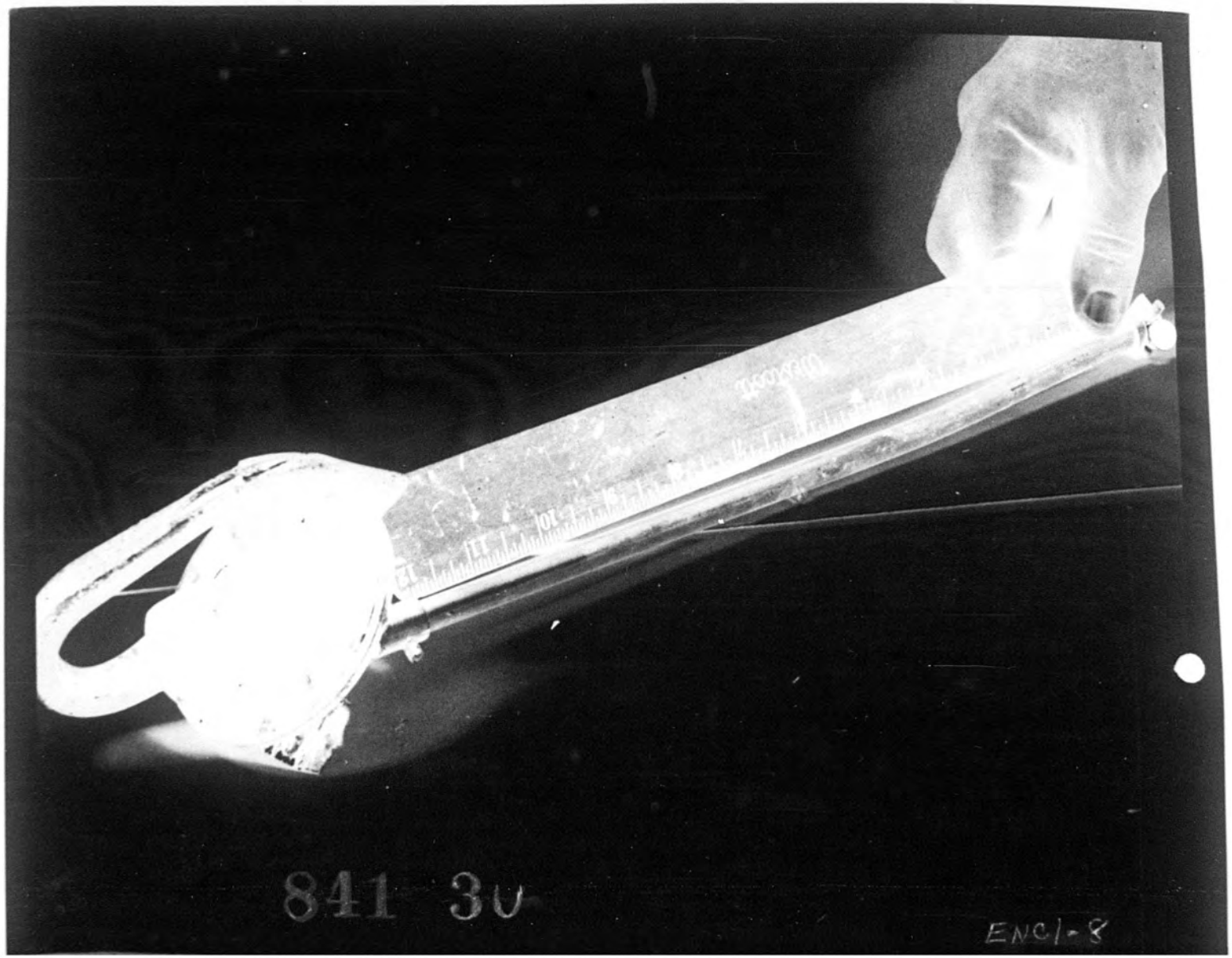

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