

WAR DEPARTMENT
AAF STATION 170
U. S. ARMY AIR FORCES

REPORT OF AIRCRAFT ACCIDENT

01-001

44-2-15-525
234 4

(1) Place AAF 170 (2) Date 10 February 1944 (3) Time 1019
 AIRCRAFT: (4) Type and model A-20G-20 (5) A. F. No. 43-9210 (6) Station AAF 170
 Organization: (7) IX BC 9TH AF (8) 10TH BOMB (L) (9) 668TH BOMB (L) 2393
 (Command and Air Force) (Group) (Squadron)

PERSONNEL BLK BLK

DUTY (10)	NAME (Last name first) (11)	RATING (12)	SERIAL NO. (13)	RANK (14)	PERSONNEL CLASS (15)	BRANCH (16)	AIR FORCE OR COMMAND (17)	RESULT TO PERSONNEL (18)	USE OF PARACHUTE (19)
P	MEREDITH, ROBERT G.	Pilot	0-747804	LT.	18	AC	9TH 9TH	NONE	NONE
G	GRAY, CLARENCE M.		14103330	SGT	20	AC	9TH 9TH	NONE	NONE
G	SHAW, LEROY R.		37059000	SGT	20	AC	9TH 9TH	NONE	NONE



acc #1
 (20) MEREDITH, ROBERT G. (21) 0-747804 (22) 2nd Lt. (23) 18 (24) AC
 (Last name) (First name) (Middle initial) (Serial number) (Rank) (Personnel class) (Branch)
 Assigned (25) IX BC 9TH AF (26) 10TH BOMB (L) (27) 668TH BOMB (L) (28) AAF 170 2393
 (Command and Air Force) (Group) (Squadron) (Station)
 Attached for flying (29) - (30) - (31) - (32) -
 (Command and Air Force) (Group) (Squadron) (Station)
 Original rating (33) Pilot (34) 6/22/43 Present rating (35) Pilot (36) 6/22/43 Instrument rating (37) 12/12/43
 (Rating) (Date) (Rating) (Date) (Date)

FIRST PILOT HOURS:
 (at the time of this accident)
 (38) This type A-20 100:00 (42) Instrument time last 6 months -
 (39) This model A-20G 02:00 (43) Instrument time last 30 days -
 (40) Last 90 days 39:20 (44) Night time last 6 months -
 (41) Total 400:30 (45) Night time last 30 days -

AIRCRAFT DAMAGE NF

DAMAGE	(49) LIST OF DAMAGED PARTS
(46) Aircraft <u>M3</u>	
(47) Engine(s) <u>M4</u>	
(48) Propeller(s) <u>M4</u>	

(50) Weather at the time of accident VISIBILITY 2 TO 3 MILES IN LIGHT HAZE AND SMOKE. SCATTERED TO BROKEN CLOUDS 7000-8000 FEET. SOUTHERLY WINDS 6-10 MPH.

(51) Was the pilot flying on instruments at the time of accident NO
 (52) Cleared from AAF 170 (53) AAF 170 (54) Kind of clearance CONTACT
2393 2393
 (55) Pilot's mission LOCAL TRAINING. SEE ENCLOSURE NO. 1.

(56) Nature of accident LANDING ACCIDENT. THE PILOT WAS UNABLE TO STOP THE AIRCRAFT AFTER A NORMAL APPROACH AND LANDING.

(57) Cause of accident MECHANICAL FAILURE OF BOTH THE HYDRAULIC AND EMERGENCY AIR BRAKE SYSTEMS.

(58) Has Form 54 been submitted? YES.

07
46
11/11
41344

DESCRIPTION OF ACCIDENT

(Brief narrative of accident. Include statement of responsibility and recommendations for action to prevent repetition)

Lt. Meredith approached the field for a normal landing on Runway No. 11. The wheels and flaps were lowered hydraulically using normal system. After landing, Lt. Meredith opened his upper and lower cowl flaps at approximately one-half way down the runway. There was enough pressure at this time to open both of these. A few seconds later, the pilot applied the brakes but did not get any braking action. He then put the mixture control in idle cut-off position and since he was nearing end of the runway turned on emergency air brake pressure. This did not slow down the roll of the airplane.

Upon investigation of the hydraulic system and emergency air brake system, the following conditions were found: the hydraulic reservoir was full of fluid; no lines or hoses were broken; the pressure was pumped up to 300 pounds per square inch in the accumulator, but no pressure could be built up in the hydraulic system; the adjustable relief valve, part No. 4085700, was stuck open and upon disassembly particles of dirt were found to be causing the valve to stick open letting the pressure by-pass. After cleaning and re-installing the valve, the system functioned normally. The handle on the emergency air brake system was on the "on" position, and there was no pressure in the emergency air brake bottle. The air brake bottle was inflated to 400 pounds per square inch and the air was turned on but did not produce braking action. The air brake control valve, assembly No. 24-104921, was removed and disassembled. A quantity of moisture was in the valve, and the valve stem badly corroded and stuck in the oilite stem with the result that stem could not slide in the oilite stem to close the vent port when the control valve was operated. The magneto and main line switches were off, the mixture control in idle cut-off position, throttle full open, propeller controls full forward. The upper and lower cowl flaps were full open.

It is recommended that emergency air brake system be tested each 20 hours until such time as the system is redesigned to eliminate any future reoccurrences. It is further recommended that pilots do not operate any part of the hydraulic system except the brakes until aircraft has been brought to a stop.

- Statement of Pilot..... See enclosure # 2.
- Statement of Passengers..... See enclosures # 3 & #4.
- Statement of Engineering Officer... See enclosure # 5.
- Statement of Crew Chief..... See enclosure # 6.
- Statement of Douglas Factory Representative... See enclosure # 7.
- Copies of Forms 1 & 1-A..... See enclosures # 8 & # 9.
- AAF Form 34..... See enclosure # 10.

APPROVED:

Harold L. Mace
 HAROLD L. MACE,
 Colonel, Air Corps,
 Commanding.

Signature *Thomas R. Ford*
 THOMAS R. FORD, (Lt. Col.) AC
Clarence S. Towles, Jr.
 CLARENCE S. TOWLES, JR., Major, AC
John G. Napier
 JOHN G. NAPIER, Major, AC
Kenneth T. Ronney
 KENNETH T. RONEY, Major, AC

Date 2/25/44

2/15/44
 T/Sgt C.L. Bell
 CROW CHIEF OR AERIAL ENGINEER

170
 STATION
 9th AF
 9th Combat Wing

416th Bomb (L)
 GROUP NO. AND TYPE
 668th Bomb (L)
 SQUADRON NO. AND TYPE

A-20G-25
 AIRCRAFT MODEL
 45 - 9215
 AIRCRAFT SERIAL NO.

PER. CLASS	NAME - RANK - ORGANIZATION	USE AS DIRECTED LOCALLY	ALWAYS ENTER DUTY SYMBOLS WHEN APPLICABLE ENTER NIGHT OR INSTRUMENT TIME FLOWN THEREUNDER							FLIGHT DATA		
			DUTY	NOR 1	DUTY	NOR 1	DUTY	NOR 1	DUTY	NOR 1	TERMINALS AND MISSION	NO. OF LANDINGS
01	Sta 170 CONANT, ALFRED F., Capt., C-397619	S1A	P								Local	8:15
20	Sta 170 HERRING, JOHN R., S/Sgt, 15069766	S1A	G									9:15
20	Sta 170 MCCREERY, JOE E., Sgt, 14159210	S1A	G								T	1:00
01	Sta 170 EISENBERG, ABRAHAM, 1st Lt., C-797803	S1A	P								Local	9:25
18	Sta 170 HAND, ARVID R., 2nd Lt., C-766042	S1A	N									10:25
20	Sta 170 PETERSON, HOLLEY, S/Sgt, 1704368	S1A	G								T	1:00
18	Sta 170 LENNER, ROBERT D., 2nd Lt., C-684361	S1A	P								Local	11:15
20	Sta 170 ANDREWS, A.J., Sgt, 31110809	S1A	G									12:15
20	Sta 170 HEWICK, H.R., Sgt, 14165008	S1A	G								T	1:00
01	Sta 170 COCHRAN, RICHARD E., 2nd Lt., C-684402	S1A	P								Local	13:00
18	Sta 170 MARTIN, WALTER H., 2nd Lt., C-747669	S1A	HV									14:00
18	Sta 170 MERRITT, ROBERT G., 2nd Lt., C-747854	S1A	P								Local	15:30
20	Sta 170 GRAY, CLARENCE M., Sgt, 14159236	S1A	G									16:30
20	Sta 170 SHAW, JEROME R., Sgt, 37559500	S1A	G								T	1:00

William B. Bell
 WILLIAM B. BELL
 Captain, Air Corps,
 Operations Officer.

WPR DEPARTMENT
 A.F. FORM NO. 1
 2-2-42

OPERATIONS

FLIGHT REPORT

CHECKED LEGIBLE AND CORRECT

TRANSCRIBED TOTAL FLIGHT TIME ENTERED ON FORM 1A

TOTAL FLIGHT TIME 5:00

FLIGHT REPORT - ENGINEERING

INSPECTION STATUS			
	DATE OF OR HOURS DUE	INSPECTED TODAY	
		BY	STATION
PREFLIGHT	2/15/44	Ball	170
DAILY	2/4/44	Ball	170
25 HOURS	46.9		
50 HOURS	71.9		
100 HOURS			

SERVICING AT STATION OF TAKE OFF (CHECK IMMEDIATELY BEFORE TAKE OFF)											
SERVICE	FUEL (GALLONS)		OIL (QUARTS)								RADIATOR CHECKED
	SERVICED	IN TANKS	NO 1		NO 2		NO 3		NO 4		
			SERVICED	IN TANKS	SERVICED	IN TANKS	SERVICED	IN TANKS	SERVICED	IN TANKS	
1ST		725		92		92					
2ND	195	725	20	92	20	92					
3RD	170	725	-	92	-	92					
4TH											
5TH											

INSPECTION OF AUXILIARY EQUIPMENT			
EQUIPMENT	SYMBOL	INSPECTED BY	STATION
EMBARDMENT	0	Olsen	170
GUNNERY	0	Olsen	170
CHEMICAL			
COMMUNICATIONS	0	Crane	170
PHOTOGRAPHIC			
NAVIGATION			

STATUS TODAY		EXPLANATION
1	2	See Form 41 on oxygen inst. shuttle valve cracked
3	4	

EXCEPTIONAL RELEASE

WHEN THE "STATUS TODAY" IS INDICATED BY A RED SYMBOL AND AN "EXCEPTIONAL RELEASE" HAS NOT BEEN GRANTED BY AN AUTHORIZED ENGINEERING OFFICER, THE PILOT OF THE AIRCRAFT WILL SIGN THIS RELEASE BEFORE FLIGHT.

RELEASED FOR FLIGHT: */s/ H. F. Conant* */s/ R. D. Leshner*
/s/ R. G. Meredith */s/ G. Ebnstein* */s/ A. E. Osborne*

REMARKS: PILOTS AND MECHANICS - SEE INSTRUCTIONS INSIDE FRONT COVER

#1 O.K. /s/ H. F. Conant, Capt., AC
 #2 O.K. /s/ G. Ebnstein, 1st Lt., AC
 #3 O.K. /s/ Robert G. Leshner, 2nd Lt., AC
 #4 O.K. /s/ A. E. Osborne, 2nd Lt., AC
 #5 No brakes - air brakes failed to work

Ran off end of runway. Folded nose wheel
 Bent prop on left engine /s/ Robert G. Meredith
 2nd Lt., AC

AIRCRAFT AND ENGINE TIME RECORD (ENTER IN HOURS AND MINUTES)				
ENGINE	NO 1	NO 2	NO 3	NO 4
HOURS TO DATE	26.9	26.9		
HOURS TODAY	5.0	5.0		
TOTAL	31.9	31.9		
OIL CHANGE DUE				
CORD CLEANING DUE				
AIRCRAFT	HOURS TO DATE		26.9	
	HOURS TODAY		5.0	
TOTAL			31.9	

* A TRUE COPY *

William B. Battersby
 WILLIAM BATTERSBY,
 Captain, Air Corps,
 Operations Officer.

Serviced by #1 #2 #3 #4 #5

TOTAL FLIGHT TIME	ENGINE DATA				AIRCRAFT DATA			AIRCRAFT ORG. DATA		
	1	2	3	4	1	2	3	1	2	3
	ENGINE SERIAL NO.	ENGINE SERIAL NO.	ENGINE SERIAL NO.	ENGINE SERIAL NO.	AIRCRAFT SERIAL NO.	AIRCRAFT MODEL	EQUIPMENT	COMMAND CORPS AREA OR DEPT.	AIR FORCE	CREW CHIEF OR AIRCRAFT ENGINEER
								SQUADRON NO. AND TYPE		STATION
								GROUP NO. AND TYPE		DATE

add 49.

15 February 1944.

STATEMENT

At the end of an hour of local transition flying in airplane A-20G-25 DO
No. 43-9215, I entered the standard traffic pattern for runway eleven (11)
and proceeded in the normal procedure for landing. I put the wheels down on
the downward leg and then checked the hydraulic pressure. At the time, the
pressure gauge showed approximately four (4) hundred pounds per square inch.
On the final approach, the flaps were lowered, glide established, and landing
was made very near the downward end of the runway. I held the nose up and as
the speed began to decrease, I opened the lower cowl flaps first, then the
upper as the nose began to settle. I saw the turn-off to the taxi strip ahead
and touched the brakes to slow down. There was no pressure against the brake
pedals so I jammed them hard and still there was no response. I immediately
put the mixture controls in "idle cut-off" and cleared the throttle. By this
time I was nearing the end of the runway and had slowed down enough so that
the emergency air brake system would not have stopped the plane hard enough to
damage the tires or buckle the nosewheel. I turned the handle of the emer-
gency air-brake system "full on" and expected to stop. Instead there was a hiss
and the plane rolled on. The speed wasn't enough to have rudder control so
there was nothing to do but sit and roll straight ahead. The propellers had
stopped windmilling so I cut the switches and rolled ahead. About a hundred
(100) or one hundred fifty feet past the end of the runway the nosewheel hit
a ditch and folded and one blade of the left prop hit the bank and bent. No
member of the crew was injured.

Robert G. Meredith

ROBERT G. MEREDITH,
2nd Lt., Air Corps.

S T A T E M E N T

When we approached the field, we made a good landing and after our nose wheel hit the ground, our ship kept rolling which indicated we had no brakes. Having no brakes, the pilot cut off the engines about halfway down the runway, but we kept rolling until we hit a ditch at the end of the runway. When we hit, we tore the nosewheel up and bent one blade of the propellor on the left engine, and that is all the damage I observed. I received no injury.

Clarence M. Gray

CLARENCE M. GRAY,
S/Sgt., 14153336

S T A T E M E N T

Made the landing in the usual manner and before I realized that there was anything wrong, the engines were cut out. This was done about three-quarters of the way down the runway. We kept rolling and finally stopped in the ditch with very little jar. I don't believe we were traveling at more than ten miles per hour. We got out and checked the damage. Lt. Meredith and Sgt. Gray went in to get help and I remained behind with the plane. They returned shortly thereafter and I went back to my barracks. I received no injury.

Leroy R. Shaw

LERROY R. SHAW,
S/Sgt., 37559500

February 18, 1944.

STATEMENT

I investigated the cause of accident involving A-20G-25 DO No. 43-9215 at Station 170 on February 15, 1944.

Subject airplane, in the course of a routine flight at this Station, made normal approach and landing on this field. The landing gear and wing flaps operated normally. After the airplane was on the runway, the pilot applied the brakes and discovered there was no hydraulic pressure. The pilot applied the emergency air brake, which failed to function. The airplane ran off the end of the runway and into a ditch, with extensive damage to the nose gear and attaching structure, minor damage to right side of fuselage in vicinity of station 156, and possible damage to left landing gear and landing gear truss assembly.

An investigation of the hydraulic system and emergency air brake system was made, and the following facts were determined: the hydraulic reservoir was full of fluid, no lines nor hoses were broken; the accumulator was inflated to 325 lbs, no pressure could be built up in the system; it was found that the adjustable relief valve, No. 4085700, manufactured by the Bakewell Aircraft Products Co., (this valve may be identified as the valve marked No. 13 in figure 99, page 144 of T.O. No. 01-40 A1-2) was stuck open, causing pressure from both the engine pumps and hand pump to by-pass directly to the return side of the system. With this valve disconnected from the system and the lines blocked off, pressure could be built up in the system; when subject valve was disassembled it revealed small particles of dirt and grit which were found in the valve. After cleaning out the valve and reassembling, the valve operated normally. It appears evident that the malfunction of this valve was responsible for the loss of hydraulic pressure on subject airplane.

An investigation of the emergency air brake system on subject airplane was made. The emergency air brake air bottle was inflated to 100 lbs, and the air brake control valve turned "on". All the air was discharged through the vent part of the control valve, and no pressure was delivered to the brakes. The test was repeated three times with the same results each time. The air brake control valve, assembly No. 24-104981, was removed and disassembled. A quantity of moisture was found in the valve, and the valve stem (the valve stem may be identified as the part marked No. 5 in figure No. 44, page No. 34 of T.O. No. 01-40 A1-2) was found to be badly corroded and stuck in the oilite stem, with the result that the valve stem would not slide in the oilite stem and close the vent part when the subject valve was operated.

It appears evident that the corrosion of this valve stem was responsible for the failure of the emergency air brake system on subject airplane.

I have recommended to the Group Engineering Officer that an Operational test of the emergency air brake system be made on all A-20-Q's at this station, and that this Operational test be made a part of each 25 hour inspection until service experience indicates a longer interval between inspections. This Operational test has been made on all airplanes at this station, and is the subject of another report.

A re-design of the airbrake control valve appears desirable, and an Unsatisfactory Report is being submitted by the Group Engineering Officer.

Agencies preparing these airplanes for shipment should make certain that the upper portion of the control valve is protected by adhesive tape or other means so that salt air and moisture can not enter the vent hole of the valve during shipment.

Agencies reassembling these airplanes after shipment to this Theater should include an Operational test of the emergency air brake system as part of the hydraulic check, before the airplane is flown.

Floyd C. Hensley

FLOYD C. HENSLEY,
Factory Representative for,
Douglas Aircraft Company, Inc.

15 February 1944.

STATEMENT

I have made thorough investigation and determined that all possible precautions had been taken to fit this airplane, A-26-25 O A.F. No. 43-9215, for safe flight prior to take-off and no mechanical defects existed other than those shown on the AIP Form 1A. There was no failure on the part that was carried on the red diagonal.

John E. Eastwood
JOHN E. EASTWOOD,
1st Lt., Air Corps,
Engineering Officer.

15 February 1944.

STATEMENT

I her by certify that all necessary inspections and maintenance had been performed and all defects were properly shown on AAF Form 41 B and AAF Form 1A prior to the last flight of airplane A-20G-2500, AAF No. 43-9215.

Charles L. Ball
1/Sgt Charles L. Ball,
Crew Chief.

STATION 170

DATE 15 February 1944

OPERATIONS ORDER)

NUMBER 4)

Pursuant to authority contained in AR 95-15, dated 21 April 1930, the following training flights, with personnel as indicated, will be conducted this date:



PILOT <u>2nd Lt R.G. Meredith</u>	AIRPLANE <u>A-20G-25,43-9215</u>	MISSION <u>Training</u>
CO-PILOT	TAKE-OFF <u>15:30</u>	LAND <u>16:30</u>
CRAW <u>Sgt. L. R. Shaw (G)</u>	BOMB LOAD	A <u>UNITION</u>
<u>Sgt. C. . Gray (G)</u>	ROUTE OUT <u>Local</u>	
	ROUTE BACK <u>Local</u>	
	FUEL LOADING	ALTITUDE



By order of Major FOWLES

WILLIAM BATTERSBY,
Captain, Air Corps,
Operations Officer.

OFFICIAL:

William Battersby
WILLIAM BATTERSBY,
Captain, Air Corps,
Operations Officer.

A TRUE EXTRACT COPY:

William Battersby
WILLIAM BATTERSBY,
Captain, Air Corps,
Operations Officer.

And # 1.

W. Battersby

WAR DEPARTMENT
ARMY AIR FORCES

UNSATISFACTORY REPORT

(See AAF Reg. 15-54 for Information on Proper Use of this Form)

LEAVE BLANK		
A. S. C. SERIAL No.	REFER TO	CLASS

TO BE FILLED IN BY STATION	
STATION SERIAL No.	DATE SUBMITTED
44-4	2-20-44

STATION A. P. O. 638		ORGANIZATION 416th Bomb Group (L)					
SUBJECT OF REPORT OID Valve Assy	Property Class—Name		Manufacturer Douglas		AAF Order or Shipping No.		
	AIRCRAFT—Model & AAF Serial No. A-20G-25 #43-921b		ENGINE—Model & AAF Serial No. R-2600-23		UNIT OR ACCESSORY—Type, Model and Serial No.		
AIRCRAFT REPORTS ONLY	LAST D. I. R.—Depot		Date	Flying Time Since	Total Flying Time		
	ENGINE REPORTS ONLY		LAST OVERHAUL—Depot		Hours Since	Depots and Hours At Each Previous Overhaul	
PART	Name Valve Assy, Emergency brake control		Part Drawing, Serial and Specification No. #2123387				
	Time in Use 30 hr.	Quantity on Hand 1b	Quantity Known Defective 4	No. Previous Failures 4	Inspector's No. or Identification Douglas 57b		
Indicate by "X" Disposition of Exhibit	<input type="checkbox"/> Photographed and Prints Enclosed	<input type="checkbox"/> Held for instructions	<input type="checkbox"/> Sent Under Separate Cover	<input type="checkbox"/> Sent in Attached Package	<input type="checkbox"/> Repaired and Returned to Service	<input type="checkbox"/> Disposed of (Explain Below.)	<input type="checkbox"/> To Overhaul Facility (INITIALS)

GIVE COMPLETE DETAILS, PROBABLE CAUSES AND RECOMMENDATIONS BELOW:
(Use Only Applicable Spaces Above—Avoid Unnecessary Repetition)

EXPEDITE

1. During routine training flight pilot made a normal approach at which time the landing gear and the flaps were lowered. Pilot made normal landing and opened the cowl flaps. He then applied the brakes, but without results. He then tried the hand hydraulic pump after noting the lack of pressure on the pressure gage, but he could get no pressure. The Emergency Air Brake System was then applied; this also failed to work although the air pressure gage indicated 400 lbs.
2. Upon investigation of the Emergency Air Brake System, the following discovery was made: when control valve was turned to "on" position the air in the bottle, instead of going to the brakes, escaped through the vent port of the control valve (shown on page #54, port D of T.O. 01-40AL-2). This was caused by the sticking of the valve stem Part #2123374 which was rusted.
3. It is the belief of this Officer that during shipment, salt water had entered the vent port and attacked the valve stem.
4. Recommendation:
 1. That the vent port be moved to another location, or that it be sealed before shipment.
 2. That the spring Part #1123370 be made stronger.
 3. That valve stem #2123374 be made of stainless steel to prevent further rusting.

A TRUE COPY: *John G. Napier*
JOHN G. NAPIER,
Major, Air Corps,
Asst. Opns. Officer

/s/
/t/ WILLIAM H. MOFFETT
CWO, USA
Group Eng. Officer

Ind. #10.

ROUTING

SEND ORIGINAL AND TWO COPIES DIRECT TO COMMANDING GENERAL,
NO. AIR SERVICE COMMAND, PATTERSON FIELD, FAIRFIELD, OHIO.

R E S T R I C T E D

360.33

2nd Ind.

E-I-12

HEADQUARTERS, NINTH AIR FORCE, APO 696, U. S. ARMY, 19 March 1944.

To: Chief, Flying Safety, Army Air Forces, Winston-Salem 1, North Carolina.

Report and recommendations of the Aircraft Accident Committee approved.

For the Commanding General:

C. H. HIRBARI
C. H. HIRBARI
Lt. Col., Air Corps,
Asst. Adj. General.

2075

4 Incls:

n/c, 2 cys ea w/d.

R E S T R I C T E D

Accident No. 44-215-525

Date

Checked by [Signature] 1-11-44

Analyzed by [Signature] 7-13-44

Copied for Wright
Field by _____

Notes _____

1225:2-43

Accident No.

Pilot's Name

Meredith

Nature Group

06 Landing

Specific Nature

32 Overshot

Underlying Nature

32 Brakes-did not hold

Cause Group

28 Aircraft

Specific Cause

79 Hydraulic system

Underlying Cause

84 undetermined

Cause Group

24 Aircraft

Specific Cause

70 Brakes

Underlying Cause

70 Decelerated-Malfunction