GU

REPORT
OF
EARHART SEARCH
BY
U.S. NAVY AND U.S. COAST GUARD
2-18 JULY 1937

Enclosure (H)

NDH/A16-3/(095)

OFFICE OF THE COMMANDANT
FOURTEENTH NAVAL DISTRICT
PEARL HARBOR, T. H.

WAH/3

JUL 31 1937

From: Commandant, Fourteenth Naval District,
To : The Chief of Naval Operations.

Subject: Report of Earhart Search, 2-18 July, 1937.

Enclosures: (A) Dispatch file.
(B) Commanding Officer, Coast Guard Cutter, ITASCA, report.
(C) Photostat ITASCA Track Chart.
(D) Commanding Officer, USS COLORADO, report.
(E) Photostat COLORADO Track Chart, Sheet 1.
(F) " " " " 2.
(G) Photostat USS SWAN Track Chart.
(H) Photostat USS LEXINGTON Track Chart.
(I) Photostat USS DAYTON Track Chart.
(J) Photostat USS CUSHING Track Chart
(K) Commanding Officer LEXINGTON Group Report.

1. Amelia Earhart Putnam and Fred J. Noonan, engaged in a land plane flight around the world, departed Lae, New Guinea, at 1000, 2 July (zone-minus-ten-time), or 1400, 1 July, G.C.T., for Howland Island. The flight was guarded by the USS COLORADO at approximately midpoint of the flight and by the U.S.C.G.C. ITASCA at Howland. The USS SWAN was on station midway from Howland and Honolulu to guard the next leg of the flight. Except for the services of the COLORADO and the SWAN and weather reports from the Fleet Air Base, Pearl Harbor, the Navy had no connection with the flight.

2. At 1100, 2 July, information was received that failure of the flight was imminent, and shortly thereafter that the plane was believed to be down.

3. At 1400, 2 July, the Commandant conferred with the Commander, Aircraft, Battle Force (the Senior Officer Present Afloat), and the Commanding Officer, Fleet Air Base, Pearl Harbor. It was agreed that no naval vessel stationed in Hawaiian waters was suitable for search operations in the distant area and that a PBY seaplane could reach Howland Island and under favorable conditions could carry out limited operations, basing on the ITASCA. The Department was so informed. Meanwhile, the Department had directed the Commandant of the Fourteenth

Naval District to use all available naval facilities in the search. Accordingly, it was decided to dispatch a seaplane to Howland and at 1923, 2 July, patrol plane 6-P-3, Lieutenant W. V. Harvey, commanding, departed from Pearl Harbor Howland Island. The ITASCA was directed to stand by at Howland to tend the plane and the SWAN to proceed toward Howland.

4. The Department promptly approved the recommendation that the COLORADO, then in Honolulu, be diverted from her R.O.T.C. Cruise to join the search, and the COLORADO was at 2115, 2 July, ordered to proceed, when fueled. In a conference with the Commanding Officer, USS COLORADO, prior to his departure from Pearl Harbor, he was given all information then available, and it was agreed that the COLORADO should first search the southeast quadrant from Howland and the Phoenix Islands.

5. The patrol plane, commanded by Lieutenant Harvey and manned by the following personnel, proceeded toward Howland through the night of 2-3 July, contacting the SWAN enroute on schedule.

PERSONNEL, PATROL PLANE 6-P-3

Lieutenant W. V. Harvey, commanding.
Lieutenant (jg) W. K. Drane
Lieutenant (js) L. S. Lytle
Aviation Cadet P. W. Smith
W. C. Curry, A.C.M.M.
E. J. McCormick, C.R.M.
F. M. Williams 3d, R.M. 2-c.
C. L. English, A.M.M. 2-c.

At 0710, 3 July, Lieutenant Harvey reported:

2003 APPROXIMATE POSITION LAT 00-55 LONG 72-00 PERIOD LAST TWO HOURS IN EXTREMELY BAD WEATHER BETWEEN ALTITUDE 2000 AND 12000 FEET SNOW SLEET RAIN ELECTRICAL STORMS PERIOD IN DAYLIGHT CONDITIONS LOOK EQUALLY BAD CLOUD TOPS APPEAR TO BE 18000 FEET OR MORE PERIOD AM RETURNING TO PEARL HARBOR NOW HAVE 900 GALLONS FUEL ON BOARD 1710

6. Vessels were dispatched from Pearl Harbor to guard the return flight of plane 6-P-3 in case of fuel exhaustion, but the prudence and skill of personnel safely returned the

plane to Pearl Harbor at 1926, 3 July, after being in the air for 24 hours and 5 minutes and flying approximately 2570 sea miles. Faultless two-way communication was maintained throughout the flight of the plane; navigation was accurate, as evidenced by contacts with surface vessels and landfall, all of which occurred precisely on schedule. This performance of duty reflects great credit on Lieutenant Harvey and the officers and men of his crew.

7. The Department inquired as to the feasibility of seaplane search operations basing on Johnston Island. The Commandant considered this impracticable, due to the 2200 mile turn around between Howland and Johnston Islands and stated that if a more extensive search than possible with the COLORADO, ITASCA, and SWAN were desired, a carrier would be the most practicable and efficient unit.

8. The LEXINGTON Group was organized on 4 July, consisting of the LEXINGTON, LAMSON, DRAYTON, CUSHING, and PERKINS (the last vessel was later detached from the group, due to machinery trouble). Under command of Captain J. S. Dowell, Commander, Destroyer Squadron Two, this group was expeditiously assembled and departed for Hawaii, for fuel, thence to proceed to the search area.

9. The ITASCA meanwhile had resumed her search operations in the vicinity of Howland Island, as shown in her report and track chart. The difficulties confronting her may be inferred from the following dispatches:

FROM: ITASCA
TO : COMHAWSEC
INFO: COMFRANDIV

6002 YOUR 6002 1401 WE HAVE HAD NO POSITIONS COMMA SPEEDS COMMA OR COURSES FROM EARHARTS PLANE EXCEPT SO CALLED LINE OF POSITION AT 0843 WHICH HAD NO REFERENCE POINT PERIOD SHE GAVE US NONE OF HER BEARINGS PERIOD BELIEVE SHE PASSED TO NORTH AND WEST OF ISLAND ABOUT 0800 AND MISSED IT IN THE GLARE OF RISING SUN THOUGH WE WERE SMOKING HEAVILY AT THAT TIME PERIOD JUDGE SHE CAME DOWN BETWEEN 337 AND 90 FROM HOWLAND AND WITHIN 100 MILES PERIOD HAVE BROADCAST AS INDICATED 1408

Subject: Report of Earhart Search, 2-18 July, 1937.

FROM: ITASCA
TO : COMSANFRANCISCO DIVM
INFO: COMHAWN SECTION

6008 .....EARHART ONLY ACKNOWLEDGED RECEIVING ITASCA SIGNALS ONCE AND DID NOT ANSWER QUESTIONS AS TO POSITION COURSE SPEED OR EXPECTED TIME ARRIVAL PERIOD EARHART USED VOICE ENTIRELY STATIC INTERFERENCE HEAVY AND ITASCA RECEPTION FRAGMENTARY IN EARLY HOURS 1945

The ITASCA was covering an area along the probable earhart track when apparently reliable radio intercepts indicated that the Earhart plane was 281 miles north of Howland. The SWAN was approaching that vicinity enroute to Howland and was directed to conduct coordinated search with the ITASCA. The steamship MOORSBY also joined in the fruitless search of this area.

10. On 6 July, the Commandant, Fourteenth Naval District, was directed to take charge of all naval forces engaged in the search. The ITASCA was also directed by Coast Guard Headquarters to operate under the Commandant's authority. Accordingly, the Commanding Officer, USS COLORADO, then approaching the area, was directed to take charge of all vessels in the area and conduct a coordinated search until the arrival of Commander, Destroyer Squadron Two, when the latter would take over command.

11. The details of the search were left to the discretion of the Commanding Officer, USS COLORADO. The decision to search the quadrant southeast from Howland and the Phoenix Islands still appeared to be sound. The search was conducted as shown in the Commanding Officer, USS COLORADO, report, enclosure (B). No evidence of the flyers or their plane was found. However, by eliminating that quadrant, the LEXINGTON Group was later enabled to plan and execute a more practicable and more extensive search of the western semicircle from Howland.

18. In order to release the COLORADO at the earliest practicable date, it was decided that she should complete the search of the Phoenix Island and vicinity, then proceed to rendezvous with and fuel the LEXINGTON Group destroyers. This was done on 12 July and the COLORADO released from further duty in connection with the search. The result of her operations was definitely to establish that neither the plane nor its passengers were ashore in the Phoenix Group and therefore that they were not on any known land within 450 miles of Howland and that they were not afloat in the extensive areas searched by the ship and her three seaplanes. The duty was efficiently performed under

conditions of con iderable hazard, due to the inadequacy of surveys of the waters traversed. During the period of his command of the searching force, the Commanding Officer of the COLORADO, Captain W. L. Friedell, exercised sound judgement and effective direction of the units at his disposal.

13. While the LEXINGTON Group was fueling at Lahaina and Pearl Harbor, the Commandant held a conference with the Commander, Destroyer Squadron Two, the Commanding Officer of the LEXINGTON, and senior commanders in the District at which all available information and studies of the weather and probable location of the Earhart plane were made available to the LEXINGTON Group. The daily search plan for the LEXINGTON Group was submitted and accepted. The details of the studies and assumptions are included in those set forth in Commander, LEXINGTON Group report, enclosure (K), and are omitted from this report for the sake of brevity.

14. Commander, Destroyer Squadron Two, took over command of all units in the search area on 11 July and put into effect his search plan, based on the information available up to that time and subject to certain limitations of fuel and endurance of the vessels in his command. The LEXINGTON was required to complete the operation and return to the West Coast with the fuel on board. The ITASCA and SWAN could operate until 16 July and reach Honolulu without refueling. The destroyers could match the LEXINGTON'S time limit. There was thus an absolute maximum of nine successive days for operations in the search area. Prudence dictated a reduction of this time to seven days' operations in order to provide a reserve. In order to insure an efficient search despite some anticipated bad weather, the Commandant directed that the plan provide for not more than seven days of searching and he subsequently directed that it terminate on 18 July, if good weather prevailed on 17 and 18 July, otherwise the search should end on 19 July. The Commander, Destroyer Squadron Two, accordingly laid out and executed his plan of search, as shown in his report attached.

A. The details of the plan and the reasons for its various provisions were sound and met with the full approval of the Commandant. The operation was well conceived and skillfully executed. It reflects great credit on the Search Commander, Captain J. B. Dowell, and on the commanding officers, officers, and crews of the vessels and plane squadrons under his command.

B. The performance of duty of the Commanding Officer of the Coast Guard Cutter ITASCA, Commander, W. E. Thompson, U.S.C.G., has been commended by letter to his immediate superior. His intelligent and zealous conduct of the initial phase of the search under most trying conditions deserves especial commendation. His reports, together with the wholehearted cooperation of the Commander, Hawaiian Section, U. S. Coast Guard, were of great assistance to the subsequent conduct of operations by the Navy. The performance of the ITASCA was excellent in all respects throughout the flight and the search. Careful study of all communications and other information pertaining to the flight, and the preparations therefor, indicate clearly that the ITASCA left nothing undone to insure the safe completion of the Earhart flight.

C. The USS SWAN was the smallest vessel engaged in the search and the last to return to port. She was at sea for thirty-seven days during which she steamed approximately 7,000 miles. Despite the onerous operating conditions involving shortage of provisions and supplies, she carried out all assigned duties in a manner reflecting great credit on the commanding officer, Lieutenant H. F. MacComsey, the officers and crew. During her entire cruise there occurred no machinery failure nor a single sick day.

18. It is most gratifying that there occurred no serious injury to men or material in the very extensive and sometimes hazardous operations of ships and planes.

19. To Summarize briefly:

The initial phase of the search was based on the ITASCA's well reasoned belief that the plane was north of and fairly near Howland. A reasonably complete search of this area was made on 2-3 July. Then, on the strength of radio intercepts which appeared too reliable to be ignored, the search shifted to the westward and then 281 miles to northward of Howland. Both areas were searched without success and subsequent analysis discredits the radio intercepts on which this search was based.

The second phase of the search moved to the southeastern quadrant on the basis of radio intercepts and bearings and other considerations which indicated the plane was on land and probably in the Phoenix Islands. With this assumption

eliminated, the third phase was logically based on the assumption that the plane had landed in the water probably within two hundred miles of Howland and that the subsequent drift of wreck or boat would have moved well to the westward and northwestward in the 11 day interval prior to arrival of the LEXINGTON.

The LEXINGTON Group covered an area approximately 300 miles square to the west and northwest of Howland which included all probable positions of plane or passengers if afloat. As an additional but unlikely possibility the Gilbert Islands were searched. It is regretably unreasonable to conclude other than that the unfortunate fliers were not above water upon conclusion of the search.

Miles steamed by vessels enroute to and during the search	48,000
Miles flown by planes	149,000
Plane hours in air	1,654
Square miles searched:	
By vessels	94,800
By aircraft	167,481
TOTAL	262,281

20. Due to the geographic location of the search area and the composition of the force, certain features of the search were of outstanding interest:

The extensive weather and current data should prove a valuable contribution to our knowledge of the area.

It is believed that the plan used by the LEXINGTON and her squadrons is unique, and was particularly well designed for the management of widely separated forces and for communications concerning the operation.

The experience in false messages, interference, and confusion on critical frequencies indicates the need for some provision for authoritative control of such frequencies in emergency. Obviously, such realistic radio programs as the March of Time should not be broadcast when they may affect relief measures in progress.

If the Navy or the Coast Guard are to be involved in future private transocean flights, the licensing authority for such flights should be prevailed upon to require from the fliers a specific minimum performance in giving to those concerned reliable information prior to and during the progress of the flight.

21. It may be assumed that the Navy will be called upon to attempt rescue of crew and passengers of a transpacific clipper should one unfortunately be forced down at sea. Plans for coordinated rescue effort in the Hawaiian Area have been under consideration for the last several months. They provide for joint action by local agencies of the Navy, Coast Guard, and Pan-American Airways. The greater part of the transpacific air route is beyond the effective radius of local forces. Therefore, it would appear desirable to provide tentative plans for such rescue effort by units of the Fleet as may be anticipated.

22. Dispatches of particular interest are included in Enclosure (A); they were selected from a total of 385 dispatches concerning the search.

23. There are appended reports of the Commanding Officer U.S.C.G.C. ITASCA; Commanding Officer, USS COLORADO; and Commander, Destroyer Squadron Two, together with track charts of the vessels and planes participating in the search.

O. C. MURFIN.

Copies to:
Commander-in-Chief U.S. Fleet (2).
Comdr. Hawaiian Section, U.S. Coast Guard.
Comdr. Fleet Air Base, Pearl Harbor.

~~ENCLOSURE (A) DESPATCH FILE~~
2 July, 1937.

"FROM: ITASCA
TO : COMFAIRHAWDIV
INFO: COMINCH

6002 AMELIA EARHART CONTACT 0742 REPORTED ONE HALF HOUR FUEL AND NO LAND. FAIL. POSITION DOUBTFUL CONTACT 0640 REPORTED AS APPROXIMATELY ONE HUNDRED MILES FROM ITASCA BUT NO RELATIVE BEARING PERIOD 0843 REPORTED FAIL OF POSITION 157 DASH 337 BUT NO REFERENCE POINT PRESUME HOWLAND PERIOD ESTIMATE 1200 FOR MAXIMUM TIME ALOFT AND IF NONARRIVAL BY THAT TIME WILL COMMENCE SEARCH NORTH WEST QUADRANT FROM HOWLAND AS MOST PROBABLE AREA PERIOD SEA SMOOTH VISIBILITY HAZE CEILING UNLIMITED PERIOD UNDERSTAND SHE WILL FLOAT FOR LIMITED TIME 1015"

"FROM: ITASCA
TO : COMFAIRHAWDIV
INFO: LAKEHURST

6003 EARHART UNHEARD THIS HOWLAND AT 1200 BELIEVE DOWN SHORTLY AFTER 0915 AS SEARCHING PROBABLE AREA AND WILL CONTINUE 1515"

"FROM: ITASCA
TO : COMINCH
INFO: COMFAIRHAWDIV

6002 YOUR 6002 1402 WE HAVE HAD NO POSITIONS COMMA SPEEDS COMMA OR COURSES FROM EARHART PLANE EXCEPT NO CALLED LINE OF POSITION AT 0843 WHICH HAD NO REFERENCE POINT PERIOD SHE GAVE US NONE OF HER BEARING PERIOD I BELIEVE SHE PASSED TO NORTH AND EAST OF ISLAND ABOUT 0800 AND HEARD IT IN THE CLARE OF RISING SUN THOUGH SHE WERE SPEAKING HEAVILY AT THAT TIME PERIOD JUDGE SHE CAME DOWN BETWEEN 337 AND 90 FROM HOWLAND AND WITHIN 100 MILES PERIOD HAVE BROADCAST AS INDICATED 1402"

"FROM: COMINCH
TO : OPNAV
INFO: COMAIRBATFOR; COMFOURTEEN; CINCUS.

FLEET AIR BASE IS PREPARED DESPATCH ONE PBY PLANE HOWLAND ISLAND TO ASSIST EARHART SEARCH DEPARTING ABOUT EIGHTEEN HUNDRED TODAY FRIDAY ITASCA AT HOWLAND FIFTEEN HUNDRED GALLONS AVIATION GASOLINE ON HOWLAND ISLAND TEN THOUSAND GALLONS ON SWAN MIDWAY BETWEEN PEARL HARBOR AND HOWLAND PERIOD PLANE OPERATION AT HOWLAND MUST BE CONDUCTED IN OPEN SEA ON LEE SIDE OF ISLAND NO ANCHORAGE FOR AIRCRAFT OR TENDER OUTSIDE REEF TRIP CAN NOT BE MADE WITHOUT RE-FUELING INVOLVING POSSIBILITY PLANE MAY BE FORCED TO LAND HOWLAND ISLAND UNDER UNSAFE SEA CONDITIONS OPERATIONS THERE FEASIBLE ONLY DURING EXCELLENT WEATHER CONDITIONS PERIOD PRESENT WEATHER FORECAST IS FOR CONTINUED FAIR WEATHER VICINITY HOWLAND ISLAND FOR NEXT FOUR DAYS PERIOD NOT PRACTICABLE TO SEND MORE THAN ONE PLANE BECAUSE ONLY ONE CAN BE TENDED AT HOWLAND PERIOD NAVIGATIONAL AID OTHER DANGERS OF THIS LONG FLIGHT APPARENT PERIOD ADVISE 1515

A

"FROM: NAVY DEPT
TO : COMFOURTEEN
INFO: CINCUS; COMAIRBASEFOR; FAB PH; COMDT USCG WASHDC.

0008 USE AVAILABLE NAVAL FACILITIES TO CONDUCT SUCH SEARCH FOR MISS EARHART AS YOUR OPINION IS PRACTICABLE 1940"

"FROM: OPNAV
TO : COMPATFOR
INFO: CINCUS; COMAIRBASEFOR; COMFOURTEEN.

1008 COMPATFOR 1515 SEAFRON TWO COM FOURTEEN WILL COORDINATE SEARCH OPERATIONS IN ACCORDANCE WITH OPNAV 0008 1940 2300"

"FROM: COMFOURTEEN
TO : NAVY DEPT
INFO: CINCUS; COMAIRBASEFOR; FAB PH; COMDT USCG WASHDC; COMPATFOR.

0008 NO PRACTICABLE FACILITIES AVAILABLE THIS DISTRICT FOR SEARCH HOWLAND ISLAND EXCEPT PATROL PLANES THE ADVISABILITY OF SENDING WHICH HAS BEEN SUBMITTED TO DEPARTMENT BY COPA COLORADO AT PRESENT IN HONOLULU ON ROTC CRUISE IF SHE CAN BE MADE AVAILABLE FOR DISPATCH TO HOWLAND ISLAND HER PLANES WOULD BE OF GREAT VALUE IMMEDIATE DESPATCH REPLY REQUESTED 1700"

8 July, 1937

"FROM: NAVY DEPT
TO : COMFOURTEEN
INFO: CINCUS; COMAIRBASEFOR; COMPATFOR; COLORADO; COMDT USCG WASHDC.

0008 IN REPLY YOUR DOUBLE ZERO ZERO TWO SEVENTEEN HUNDRED COLORADO IS MADE AVAILABLE 0115"

"FROM: COMFOURTEEN
TO : COLORADO
INFO: NAVY DEPT; CINCUS; COMAIRBASEFOR; COMPATFOR; COMDT USCG WASHDC; FAB PH.

0008 COLORADO GET UNDERWAY AS SOON AS POSSIBLE WITH PLANES TO CONDUCT SEARCH FOR EARHART 0115"

"FROM: COMPATFORCF
TO : COMAIR FAB PH
INFO: SHAW; ITASCA.

2008 APPROXIMATE POSITION LAT 0635 LONG 7800 PERIOD LAST TWO HOURS IN EXTREMELY BAD WEATHER BETWEEN ALTITUDE 8000 AND 12000 FEET SNOW SLEET RAIN ELECTRICAL STORMS PERIOD IN DAYLIGHT CONDITIONS LOOK EQUALLY BAD CLOUD TOPS APPEAR TO BE 16000 FEET OR MORE PERIOD AM RETURNING TO PEARLHARBOR NOW HAVE 800 GALLONS FUEL ON BOARD 0710"

A

"FROM: OPNAV
TO : COM 14
INFO: COMBATFOR; COMAIRBATFOR; CINCUS; COMAIRBASEFOR; FAB PH; COLORADO.

1003 REPORT PRACTICABILITY OF CONDUCTING SEARCH WITH PATROL PLANES FROM JOHNSON ISLAND SERVICING PLANES THERE WITH GASOLINE CARRIED BY DESTROYERS AND AIRCRAFT TENDERS 1012"

"FROM: COM FOURTEEN
TO : OPNAV
INFO: COMBATFOR; COMAIRBATFOR; CINCUS; COMAIRBASEFOR; FAB PH; COLORADO.

1003 YOUR 1003 1012 OPERATIONS OF PLANES FROM JOHNSTON ISLAND NOT CONSIDERED PRACTICABLE ABOUT 2000 MILES FOR ROUND TRIP TO CENTER SEARCH AREA WOULD LEAVE COMPARATIVELY SHORT PERIOD FOR SEARCH PLANES FROM COLORADO SHOULD BE ABLE TO ACCOMPLISH AS MUCH PLANES IN JOHNSTON LAGOON SERVICED FROM TENDERS OUTSIDE THIS MOST DIFFICULT UNDER FREQUENT SEA CONDITIONS PERIOD IF MORE EXTENSIVE SEARCH OPERATIONS ARE CONTEMPLATED DESPATCH OF AIRCRAFT CARRIER MOST PRACTICABLE EFFICIENT METHOD PERIOD A MESSAGE FROM THE PATROL PLANE ENROUTE TO HOWLAND ISLAND JUST RECEIVED AS FOLLOWS QUOTE 2003 APPROXIMATE POSITION LAT 0635 LONG 7200 PERIOD LAST TWO HOURS IN EXTREMELY (100) BAD WEATHER BETWEEN ALTITUDE 2000 AND 12000 FEET SNOW SLEET RAIN ELECTRICAL STORMS PERIOD IN DAYLIGHT CONDITIONS LOOK EQUALLY BAD CLOUD TOPS APPEAR TO BE 18000 FEET OR MORE PERIOD AM RETURNING TO PEARLHARBOR NOW HAVE 000 GALLONS FUEL ON BOARD 0710 UNQUOTE 0958"

4 July, 1937

"FROM: COMAIRBATFOR
TO : LEXINGTON
INFO: COMBATFOR; CINCUS; OPNAV; COMDESRON 2; COMFOURTEEN.

0004 LEXINGTON DESIGNATED UNIT OF LEXINGTON GROUP WITH LANSON CUSHING PERKINS DRAYTON UNDER COMDESRON TWO TO SEARCH FOR EARHART PLANE WHEN READY TO PROCEED REPORT COMDESRON TWO FOR DUTY 1205"

"FROM: OPNAV
TO : CINCUS
INFO: COMDESCOFOR; COMB TFOR; COMAIRBATFOR; COMAIRBASEFOR; CINCAF; COMAIRBATFOR; FABPH; COLORADO; LEXINGTON; ITASCA; COMFRANDIV; COMDT USCG; COMHAWDEC; COMFOURTEEN.

0004 WHEN LEXINGTON GROUP IS IN ALL RESPECTS READY PROCEED TO ASSIST IN SEARCH FOR EARHART PLANE COOPERATE WITH COMFOURTEEN COLORADO AND ITASCA 1200"

A

"FROM: ITASCA
TO : COMDT USCG WASHDC

0004 YOUR 0004 1909 FOR SECRETARY MORGANTHAU HAVE SEARCHED AREA NORTHWEST TO NORTHEAST OF HOWLAND RADIUS 180 MILES WITH NEGATIVE RESULTS THOUGH VISIBILITY WEATHER AND SEA CONDITIONS EXCELLENT PERIOD EXCEPT FOR AND VIOLENT LO KOUTS POSTED AND CONTINUAL USE BOTH HIGH POWERED SEARCHLIGHTS DURING DARKNESS PERIOD AM REASONABLY CERTAIN PARTY IS NOT AFLOAT IN AREA INDICATED PERIOD COMPLETED RECTANGULAR SEARCH THIS MORNING AT LAUNCHED 180 MERIDIAN TO HOWLAND ISLAND BETWEEN LATITUDE ZERO TWO ZERO NORTH AND ONE THREE ZERO NORTH PERIOD ESTIMATE ORIGIN THIS SEARCH WELL TO WESTWARD AND LEEWARD OF PLANE POSITION IF PLANE DOWN WEST OF ISLAND PERIOD PRESENT CURRENT SETTING WEST ONE HALF KNOTS WIND ESTIMATED ONE KNOT WEST PERIOD WEATHER OVERCAST VISIBILITY EXCELLENT SEA VERY MODERATE AND FAVORABLE PERIOD WILL HAVE COVERED INDICATED AREA TO HOWLAND BY TUESDAY EVENING 6 JULY PERIOD ESTIMATE SEARCHING THREE THOUSAND SQUARE MILES DAYLIGHT VISIBILITY AND ONE THOUSAND FIVE HUNDRED SQUARE MILES DURING NIGHT 1515"

"FROM: COMHAWSEC 5 July, 1937
TO : ITASCA

0005 FOLLOWING COPIED NAVY RADIO WAILUPE 1150 TO 1230 GCT QUOTE SEE NORTH HOWLAND CALL KHAQ BEYOND NORTH DONT HOLD WITH US MUCH LONGER ABOVE WATER SHUT OFF UNQUOTE KEYED TRANSMISSION EXTREMELY POOR KEYING BEHIND CARRIER ONOMATOPETARY PHRASES BUT COPIED BY THREE OPERATORS 0241"

"FROM: ITASCA
TO : COMAIR FAB FOUR
INFO: COMINCH FOR; COM FOURTEEN

0005 REFERENCE COMAIR AIRCRAFT FAB PEARLHARBOR 1105 0052 SUGGEST YOU SWEEP WEST ON LATITUDE FIVE DEGREES THIRTY MINUTES NORTH 1035"

"FROM: COMAIR FAB FOUR
TO : SHAW
INFO: COMINCH FOR; ITASCA; COMFOURTEEN

1105 CONDUCT COORDINATED SEARCH AS INDICATED WITH ITASCA 0005"

6 July, 1937

"FROM: COMSANFRANDIV
TO : COMHAWSEC; ITASCA; COM 14; COLORADO; COMDESRON8; COMDT USCG WASHDC; COM 12

0006 FOLLOWING FROM PETHAM QUOTE PLEASE NOTE ALL RADIO BEARINGS THUS FAR OBTAINED ON EARHART PLANE APPROXIMATELY INTERSECT IN PHOENIX ISLAND REGION SOUTHEAST OF HOWLAND ISLAND PERIOD

A

FURTHER LINE OF POSITION GIVEN BY NOONAN IF BASED ON HOWLAND WHICH APPARENTLY REASONABLE ASSUMPTION ALSO PASSES THROUGH ISLANDS PERIOD BELIEVE NAVIGATOR AFTER OBTAINING SUCH LINE NATURALLY WOULD FOLLOW IT TO NEAREST INDICATED LAN PERIOD ADDITIONALLY IF MESSAGE STATING POSITION 200 MILES NORTH OF HOWLAND ACTUALLY WAS QUOTE SOUTH UNQUOTE INSTEAD OF NORTH ALSO INDICATES SAME REGION PERIOD WEATHER ANALYSIS INDICATES LIKELIHOOD HEADWINDS ALOFT MUCH STRONGER THAN NOONAN RECKONED WITH PROBABILITY NEVER GOT 100 MILES FROM HOWLAND AS THEY THOUGHT PERIOD LOCKHEED ENGINEERS STATE POSITIVELY PLANE COULD NOT OPERATE ITS RADIO UNLESS ON GROUND AND NO ISLANDS APPARENTLY EXIST NORTH OF HOWLAND THEREFORE SUGGESTED THAT PLANES FROM COLORADO INVESTIGATE PHOENIX AREA AS PRACTICABLE UNQUOTE 0210"

"FROM: COLORADO
TO : OPNAV

1006 0300 POSITION LAT 0733 NORTH LONG 17055 WEST EXPECT BEGIN SEARCHING WITH PLANES TOMORROW WEDNESDAY SOUTHEAST OF HOWLAND ISLAND 0515"

"FROM: CINCUS
TO : COLORADO; COMFOURTEEN; COM 14
INFO: COMBATSHIPS; COMSUBFOR; COMBATFOR; COMSCOFOR; COMAIRBATFOR; COMBASEFOR; COMASIATICFOR; COMINCHFOR; COMSUBRON4; FAB FH; OPNAV.

0106 COM FOURTEEN HAS BEEN DESIGNATED TAKE CHARGE OF SEARCH FOR EARHART PLANE PERIOD ALL UNIT OF FLEET BASED PEARLHARBOR PLUS LEXINGTON GROUP AND COLORADO ARE UNDER COMMAND OF COM FOURTEEN FOR SEARCH OPERATIONS 1225"

"FROM: COMFRANDIV
TO : COMTWELVE
INFO: ITASCA; COM FOURTEEN

0006 ON ACCOUNT OF PREPONDERANCE OF NAVAL CRAFT TO BE ENGAGED IN EARHART SEARCH AND NECESSITY FOR COORDINATION HEADQUARTERS HAS AUTHORIZED THAT ITASCA REPORT TO COMFRANDIST FOURTEENTH NAVAL DISTRICT FOR DUTY PERIOD DIRECT ITASCA ACCORDINGLY 1445"

"FROM: COM FOURTEEN
TO : COLORADO
INFO: COMSCOFOR; SWAN; FAB; COMTWELVE; ITASCA; NAVSTA TUTUILA; COMAIRBATFOR: TO BE ACKNOWLEDGED BY SWAN; COLORADO; ITASCA.

0006 TAKE CHARGE OF NAVAL AND COAST GUARD UNITS IN SEARCH AREA AND DIRECT AND COORDINATE EARHART SEARCH UNTIL ARRIVAL COMSCOFOR TWO WITH LEXINGTON GROUP WHO WILL THEN BE DIRECTED TO TAKE CHARGE STOP KEEP COMFOURTEEN ADVISED OF PROGRESS STOP WILL KEEP YOU ADVISED ANY PERTINENT INFORMATION RECEIVED BY COMFOURTEEN NAVDIST PEARLHARBOR 1500"

A

6 July, 1937 (continued)

"FROM: ITASCA
TO : COM 14
INFO: COLORADO; COMDESRON8; COMBARDES; COMTRANDIV.

6006 REPORT FOR DUTY AS PER INSTRUCTIONS COAST GUARD 1525"

"FROM: COMDESRON8
TO : COM 14
INFO: COMDESDIVFOUR; COMDIVFOUR; COMDESDIVFOUR; COMAIRDIVFOUR; CINCUS; OPNAV; COLORADO.

0006 CINCUS 0106 1225 LEXINGTON GROUP REPORT FOR DUTY NOON ZONE PLUS NINE POSITION TODAY TUESDAY TWENTY EIGHT FORTY NORTH ONE HUNDRED THIRTY SEVEN DEGREES SEVEN MINUTES WEST COURSE TWO FIVE ZERO SPEED TWENTY TRUE 1523"

"FROM: COLORADO
TO : COMFOURTEEN
INFO: SWAN; ITASCA; COMDESRON8

1006 CINCUS 0106 1225 REPORT FOR DUTY PERIOD PLAN TO FUEL ITASCA SEVEN JULY THEN BY PLANE INSPECT WINSLOW REEF THEN NAVI ISLAND PHOENIX ISLANDS INCLUDING GAR HOWLET REEF 1525"

"FROM: SWAN
TO : COMFOURTEEN

1006 YOUR 0006 1505 1600"

"FROM: COLORADO
TO : SWAN
INFO: COMFOURTEEN

1006 PROCEED TOWARDS POSITION LAT ZERO LONGITUDE ONE SEVEN FIVE WEST SPEED EIGHT KNOTS 1605"

7 July, 1937

"FROM: COLORADO
TO : ITASCA
INFO: SWAN; COMDESRON8; COM 14

1007 DURING DAYLIGHT HOURS CONDUCT SEARCH AT FIFTEEN KNOTS TO THE EASTWARD AND SOUTHWARD OF ORIGIN LAT ZERO TWENTY SOUTH LONG ONE HUNDRED SEVENTY EIGHT WEST PERIOD WESTERN BOUNDARY LINE BEARING ONE FIVE SEVEN DEGREES TRUE FROM ORIGIN EASTERN BOUNDARY ONE HUNDRED AND TWENTY MILES TO THE EASTWARD OF WESTERN BOUNDARY PERIOD ALLOW FOR CURRENTS EXPERIENCED BY YOU RECENTLY WHICH WILL DEVELOPE A SHIFTING SECTOR 1022"

A

"FROM: COMFOURTEEN
TO : COLORADO
INFO: EARHART 3 ARON GROUP

0007 FORWARD MILITARY SEARCH OPERATIONS AT 0730 and 1930 ZONE 10 POINT 5 TIME DAILY ESPECIALLY DEFINE AREA COVERED AND UNITS EMPLOYED AND PROJECTED OPERATIONS SUCCEEDING TWELVE HOURS PERIOD ANY INFORMATION OF SPECIAL INTEREST OR IMPORTANCE TO BE FORWARDED AT ONCE 1440"

"FROM: NAVY DEPT
TO : COMFOURTEEN
INFO: COMBATFOR; OPNAV; COMTWELVE; COLORADO; COMTHIRTEEN; COMDESRON2.

0007 SUBMIT DAILY REPORT PROGRESS EARHART SEARCH IN VIEW COLORADO SCHEDULED DEPART HELEMAK THAT VESSEL AS SOON AS PRACTICABLE RECOMMENDATION DESIRED 1612"

"FROM: COMFOURTEEN
TO : OPNAV
INFO: EARHART SEARCH GROUP; ONION

0007 OPNAV 0007 1612 ITASCA ON 2 AND 3 JULY SEARCHED AREA BETWEEN RADII 320 AND 040 FROM HOWLAND TO DISTANCE 120 MILES AND REASONABLY CERTAIN SEARCH WAS EFFICIENT ON 4 JULY SEARCHED AREA FOURTEEN MILE FRONT LAT 0000 NORTH LONG 177 WEST TO LAT 0130 NORTH LONG 160 WEST AND RECTANGLE BOUNDED BY LATS 0030 NORTH AND 0130 NORTH AND 160 AND 179 WEST PERIOD ON 5 JULY FOURTEEN MILE FRONT FROM LAT 0300 NORTH LONG 173 30 WEST TO LAT 05 30 NORTH LONG 170 WEST THENCE TO POINT 221 MILES NORTH OF HOWLAND PERIOD SEARCHED THAT VICINITY DURING NIGHT PERIOD ON 6 JULY SEARCHED FROM LAT 05 30 NORTH LONG 176 WEST TO LAT 02 00 NORTH LONG 174 WEST PERIOD SWAN SEARCHED AREA BOUNDED LAT 05 20 NORTH DARE 05 30 NORTH LONG 172 WEST DARE 176 WEST PERIOD COLORADO FUELING ITASCA TODAY FOLLOWING WHICH ITASCA AND COLORADO WILL SEARCH SOUTH AND SOUTHEAST OF HOWLAND RESPECTIVELY PERIOD SWAN SEARCHING ENROUTE JOIN COLORADO 1615"

"FROM: COMFOURTEEN
TO : OPNAV

0008 AFTERNOON SEVENTH COLORADO SEARCHED WITH PLANES ON COURSE ONE NINE FIVE TOWARDS REEF AND SAND BARE NORTH OF WINSLOW REEF WILL CONTINUE SEARCH TODAY IN VICINITY THIS REEF AND ISLANDS IN PHOENIX GROUP PERIOD ITASCA PROCEEDED TO POINT LAT ZERO TWENTYSOUTH LONG ONE HUNDRED SEVENTY EIGHT WEST DESIGNATED POINT BAKER AND TODAY WILL SEARCH AREA TO SOUTH AND EAST THIS POINT PERIOD SWAN CONTINUING SEARCH TOWARD POINT LAT ZERO LONG ONE SEVEN FIVE WEST DESIGNATED POINT AFFIRM PERIOD NOTHING DEVELOPED"

A

9 July, 1937

"FROM: COMFOURTEEN
TO : OPNAV

0009 ITASCA CONTINUED SEARCH TO SOUTHWARD AND EASTWARD FROM POINT BAKER SWAN ARRIVED POINT AFTER AND CONTINUED TOWARD LAT TWO SOUTH ONE SEVEN TWO WEST DESIGNATED POINT CAST COLORADO PLANES SEARCHED VICINITY WINSLOW REEF WHICH WAS NOT SEEN AND THEN TO SOUTHWARD ON COURSE ONE SIX TWO ON SEVENTY MILE FRONT FOR DISTANCE FIFTY MILES PERIOD TODAY SWAN WILL CONTINUE TOWARD POINT CAST SEARCHING VICINITY CANTON ISLAND ENROUTE AND WILL BE FUELED BY COLORADO SATURDAY PERIOD ITASCA CONTINUING SEARCH IN SAME AREA AS YESTERDAY COLORADO PLANES CONTINUING EXAMINATION PHOENIX GROUP 0931"

"FROM: MOVEMENT REPORT HONOLULU
TO : ALL US MEN OF WAR; US NAV RDO STA.

1709 54 PEARL DEPARTURES FROM LAHAINAROADS CONTINGENT TWO IN LEXINGTON CONTINGENT THREE IN DRAYTON LAWSON CUSHING FOR SEARCH AREA NAVAPO WHIPPOORWILL WITH LIGHTER 479 FOR PEARLHARBOR 1630"

"FROM: MOVEMENT REPORT OFFICE HONOLULU
TO : ALL US MEN OF WAR; US NAVRADIOSTA.

1709 56 PEARL ARRIVAL AT TUTUILA ONTARIO 2030;

10 July, 1937

"FROM: CDR 2
TO : COLORADO
INFO: CDR5; CUSHING; LAWSON; DRAYTON; LEXINGTON; COM 14

0010 COMFOURTEEN 0010 1005 IN ORDER NOT TO MATERIALLY INTERFERE WITH LEXINGTON PLANS RECOMMEND COLORADO RENDEZVOUS AND FUEL DESTROYERS IN LAT FIVE DEGREES FIFTY MINUTES NORTH LONGITUDE ONE SEVENTY THREE DEGREES FIFTEEN MINUTES WEST AT ZERO SEVEN HUNDRED PLUS ELEVEN ONE HALF TIME MONDAY TWELFTH PERIOD PLEASE EXPEDITE REPLY 1045"

"FROM: COLORADO
TO : COMSCRON 2
INFO: CDR5; LAWSON; CUSHING; DRAYTON; LEXINGTON; COMFOURTEEN

1010 YOUR 0010 1545 AFFIRMATIVE 1600"

"FROM: COLORADO
TO : COMFOURTEEN
INFO: EARHART SEARCH GROUP

1010 COLORADO AT 0700 LAT 0351 SOUTH LONG 172 15 WEST LAUNCHED PLANES SEARCHED HIBBS PHOENIX ENDERBURY BIRNIE IN ORDER NAMED AT

A

10 July, 1937 (continued)

0000 LAT 0351 LONG 172 05 COURSE NORTH AT 1015 LAT 0322 LONG 172 02 RECOVERED PLANES COURSE 100 AT 1200 LAT 0323 LONG 171 55 COMMENCED FUELING SWAN AT 1410 LAT 0325 LONG 17145 COMPLETED FUELING COURSE NORTH AT 1445 LAT 03 22 LONG 171 45 CATAPULTED PLANES MARCH CANTON ISLAND AT 1600 RECOVERED LAT 03 06 LONG 171 43 SET COURSE 350 FOR RENDEZVOUS WITH DESTROYERS IN LAT 0350 NORTH LONG 173 15 WEST 0700 MONDAY TWELFTH PERIOD WITH COMPLETION FLIGHT THIS AFTERNOON ALL ISLANDS PHOENIX GROUP HAVE BEEN LOCATED AND CAREFULLY SEARCHED FOR ANY SIGN OF EARHART PLANE OR INHABITANTS WITH EXCEPTION WINSLOW REEF AND SANDBANK AND NEXT TO THE NORTHWARD THE CHARTED POSITION OF THESE PLACES AND FOR SEVERAL MILES IN VICINITY WAS COVERED THICK WITHOUT LOCATING THEM PERIOD SWAN UPON COMPLETION FUELING WAS DIRECTED PROCEED POINT AFIRE ITASCA CONTINUING SEARCH ASSIGNED SECTOR TWELVE HUNDRED POSITION LAT 01 20 LONG 177 36 SEARCHING TODAY TO WESTWARD 1630"

"FROM: COMDESRON 2
TO : COMFOURTEEN
INFO: COMDESDIV 3; LAWSON; DRAYTON; CUMMING; LEXINGTON

0010 PRESENT INTENTION MAKE SEARCH PLAN NUMBER TWO EFFECTIVE TUESDAY THIRTEENTH WILL COVER MAXIMUM AREA IMMEDIATE VICINITY HOWLAND ISLAND THEREAFTER USE PLAN NUMBER ONE EXTENDING TO WESTWARD WILL KEEP YOU INFORMED IN DETAIL AS SEARCH PROGRESSES 1030 FLUC TEN HALF POSITION FOURTEEN FIFTY EIGHT NORTH ONE SIXTY TWO FIFTY FIVE WEST 2030"

11 July, 1937

"FROM: COMFOURTEEN
TO : OPNAV

0011 COLORADO COMPLETED SEARCH PHOENIX GROUP AREA AND ALL ISLANDS THEREIN IS NOW HEADING FOR RENDEZVOUS LAT 0350 NORTH LONG 173 15 WEST TO FUEL DESTROYERS LEXINGTON GROUP FORENOON MONDAY TWELFTH UPON COMPLETION OF WHICH COLORADO WILL BE RELEASED FROM SEARCH DUTY AND DIRECTED PROCEED ON PREVIOUSLY ASSIGNED DUTY ON FOLLOWING ITINERARY FUEL PEARLHARBOR SEVENTEENTH DEBARK BASHINGTON ROTC AND NAVAL RESERVES SEATTLE TWENTY SIXTH PERIOD SWAN FUELED AND DIRECTED PROCEED POINT AFIRE ITASCA CONTINUING SEARCH HER ASSIGNED AREA WHICH SHE HAD COMPLETED TO LAT 0147 SOUTH 0929"

"FROM: COMFOURTEEN
TO : COLORADO; COMDESRON 2
INFO: EARHART SEARCH GROUP

0011 COMDESRONS TAKE CHARGE ALL UNITS IN SEARCH AREA PERIOD SEARCH OF PHOENIX GROUP AREA CONSIDERED COMPLETED PERIOD UPON COMPLETION FUELING DESTROYERS COLORADO RELEASED SEARCH DUTY AND PROCEED PREVIOUSLY ASSIGNED DUTIES FOLLOWING ITINERARY SUBMITTED COLORADO DESPATCH THIS NINTH 0948"

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12 July, 1937.

"FROM: COMFOURTEEN
TO : OPNAV

0012 DESTROYER LEXINGTON GROUP TO FUEL FROM COLORADO THIS FORENOON LEXINGTON GROUP TO START SEARCH MORNING THIRTEENTH FROM POINT ORIGIN LAT 0230 NORTH LONG 177 WEST BASE COURSE SOUTH SWAN AND ITASCA PROCEEDING TOWARD SOUTHERN ISLANDS GILBERT GROUP 0935"

13 July, 1937.

"FROM: COMFOURTEEN
TO : OPNAV

0013 LEXINGTON COMMENCING SEARCH THIS MORNING PERIOD WEATHER PERMITTING EXPECTS IN FIVE DAYS TO COVER AREA BOUNDED AS FOLLOWS LATITUDE 3 DEGREES NORTH TO APPROXIMATELY 2 DEGREES SOUTH LONGITUDE 175 30 WEST TO 175 30 EAST PERIOD ITASCA ARRIVING ARORAI ISLAND THIS MORNING TO BEGIN SEARCH OF GILBERTS SWAN ENROUTE TO ASSIST WITH GILBERT SEARCH PERIOD COLORADO ARRIVES OFF PEARLHARBOR SIXTEENTH FOR MAIL AND STORES THEN PROCEED SANFRANCISCO WILL NOT REQUIRE FUEL PEARLHARBOR 0940"

14 July, 1937

"FROM: COMFOURTEEN
TO : OPNAV

0014 ITASCA SEARCHED AROUND TAMANA AND VICINITY SWAN TO SEARCH VICINITY NURUMA TODAY BOTH VESSELS TO CAREFULLY SEARCH UNINHABITED ISLANDS IN AREAS ASSIGNED THEM AND SUCH SEARCH AS DEEMED ESSENTIAL OF INHABITED ISLANDS LEXINGTON CONTINUING AS OUTLINED IN YESTERDAYS REPORT DAYS WORK INTERFERRED WITH BY HEAVY RAIN SQUALL BUT CONSIDERED SATISFACTORY TODAYS POINT OF ORIGIN LAT 01 30 SOUTH LONG 180 BASE COURSE NORTH 0930"

15 July, 1937.

"FROM: COMFOURTEEN
TO : OPNAV

0015 SWAN AND ITASCA CONTINUING SEARCH GILBERTS EXPECT TO RELEASE THIS WEEK AREA COMPLETED PROBABLY SATURDAY LEXINGTON CONTINUING SEARCH AREA PREVIOUSLY REPORTED TODAYS POINT ORIGIN LAT 0120 NORTH LONG 180 BASE COURSE NORTH PERIOD PLAN BEING FOLLOWED 6 PLANES FIRST DAY 4 THEREAFTER PLANES DIVIDED EQUALLY EACH FLANK SPACED 8 MILES SEARCH OUT FROM PLANES 90 MILES 2 FLIGHTS PER DAY ADVANCING FRONT 240 MILES FIRST DAY 160 THEREAFTER 100"

16 July, 1937.

"FROM: COMFOURTEEN
TO : OPNAV

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16 July, 1937 (continued)

0016 ITASCA COMPLETED SEARCH NORTHERN GILBERTS SWAN CONTINUING SOUTHERN GILBERTS LEXINGTON COMPLETED AS SCHEDULED FOR YESTERDAY TODAY STARTS FROM LAT 0400 NORTH LONG ONE SEVEN EIGHT EAST FIRST BASE COURSE EAST 0957"

17 July, 1937.

"FROM: COMFOURTEEN
TO : OPNAV

0017 SWAN COMPLETED SEARCH SOUTHERN GILBERTS HAS BEEN RELIEVED FURTHER SEARCH DUTY NOW PROCEEDING PEARLHARBOR ITASCA RELIEVED SEARCH DUTIES DIRECTED REPORT HAWAIIAN SECTION COAST GUARD NOW PROCEEDING HOWLAND PERIOD LEXINGTON YESTERDAY COMPLETED FOLLOWING AREA LATS 0830 AND 0830 NORTH LONGS 178 20 and 178 46 EAST TODAYS PLAN POINT OF ORIGIN LAT 0100 NORTH LONG 178 36 EAST BASE COURSE EAST 1000"

18 July, 1937.

"FROM: COMFOURTEEN
TO : OPNAV

0018 YESTERDAY SEARCH COMPLETED AS SCHEDULED PERIOD TODAY CLEARING UP RAIN HOLES IN AREAS SEARCHED FOURTEENTH FIFTEENTH SEVENTEENTH AND PROBABLY FILL IN AREAS TO NORTHEAST OF BAKER 0920"

"FROM: COMINCH 8
TO : COM 14

0018 SEARCH TODAY SUNDAY COMPLETED AS SCHEDULED 1551"

This file includes only the more important dispatches exclusive of confidential ones.

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601-64-800

TREASURY DEPARTMENT
UNITED STATES COAST GUARD

ITASCA.

Honolulu, T. H.,
29 July, 1937.

From: Commanding Officer, ITASCA.
To : Commandant, 14th Naval District, Pearl Harbor, T.H.
(Via Commander, Hawaiian Section.)

Subject: Earhart Flight.

1. The following report is submitted herewith for your information:

19 to 23 June, 1937:

Enroute to Howland Island. 2056, on the 23rd raised Howland Island bearing 90 degrees true, distance 7 miles, stopped and drifted to the westward of the island awaiting daybreak.

24 June, 1937:

0718, closed island, stopped and drifted. Lowered boats and commenced landing stores and equipment together with gasoline and equipment for Earhart flight, Completed landing of stores and equipment at Howland Island this date and drifted during night on the lee side of the island.

25 June, 1937:

Proceeded to Baker Island where hove to at 0847 and commenced landing stores for that island which duty was completed at 1403.

26 to 30 June, 1937:

Holding position off and on lee side of Howland Island awaiting arrival of Amelia Earhart plane from Lae, New Guinea. During this period Department of Interior personnel and technical aides at work on runways and precautionary efforts connected with Earhart flight. Organized task groups for landing and take off duties.

1 July, 1937:

1858, received verification from San Francisco Division that Amelia Earhart Putnam had departed Lae, New Guinea at noon, Lae time, and was enroute to Howland.

2 July, 1937:

Made preparation during night for landing task groups in connection with plane flight. Vessel in contact with Earhart plane at 0245 and intermittently thereafter. Early reception poor. At 0610

sent task group ashore to take stations for landing of plane. 0614 Earhart reported position 200 miles out of Howland. Commenced laying heavy smoke screen at daylight. 0645 Earhart plane reported position 100 miles out. 0742 plane reported apparently over the island and gas running low but no land fall. 0758, plane reported circling and requested transmission on 7500 kcs for bearings. 0800, plane reported reception of our signals but unable to obtain a minimum for bearing. 0843, plane reported as being on line 157-337 and running north and south, no reference point given, reception excellent. 0900, signalled shore party to return to ship as by this time fears were felt that the Earhart plane had probably landed wide of the island. Landing party returned at 0912.

As soon as the plane had indicated that it was still aloft at 0843 and possibly on a line which would provide a land fall it was deemed advisable to retain homing p osition at Howland with the vessel for sometime on the possibility that the plane might still come in.

At 1040, it was definitely assumed that the plane was down so got underway at full speed and commenced the search in the area which at that time seemed most logical.

During the last half hour prior to getting underway an estimate of the situation was made based upon the following facts and assumptions:

"FACTS"

(a) Flying conditions within a radius of 40 miles of Howland excellent, wind east 8 to 13 miles, ceiling unlimited, sea smooth.

(b) Visibility south and east of Howland excellent and unlimited as far as could be observed. Sun rising clear and bright and island, ship and smoke screen in the glare thereof.

(c) Visibility north and west of Howland excellent to horizon but beyond that continuous banks of heavy cumulus clouds.

(d) Plane transmissions had indicated flight through cloudy and overcast skies throughout the night and morning.

(e) Plane transmissions had indicated that dead reckoning distance had been accomplished.

(f) Plane signal strength high and unchanged during last hour of transmission.

(g) Plane's line (of position?) indicated dead reckoning run correct.

(h) Stellar navigating possibilities, south and east of Howland and close to Howland, were excellent throughout the night.

2 July, 1937 cont'd:

"ASSUMPTIONS"

(a) That plane obtained no fix during latter part of flight due to visibility and assumed further this due to flying in cloudy weather and conditions which did not exist south and east of Howland but did exist north and west.

(b) That line of position obtained was a "sun" line obtained when they emerged from the cloudy area north and west of Howland and presumably the only observation made during the latter part of the flight. Further assumed that this line was correct.

(c) Assume that plane may have missed smoke screen, ship or island visually due to their lying in the glare of the rising sun.

(d) Assumed further that plane passed within 200 miles of Howland Island and north of it.

(e) Assumed that plane may have carried line of position found along line of flight for the period necessary for navigator to work and plot line of position not in excess of 100 miles.

(f) Assume plane did not come down within a radius of 40 miles of Howland.

Upon foregoing facts and assumptions it was decided that the most logical area of search lay in a sector of a circle between 40 miles and 200 miles off of Howland Island and between bearings 337 and 45 true, from that island. Search was accordingly laid down in accordance with this estimate.

The following Department of Interior personnel were left on Howland in excess of normal personnel for the purpose of assisting the plane, if, by any chance, it neared the island during the absence of the ITASCA:

Ah Kin Leong; Albert K. Akana, Jr.; William Tavares;
Carl Kahalewai and Henry Lau.

Frank CIPRIANI, Radioman, second class, U.S.C.G.C. was left ashore in charge of high frequency radio direction apparatus to obtain bearings, if possible, on the plane. Searching throughout the day to the northward of Howland Island and during the night with searchlights. Extra lookouts posted and all hands on the alert. In addition to the efforts being made

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2 July, 1937 cont'd:
by the ITASCA, suggested to Commander, Hawaiian Section, the desirability of a Navy sea plane search from Pearl Harbor. Received information from the San Francisco Division that there was a possibility that the plane might use radio on the water and further that possibility of floating a considerable time excellent together with an emergency rubber boat and plenty of emergency rations carried.

At 2145 received definite instructions from Commandant, 14th Naval District, to be at Howland Island at daybreak Saturday, 3 July, 1937 to provide tender service for plane which had left Pearl Harbor at 1923. In view of the fact that the plane was already in the air enroute to Howland Island there was no alternative other than to abandon the search temporarily for the Earhart plane and proceed as indicated in the above noted orders; course was accordingly changed for Howland Island. Search was still maintained with searchlights.

3 July, 1937:

Arrived off Howland at 0710 in accordance with instructions. 0719, received information that Navy plane was turning back to base on account of extremely bad flying weather so resumed search to the northward which continued throughout the day. Received information from San Francisco Division that four separate radio stations at Los Angeles reported receiving Earhart position 178 with 1.6 in doubt. In view of possibilities of the plane being able to transmit on the water as indicated in prior information stood west to this latest reported position for the purpose of proving or disproving the reports which could not consistently be ignored. Maintained search throughout the day.

4 July, 1937:

Took up search during the 4th from 180th meridian towards Howland Island using rectangular search method and continued throughout the day and night.

5 July, 1937:

At 0242 received information from Hawaiian Section that Naval Radio Station Wailupe had intercepted the following message; "281 NORTH HOWLAND CALL KHAQQ BEYOND NORTH DONT HOLD WITH US MUCH LONGER ABOVE WATER SHUT OFF". With the possibility of plane transmission on the water still existing stood north towards the position indicated in the foregoing intercept and advised all steamers in the vicinity of the possibility of the plane being down at that point. Contacted Howland Island in an endeavor to obtain a bearing from that point on the reported plane and report from Howland gave a bearing which conformed to the report. Searched to the northward enroute to reported position of plane. Arrived about dusk broadcasting on plane

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5 July, 1937 cont'd:

frequencies and using searchlights intermittently for visual signals. At 2100 lights which had the appearance of flares were sighted to the northward and stood up to investigate. These reported lights had every indication of a bursting green rocket but were finally determined to be attributed to meteorological shower which was reported both by the Howland Island Station and U.S.S. SWAN. At 2215 identified English steamer MOORSBY who had diverted from her normal course to assist in the search. Continued search throughout the night.

6 July, 1937:

Proceeded south and east during the night to effect rendezvous with U.S.S. COLORADO on the morning of the 7th for fuel purposes. At 1445 received instructions to report for duty to the Commandant, 14th Naval District, and reported as indicated. At 1545 received instructions from Commandant, 14th Naval District to report to U.S.S. COLORADO for duty and conformed.

7 July, 1937:

Contacted U.S.S. COLORADO at 0445. Closed her at 0639 and 0702 commenced taking fuel by destroyer method. Received from COLORADO commissary stores as requested. While fueling Commanding Officer conferred with Commanding Officer COLORADO relative to search program and the general situation up to-date. 1010 Completed fueling from the COLORADO, cast off and stood southward and westward for search area outlined in conference.

8 to 10 July, 1937:

Searched area south and west of Baker Island in accordance with orders of Commanding Officer U.S.S. COLORADO.

11 July, 1937:

0345 COMDESRON TWO in charge of search. Continued search as indicated in original orders. 2224 received instructions from COMDESRON TWO to proceed to ARORAI Island in the Gilbert Group and shaping course accordingly.

12 July, 1937:

Proceeding toward ARORAI Island, Lower Gilberts, to investigate that island and others as indicated in orders.

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601-64-800. 7/23/37
ITASCA. Earhart Flight.

13 July, 1937:

Raised ARORAI Island at 0600 and stood off shore to await further instructions from Naval command. Received final instructions to visit certain islands of the Gilbert group at 0700 and stood for ARORAI. 0835 stopped off ARORAI Island, native canoe came alongside with native magistrate who came on board and conferred with Commanding Officer. 0850 landed two commissioned officers via native canoe with the permission and assistance of native Magistrate for the purpose of interrogating local inhabitants relative to the passage or wreckage of the Earhart plane. 1050 officers returned with negative reports on their efforts. 1402, underway proceeding to TAMAMA Island. 1513 hove to off TAMAMA Island. 1830 native canoe with native Magistrate came on board and departed with commissioned officers to interrogate local natives. 1714, duty officers returned with negative information. 1730, underway and stood to the northward and westward along the Gilbert chain.

14 July, 1937:

1322, stood in close to lee side NAUUKI Island but held no communication as no native boats came out and the surf breaking too heavily for surf boats unfamiliar with the locality. 1425, underway from NAUUKI Island to intercept two native canoes sighted. 1452, stopped alongside of native canoe but were unable to obtain information due to their inability to speak English. 1510, set course for KURIA Island where arrived at 1610 under the reef and drifted. Lowered surfboat and contacted native Magistrate who stated that the islands of this group were in close communication and that no information was available concerning any plane or wreckage. 1710, underway to the northward and westward, instructions having been modified regarding particular islands to search and the reporting of this vessel at TARAWA Island, the Division Headquarters, being deemed essential.

15 July, 1937:

0650, raised TARAWA Island and stood in to westward of reef. 0850, stopped and drifted off channel entrance. Dispatched Lieutenant Commander L. H. Baker and representative officers ashore in motor launch and motor surfboat to report the arrival of the ITASCA in the Gilberts officially and to explain the vessel's mission. At 1430 motor boats returned with following information: the senior Commissioner received the party graciously but declined to receive the visit as official owing to the fact that he had received no prior notice of the vessel's arrival in the Gilbert group. He requested the ITASCA to notify the Resident Commissioner at Ocean Island which latter report was accomplished by COMDESRON TWO. The Resident Commissioner at TARAWA Island stated that contact between the northern islands was close and that no information had been received of the passage of the Earhart plane or any wreckage therefrom. He further

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15 July, 1937 cont'd:

stated that a definite lookout had been kept for the plane at his instructions since the flight. 1455, with all boats secured, set course toward the southward at standard speed. Advised COMDESRON TWO fully as regards the situation to-date and was directed to proceed to Howland Island for the purpose of picking up personnel and stores enroute to Honolulu.

16 July, 1937:

Enroute to Howland Island from the Gilberts. 1505, released from duty in search area by COMDESRON TWO and reported to Commandant, 14th Naval District. 1725, relieved from further search duty by Commandant, 14th Naval District and reported to Commander, Hawaiian Section. 1740 received orders to proceed to Honolulu, T. H.

W. K. THOMPSON
Commander, USCG.

HAWAIIAN SECTION 601-64-800 First Endorsement. Honolulu, T. H., 29 July, 1937.

From: Commander, Hawaiian Section.
To : Commandant, 14th Naval District, Pearl Harbor.

1. Forwarded.

F. T. KENNER,
By direction.

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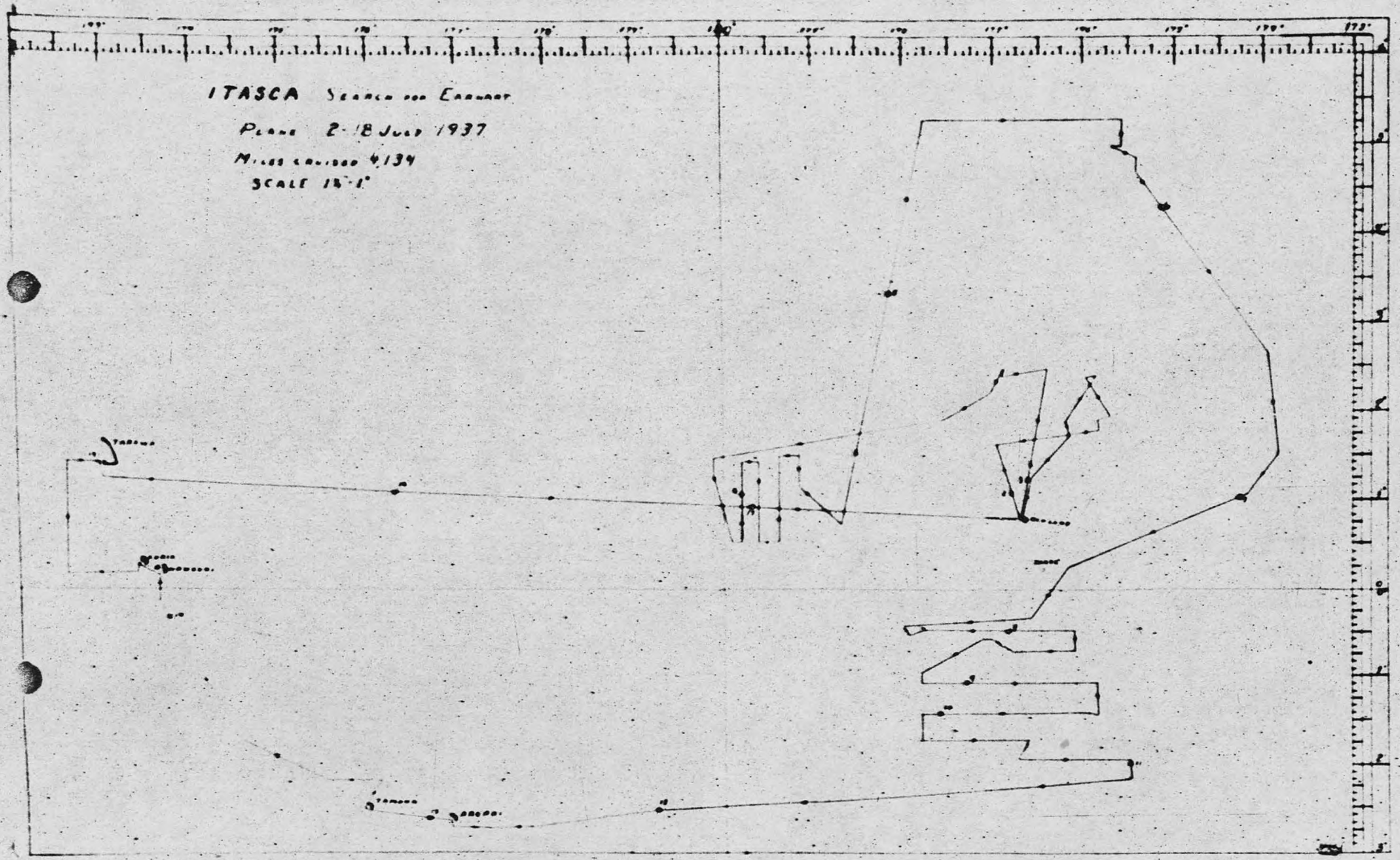
ITASCA
Plane 2-18 June 1937
SCALE 1" = 1'

B3-3/A4-3 545 U.S.S. COLORADO 10-os
Passage, Pearl Harbor, T. H.,
13 July, 1937.

From: Commanding Officer.
To : Commandant, Fourteenth Naval District.

Subject: Resume Earhart Search by the U.S.S. COLORADO. (In Charge Search Group).

On 1 July, 1937, the U.S.S. COLORADO, Captain Wilhelm L. Friedell, U. S. Navy, Commanding, arrived at Honolulu, T. H. The U.S.S. COLORADO was operating in accordance with approved operating schedule on a one month's training cruise of the Naval Reserve Officers Training Corps Students from the University of California, and Washington. Also on board were four distinguished guests of the Navy, Doctor Marion Luther Brittain, President of the Georgia School of Technology, Doctor Lee Paul Sieg, President of the University of Washington, Doctor Charles Derleth, junior, Dean of the College of Engineering, University of California, and Doctor James Washington Bell, Professor of Money and Banking and Member of the Administrative Board of the Graduate School, Northwestern University. These distinguished guests of the Navy were all connected with schools that take an active part in the Naval Reserve Officers' Training Corps. Several officers and men of the Naval Reserve were aboard for training augmenting the regular ship's company of the U.S.S. COLORADO.

The U.S.S. Colorado had stopped at Hilo, Hawaii, for a pleasant welcome and a two day visit, had fired successfully, by the N.R.O.T.C. a modified Short Range Battle Practice in the Lahaina Area, and was berthed at Pier 1, Honolulu, T. H., to remain until early Tuesday Morning, 6 July, 1937.

On the morning of 1 July, 1937, (Honolulu Time) Mrs. Amelia Earhart Putnam, and her Navigator, Mr. Fred J. Noonan, took off from New Guinea for Howland Island in the Lockheed plane known as a flying laboratory in which they were approaching the end of a flight around the world. Howland Island is located in Latitude 0°-47' North, Longitude 176°-43' West. It is 1,660 miles from Honolulu, T. H., and is the nearest land to the Hawaiian Islands in the direction of the flight. It is an island two miles in length, and 1,000 yards wide. It is twenty feet high. South and east of Howland in Latitude 0°-13' North, Longitude 176°-33' West is Baker Island also twenty feet high. It is one mile in length and 1,500 yards wide.

D

On Howland Island there are four weather observers, from Honolulu equipped with a direction finder for this flight, and a radio for communication with the Honolulu Radio Station, and the Coast Guard Cutter ITASCA. On Baker Island are four observers from Honolulu also equipped with a radio.

The ITASCA, under the Command of Commander W. O. Thompson, United States Coast Guard, had been placed on station near the island for the purpose of guarding the flight. The ITASCA had come from the West Coast for this purpose. The ITASCA had previously been stationed at Honolulu, and the personnel were familiar with the waters and islands of the vicinity.

About noon, Friday, 2 July, 1937, word was received in Honolulu that the Earhart Plane had not arrived at Howland Island. The ITASCA reported that 0742 (Zone plus 11½ time) the Earhart Plane had been contacted, and the plane reported only one-half hour of fuel, no land fall and position doubtful. The contact at 0846 had reported one hundred miles from the ITASCA then at Howland Island, but no relative bearing was given. At 0843, the plane reported line of position 157-337 but no reference point. The ITASCA further reported that at 1200 she would commence search to the northwestward for the plane.

The ITASCA reported later that she had received no word as to the course and speed or position of the plane but believed that the plane was down to the northwest, having passed Howland Island, and due to the glare of the rising sun had missed seeing Howland Island or the ITASCA which had been smoking heavily in order to assist in being sighted.

The reason for the ITASCA's search to the northwestward was not known until contact with the ITASCA was made several days later and information was then received that on the morning of 2 July, 1937, at Howland the visibility had been clear except to the west and north, and if the plane had been close to Howland it was believed the island or the ITASCA would have been easily seen except from the northwest.

Inquiries from the Navy Department to the Commandant, Fourteenth Naval District, as to the practicability of searching by destroyers and planes from Pearl Harbor, T. H., brought out the fact that the position of Howland Island, 1,660 miles from Honolulu precluded any searching of that area being conducted without a base in the immediate vicinity for either destroyers or planes.

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In the afternoon of 2 July, Lieutenant Warren E. Harvey, U.S. Navy, in a seaplane took off from Pearl Harbor, T.H., for search in the vicinity of the Howland Island for the Earhart plane.

The U.S.S. COLORADO was made available to the Commandant, Fourteenth Naval District, for use as a searching vessel. At 0900, Saturday, 3 July, 1937, the U.S.S. COLORADO left Honolulu for Pearl Harbor, with orders to fuel prior to departing for the Search Area. While at Pearl Harbor additional stores of gasoline, lubricating oil and aviation oil, were taken on board.

At 0700, the Patrol Plane reported her position at Latitude 6°-35' North, Longitude 172°-00' West, that the weather was extremely bad and that it was necessary for her to return to Pearl Harbor.

The U.S.S. SWAN had been despatched from the Fleet Air Base, Pearl Harbor, T.H., with supplies for the Navy plane in the event that it reached Howland Island and conducted a search from there. In order to guard the Patrol Plane on its return flight to Pearl Harbor, the U.S.S. PERT, TALBOT, TANAGER, and WHIPPOORWILL were ordered out to cover the path of the Navy Plane. This plane returned to Honolulu safely by 1900, Saturday, 2 July 1937, and no further planes were despatched from Pearl Harbor for the Search Area. The four ships were directed to return to Pearl Harbor. The U.S.S. SWAN continued on towards Howland Island.

While at Pearl Harbor the Commanding Officer of the U.S.S. COLORADO received instructions from the Commandant, Fourteenth Naval District, Rear Admiral Orin G. Murfin, U. S. Navy, and conferred with the Commanding Officer, Fleet Air Base, Captain Kenneth Whiting, U.S. Navy, and other officers of the District and Air Base relative to the probable path and location of the Earhart Plane in the event of a forced landing. This information seemed to indicate that the most probable reason for missing Howland Island would be that of stronger winds than normally expected in the region, and that the plane had probably been carried southeast of Howland, a greater distance than that from which Howland could be sighted. These opinions lead the Commanding Officer of the U.S.S. COLORADO, at this time to believe that southeast of Howland was the most likely area.

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The Commanding Officer upon departure from Pearl Harbor 1300, 3 July, 1937, set course for Howland Island.

Prior to departure from Pearl Harbor, word was received that amateur operators in the vicinity of Los Angeles had intercepted position report of the Earhart plane as Latitude 1° 36' South, Longitude 179° East. Radio watch was set on 3105 Kcs and 6210 Kcs, the frequencies known to have been used by the plane, in addition to the regular watch on the distress frequency, 500 Kcs. Contact was made via broadcast receivers with the radio broadcasting stations in Honolulu which were delivering an almost constant stream of information relative to aircraft reports of reception of messages from the plane.

The broadcasting stations and the ITASCA continued to send messages to the plane. On the night of 3 and 4 July no signals were heard on the plane frequency by the ITASCA or COLORADO, but reports were received from Wyoming, Honolulu, Los Angeles, Australia and other points that signals, and in some cases voice reports, had been received from the plane. It was also reported that an unbroken carrier wave was heard, both the night of 3 July and the night of 4 July on the plane frequency. There was no doubt that many stations were calling the Earhart plane on the plane's frequency, some by voice and others by signals. All of these added to the confusion and doubtfulness of the authenticity of the reports.

At this time the Commanding Officer, U.S.S. COLORADO stated that pending further information it was his plan based on the present information, search operations conducted and being conducted by the ITASCA and information obtained from officers at the Naval Air Station, Pearl Harbor and a knowledge of winds and currents in the vicinity of Howland and Baker Island to conduct search operations upon arrival at Howland Island in the area southeast of the island. The search to be conducted as follows: The U.S.S. COLORADO to steam east along the equator, the planes to be launched from the ship to search to the northward sixty miles then east for twelve miles then south passing the COLORADO to sixty miles south of the track of the COLORADO and then to complete the rectangle and return to the ship. Upon return to the ship, the planes were to be serviced and with new pilots take off for search of the next rectangle. It was expected that four flights of three planes each could be made per day.

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On the Fourth of July word was received that Commander Destroyer Squadron Two, Captain Jonathan S. Dowell, U.S. Navy, in Command of the LEXINGTON Group, consisting of the LEXINGTON, The DRAYTON, the CUSHING and the LAWSON, was proceeding to the search area.

During the night of 4 - 5 July, constant radio search was conducted. The COLORADO heard the carrier wave which had been previously reported by other stations. The Broadcasting Station in Honolulu had been requesting the plane, if the broadcasts were heard, to send a message and if unable to send a message to send signals by means of cutting the carrier wave on and off. Another station reported that answering signals had been heard but none of the stations reporting having heard signals agreed on any one specific reply signal. About mid-night 4 July, word was received that the plane carried no emergency radio equipment and that if the plane had landed on the water the engines would be partly submerged and the radio equipment would be unable to transmit. This gave rise to the belief that the plane was on land, if the signals heard or messages received were to be considered in any way authentic.

At 0230 the 5th of July 1937, word was received that operators in Honolulu had received a message from the plane that its position was 281 miles north of Howland Island. It was further stated that this was believed to be authentic as three separate operators had heard the report.

This information placed a different picture in view, for if the position was correct it would indicate that the plane was on the water, and if signals were actually heard as had been believed, then the plane must be on land or able to transmit from the water. The U.S.S. COLORADO was still too far away to cause a change of course for the reported position. The ITASCA and SWAN left their positions immediately and proceeded towards the position 281 miles north of Howland Island. The S.S. MOOREBY which was near the reported position proceeded towards the position given, arriving on the 5th of July. The SWAN reached Latitude 5° North, Longitude 172°-45' West, and commenced searching to the westward. The ITASCA reached the reported position late in the afternoon of 5 July. The COLORADO during the 5th of July continued on its course to Howland Island. Due to the distance involved to the position 281 miles north of Howland Island, and to Howland Island from the position of the COLORADO at this time it would have served no useful purpose to change the course of the COLORADO directly to the suspected position. In the event that the SWAN, ITASCA and MOOREBY failed to locate the plane in the suspected position or area and radio information confirmed the original assumption of the plane being in the southeast quadrant from Howland Island any change now would delay ultimate search of that region.

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It was not necessary for the Commanding Officer to decide until Tuesday forenoon on the course to follow. During the 5th two despatches of considerable interest and weight were received. The first despatch cast definite doubt as to the location as being 281 miles north of Howland Island, due to the fact that it stated again that the plane could not use radio if actually in the water, and the region to the north of Howland as previously stated was entirely water. Hence, if signals were received the location was definitely wrong. The other despatch referred to the opinion of the technical aides connected with the flight, that the plane would be found in the original line, which would indicate a position through Howland Island and the Phoenix Group, or in other words the southeast quadrant from Howland Island. These reports bore out the original assumption of the Commanding Officer, which was based on all information then available, that the logical quadrant for the position of the plane was the southeast quadrant.

The carrier wave was again heard during the night and the ITASCA and the broadcast station in Honolulu continued to broadcast to the plane instructions as to the replies to be given if the plane was heard. At 2132 on the night of the 5th the listeners in the radio room of the COLORADO were startled to hear on the plane frequency, the words, "Earhart from ITASCA did you send up a flare? If you did send up another. Please go ahead."

At 2140 the following was received, "Earhart Plane from ITASCA, we see second flare, we are coming for you, we are starting toward you." At 2145, "We see your flare and are proceeding towards you", these reports continued to be broadcast by the ITASCA, and apparently to a listening world, the position 281 miles north of Howland Island in which the ITASCA, SWAN and MOORBY were searching was the correct position. It was therefore with great sadness that the following was received shortly thereafter, "Report in error, objects sighted are apparently meteors Howland reported same effect." And the SWAN verified the opinion by reporting sighting meteors atthe time the ITASCA was believed to be sighting a flare from the Earhart Plane.

On the 6th of July, 1937, the Commandant, Fourteenth Naval District was directed to take charge of all Naval Forces based Pearl Harbor and those in the search area. The Coast Guard Cutter, the ITASCA was further directed to operate under Commandant, Fourteenth Naval District. The Commandant, Fourteenth Naval District, directed the Commanding Officer, U.S.S. COLORADO to take charge of Naval and Coast Guard Units in the Search Area and coordinate the Earhart Search Unit, until the arrival of Commander Destroyer Squadron Two.

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Shortly after the flares were known to be false a report was received that further investigation of the report received on 8 July that on 3105 Kcs a woman's voice had made four distress signal calls followed by KHAQQ, followed by "225 garble, Off Howland, battery very weak, can't last long, garble indicated sandbank", had been made and considerable credulance was given to the possibility of the report having been actually received. The only banks charted are south and east of Howland Island. A report was received from Mr. Putnam stressing the Phoenix Island Group and stating that headwinds aloft had been much stronger than expected for the flight. Again it was stated that the Lockheed Aircraft Engineers stated that the radio could not operate unless the plane was on land. It was further suggested by Mr. Putnam, that a plane from the COLORADO investigate the Phoenix Island Area. The possibility that the position 281 miles north of Howland was in error and might have been south and southeast was also considered. A third report also stated that a strong signal had been heard and a man's voice calling the ITASCA. A fourth signal report stated "Position 281 miles north of Howland, drifting northwest." This report was definitely known later to be a false report.

The search in the northwest quadrant was being carried on by ships. The planes radio was believed to have been heard, if some of the many reports were presumed to be authentic, hence on land. Considerations irrespective of radio had pointed to the southeast quadrant, and at this time still did. The southeast quadrant from Howland, except for one unverified report, still was the most likely. The Commanding Officer therefore decided to hold to his original decision, that of searching to the southeast of Howland, with one modification, that being to search by planes, the land areas of the Phoenix Group, prior to the large water areas. Large areas of intervening water, of course would be covered at the same time.

Accordingly at 0800, Tuesday, the ship's head was changed to 295° true and speed increased to eighteen point three knots (18.3). Arrangements were made in answer to a request from the ITASCA for a rendezvous with that ship for 0600, the 7th of July, for the purpose of fueling the ITASCA and p rovisioning her from the COLORADO. The SWAN was directed to search to Latitude 0°, Longitude 175° West.

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The Commander Coast Guard sent word that he had communicated with persons familiar with the methods of navigation of Mr. Noonan, and that Mr. Noonan would take a fix shortly before dawn, correct course for destination, and determine line of position when near the end of estimated run. This procedure would allow a flight of about 300 miles without a good fix. If short of gas, he probably would follow the line of position to the nearest land. The line of position 337° - 157° was given in one of the last reports received from the plane. It was also stated in a report that the plane was short of gas.

Considering the question as to what Mr. Noonan did do, it must be considered which way he would steer on the line. To the northwest of Howland was wide stretches of ocean, to the southeast were spots of land. To a seaman in low visibility the thing to do when in doubt of own position would be to head for the open sea. The land would be the place to get away from. To the Air Navigator with position in doubt and flying a land plane it is apparent that the thing to do would be to steer down the line towards the most probable land. To the Air Navigator, land would be a rescue, just as the sea would be to the seaman. Would and did Mr. Noonan do this or had he other reasons to do otherwise? The answer was of course unknown but logical deduction pointed to the southeast quadrant.

At day break, Wednesday, 7 July, the ITASCA met, fueled and provisioned from the COLORADO. Upon completion the ITASCA was directed by the Commanding Officer of the U.S.S. COLORADO to proceed to a point 0°-20' South Latitude, Longitude 178° West, and from there to search a sector, eastward and south from a line bearing 157° from that point and to search to the eastward a distance of 120 miles. This position and area was chosen as a place for search due to thoroughly considering the probable drift of the plane, had it landed on the morning of 2 July to the south of Howland Island, while on a line 157° to or from Howland Island. The ITASCA was further instructed to rectify this area to be searched in accordance with the current found in the region in order to continually take into consideration the drift of the plane if on the water.

At 1435, the COLORADO approached the westward charted islands of the Phoenix Group and planes were catapulted searching ahead for the charted position of the Reef and Sand Bank north of Winslow Reef and southeast of Howland Island.

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Although the planes searched ahead from the ship and crossed the Equator covering an advance of approximately 100 miles ahead of the ship and beyond the believed location of the Reef and Sand Bank, and several miles to the Eastward of the charted position, it was not located. At 1645, the planes were recovered in a position south of the Equator in Longitude 174° 30' West. When the planes were returned to the ship, the course of the ship was changed to 260° until clear of any possible danger of the Reef and Sand Bank, and Winslow Reef, and then to the southward.

On the 8th of July, the SWAN reached the position Latitude 0° 00', Longitude 175° in the afternoon, and was then directed to proceed to a point 2° South, 172° West, continuing to cover a search across the northeast section of the water area of the Phoenix Islands.

At 0657, the COLORADO launched planes from 175°-30' West, 1° South, and conducted an East-West search over the charted region of Winslow Reef and Reef and Sand Bank. A thorough search of this region failed to locate either of the two reefs, and the water covered showed no signs of the Earhart Plane.

When the planes returned they were immediately refueled and were sent out again covering together a front of seventy miles, thirty-five miles on each side of the course. While the COLORADO continued ahead, the planes searched to the left thirty-five miles then to the right crossing the ship's course a distance of thirty-five miles beyond the ship's track, and then completing the rectangle. This method of search continued until 1535 when the planes returned with a report that although the visibility was exceptionally good nothing was sighted. The next flight from 1620 to 1730 extended the advance of the seventy mile front to a total of fifty miles, making an area of 3,500 miles covered by the last two flights. The first flight to the eastward covered at least 1,500 square miles. From the point of recovery of the planes at 1730 the COLORADO proceeded to Latitude 2°-37' South, Longitude 175° West where a course of 180° was set for the night.

During the previous twenty-four hours two reports of the plane had been received. A report was received from Melbourne, Australia "Plane between Howland and Samoa Group, ten hours West." No further information was given nor was the report verified. The other report was received at 1800 stating that a reputable citizen of Hilo at 1515 had heard Amelia Earhart call the ITASCA and the ITASCA answer. The ITASCA was immediately asked for verification and stated that they had no word. What then did it mean, was a joke intended, a fraud prepetrated or a mistake made?

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The mystery was solved shortly by the report that the listener had accidentally turned in on the "March of Time" broadcast and believed the reproduction and acting to be real.

At 0700 on the morning of 2 July in La titude 3°54' South, Longitude 174°-46' West, the COLORADO launched her planes in the direction of McKean Island. Upon locating McKean and searching the vicinity, the planes continued to Gardner and then to Carondelet Reef before returning to the ship in Latitude 4° - 50' South, Longitude 174°-24' West. After the vain search for Reef and Sand Bank and for Winslow Reef it was to be expected that the other Islands did not or might not exist. They were however, all located by the planes and although they were not in the exact charted position they were seen from a considerable distance and the planes had no difficulty in locating them.

McKean Island showed unmistakable signs of having at one time been inhabited. On the northwest side of the Island there appeared buildings of the adobe type. No one was seen on either Gardner Island or McKean Island.

McKean Island was such that a plane could have made a safe crash landing either on the beach or in the center of the Island. No dwellings appeared on Gardner or any other signs of inhabitation. A long shallow lagoon extends the entire length of the Island and through most of the width.

A seaplane could land in the lagoon and it is believed that a land plane could make a forced landing there, and the occupants walk ashore. Coral reefs extended out from the shore line for about 150 yards. At Gardner Island a four thousand ton tramp steamer has piled up head on and remains there with her back broken. Groves of Cocoanut palms grow on the western end and the entire island is covered with tropical vegetation. Myriads of birds cover both islands.

Carondelet Reef was under water but plainly could be seen from the planes at a distance of 10 miles.

This was of interest in regards to the possibility of Winslow Reef existing and the Reef and Sand Bank to the Northwest ward of Winslow Reef. If the two existed, it is apparent from the way in which Carondelet Reef was seen, that they are many miles from their charted position.

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Upon recovery of the planes from the morning flight the ship continued on course 000° and at 1400 launched planes in Latitude 4° 33' South, Longitude 173° 45' West. The purpose of the flight in the afternoon was to search the water ahead of the ship to locate Hull Island and to search the island and the water in the vicinity for any signs of the Earhart Plane.

As the planes approached Hull Island natives were seen running out of their huts and waving clothes at the plane. Lieutenant Lambrecht, the senior aviator and in charge of the flight, landed for the purpose of asking if the inhabitants had seen or heard of the Earhart Plane. A European Resident Manager of the natives came out in a canoe to meet the plane. He and his natives were astonished and excited in seeing the three planes. The Resident Manager asked where the planes were from and when informed Honolulu, nearly upset the canoe in his excitement. It was necessary to explain to him that the planes had not come direct but had arrived by the battleship COLORADO which was relatively close by. The Resident Manager said that there was a radio on the island, however, he knew nothing of the Earhart flight and created doubt of his having ever heard of Miss Earhart herself. Neither he nor his natives had seen or heard a plane. The planes returned to the ship in Latitude 4° 33' South, Longitude 173° 08' West.

During the night the ship steamed north and then east arriving at Latitude 3° 51' South, Longitude 172° 15' West, at 0700 the 10th of July.

The SWAN had been directed upon arrival at Latitude 2° South, Longitude 170° West to proceed to rendezvous with the COLORADO in Latitude 3° 10' South, Longitude 172° West at 1100 and to search in the vicinity of Canton Island enroute. The planes were launched at 0700 and proceeded to Sydney, Phoenix, Enderbury and Birnie Islands in the order named, and at 1015 in Latitude 3° 22' South, Longitude 172° 2' West were recovered by the ship. Sydney was the only island which showed any signs of recent habitation and in appearance was much the same as Gardner Island. It had the usual shallow lagoon which in this case was large enough for a seaplane to make a safe landing. Phoenix and Birnie Islands had the appearance of a lagoon, but the latter island being very small. Enderbury had a lagoon but it was very shallow.

When the planes were recovered, the SWAN was taken alongside and refueled and provisioned. Upon completion of fueling the SWAN was directed to search in a northwest direction across the open water north of the Phoenix Group enroute Latitude 2° South, Longitude 175° West.

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The COLORADO at 1445 in Latitude 08° -22' South, Longitude 175° - 45' West launched planes for a search to and of Canton Island. This island was located and carefully searched by the planes. It was the largest of any of the islands searched. It's lagoon was deeper than those of the other islands but was crossed with coral reefs in such a manner that it would be dangerous to land except at two places, one at each end of the island. At the western end there remains the shacks and scaffolding erected by the recent eclipse expidition. When the planes were recovered, the course was set at 350° to take the COLORADO to a rendezvous at 0700, 12 July, with the destroyers approaching the search area with the LEXINGTON Group.

Upon fueling the destroyers the COLORADO was detached from the search group and directed to return to the West Coast in order to debark the Naval Reserve Officers Training Corps Students and Naval Reserve Officers. These students with the distinguished guests embarked for a month cruise, which extended into a six weeks cruise, covering many more miles than was expected at the time of embarkation, and crossing the equator twice. The fact of crossing the equator was not neglected by Naptunus Rex and his court, although they postponed their visit in order not to interfer with the operations in connection with the search. While they arrived aboard long after the COLORADO had crossed the Equator, the reception and initiation into the Realm of Neptunus Rex was fittingly and properly conducted by Neptunus Rex and his court assisted by the Shellbacks for the benefit of the Pollywogs.

If it is considered that the search area began with the position where the COLORADO fueled the ITASCA, 0600, 7 July, and ended with the position where the COLORADO fueled the destroyers of the LEXINGTON Group 12 July it will be found that the COLORADO steamed 1240 miles, and that her planes flew 21.2 hours each, 1803 miles each and that the COLORADO with her planes covered within the radius of visibility an area of 25,480 square miles. Adding to this additional mileage to and from Pearl Harbor to the Search Area the COLORADO steamed 3,980 miles and 320 hours, more than expected when the Naval Reserve Officers Training Corps Cruise commenced.

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As this is written the LEXINGTON Group is approaching the Search Area and will be able to conduct an extensive search over a large water area. The COLORADO has, however, covered the land area within a radius of 450 miles of Howland Island, and definitely ascertained that the Earhart plane is not on land within the region unless on an unknown, uncharted and unsighted reef.

W. L. FRIEDELL

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CINCUS
COMBATFOR
COMBATSHIPS

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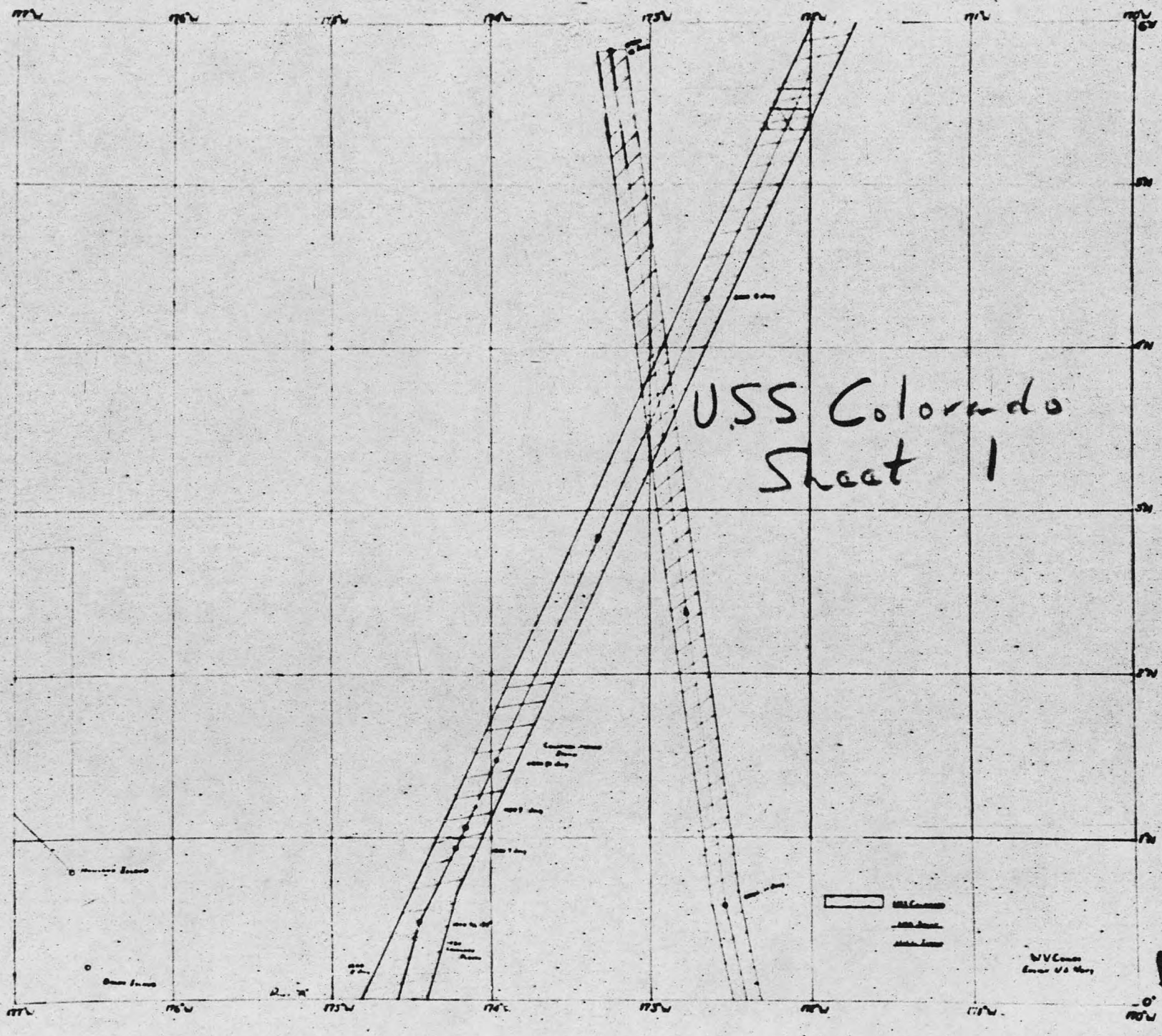
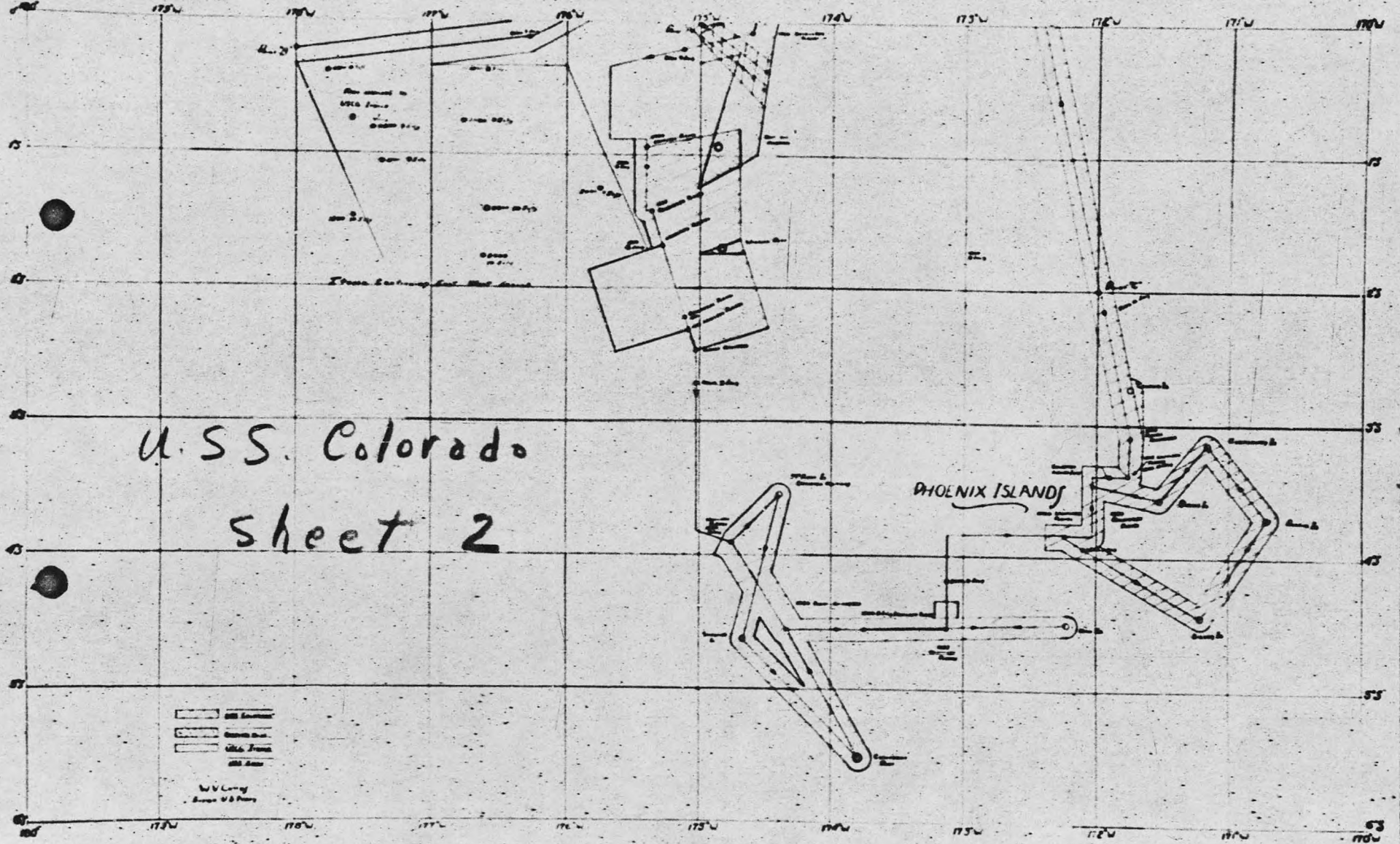

USS Colorado
Sheet 1



U.S.S. Colorado

sheet 2

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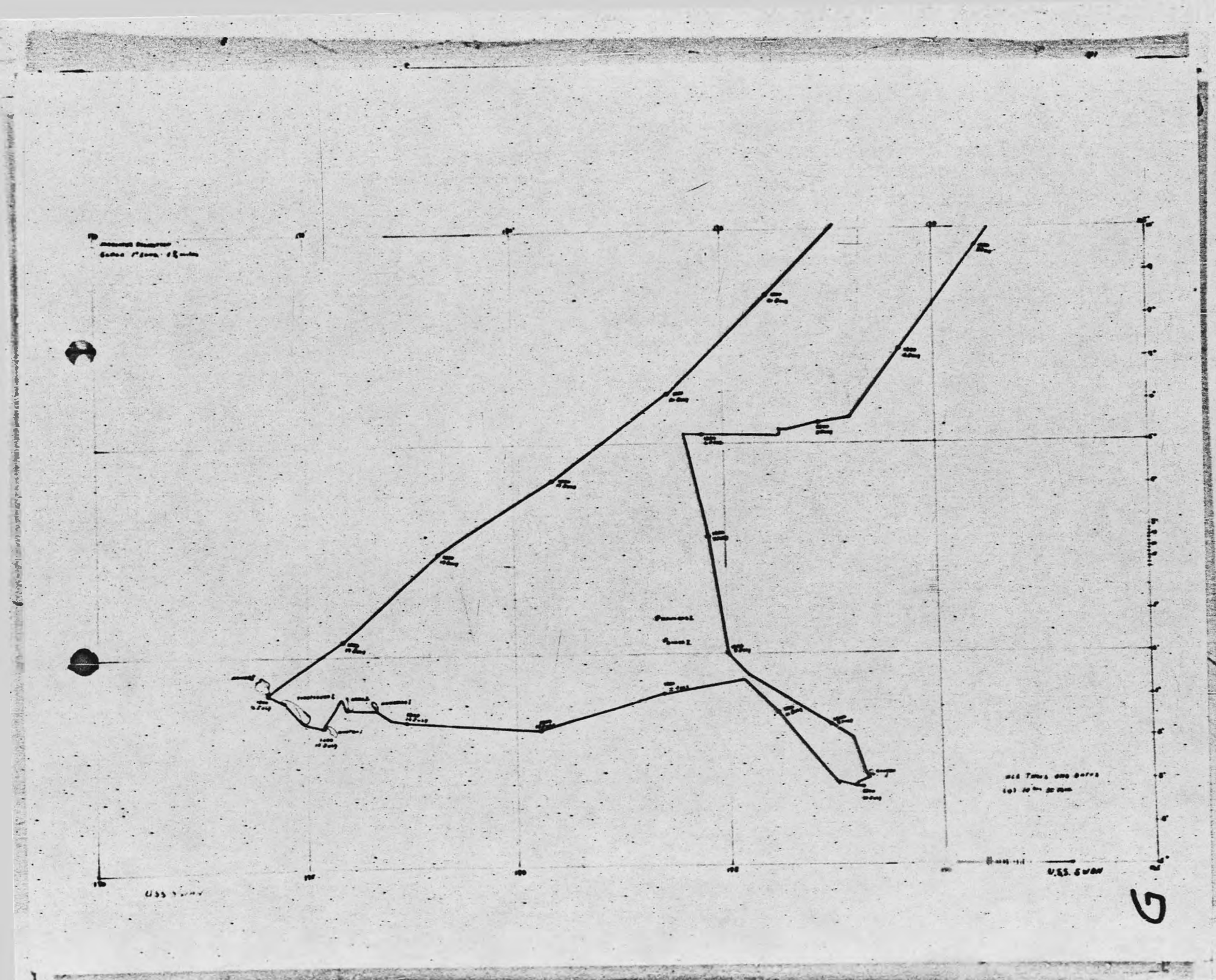

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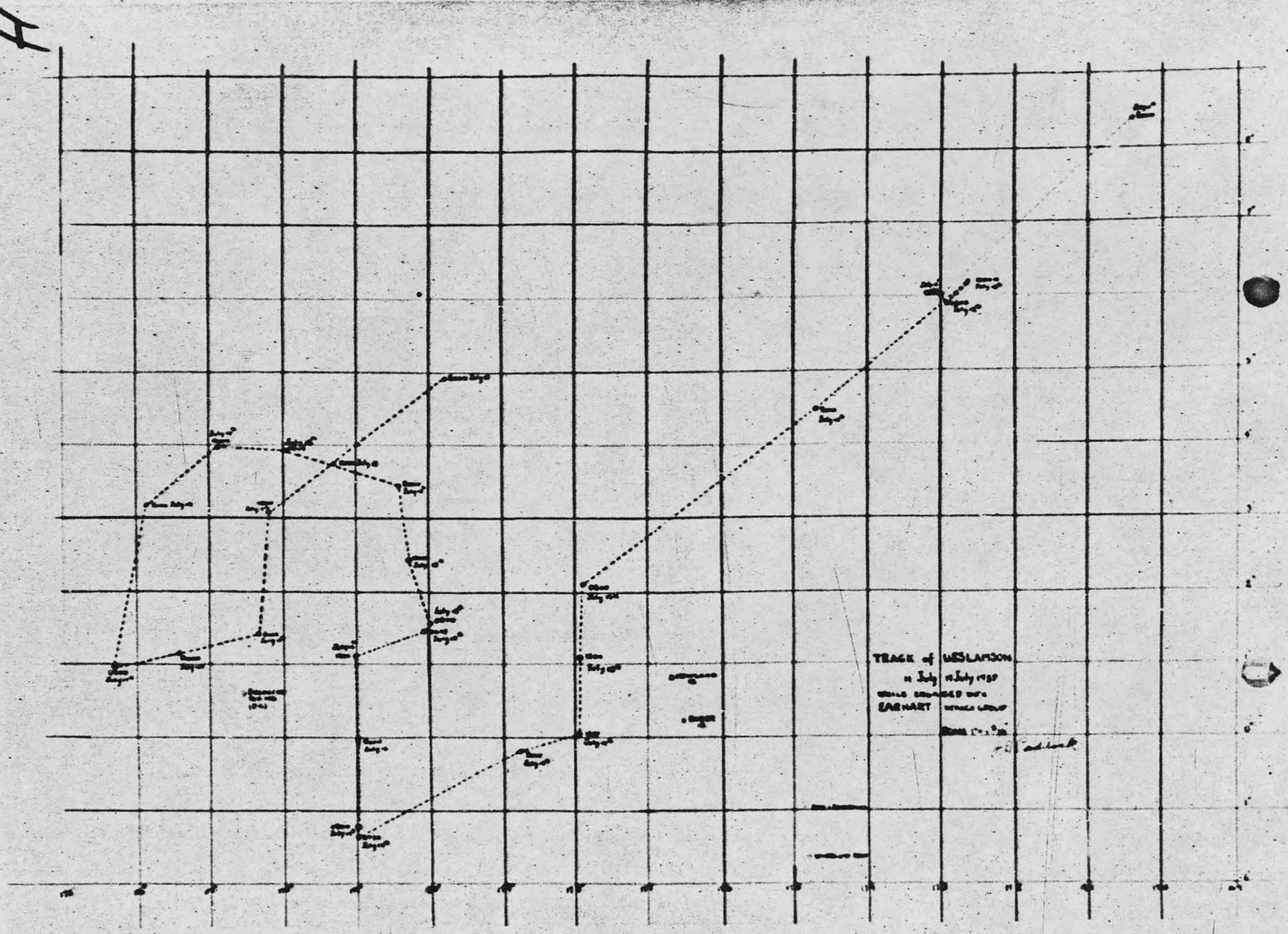
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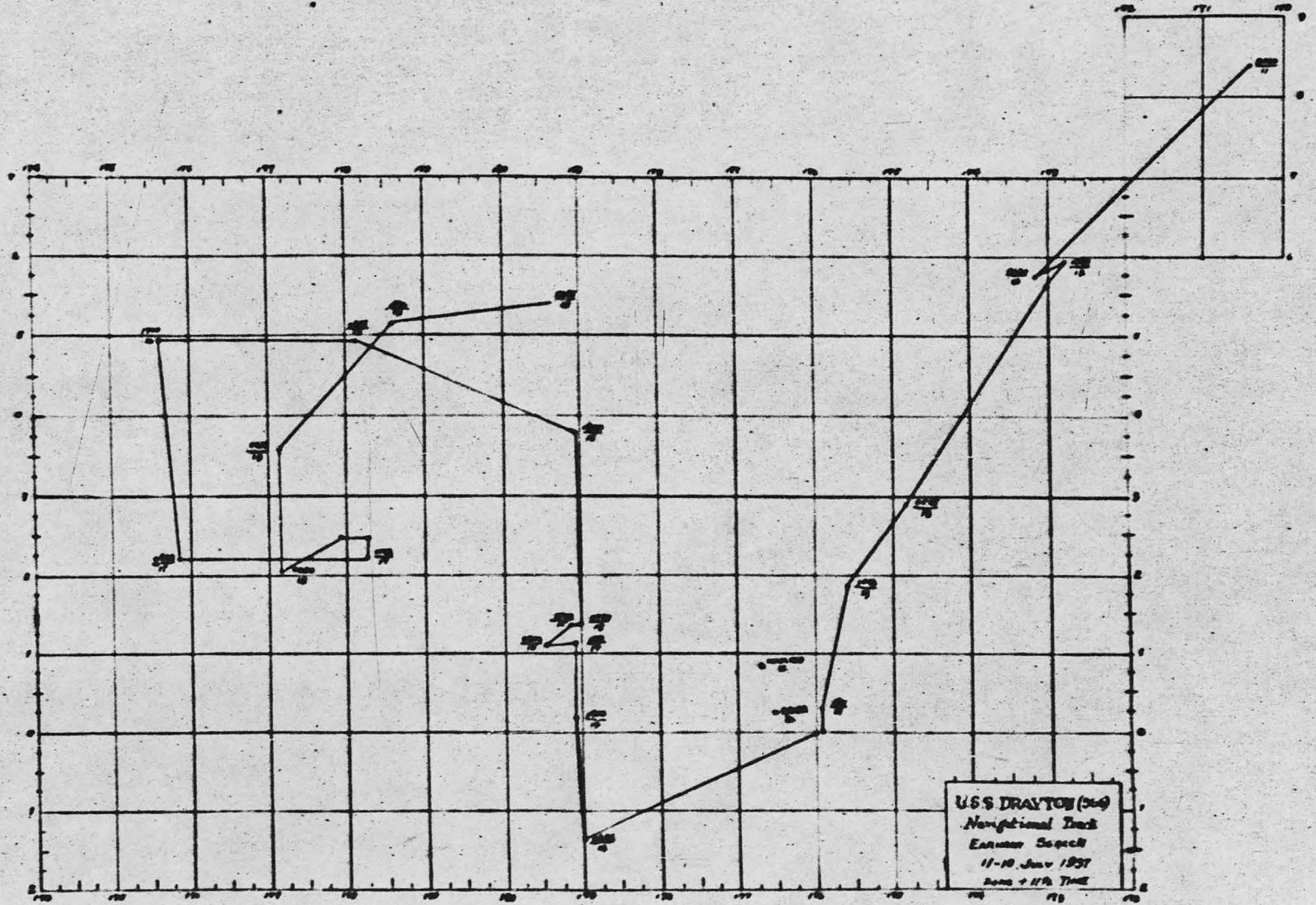
USS DRAYTON (314)
Navigational Track
Examen Search
11-10 June 1937
Zone + 11h Time

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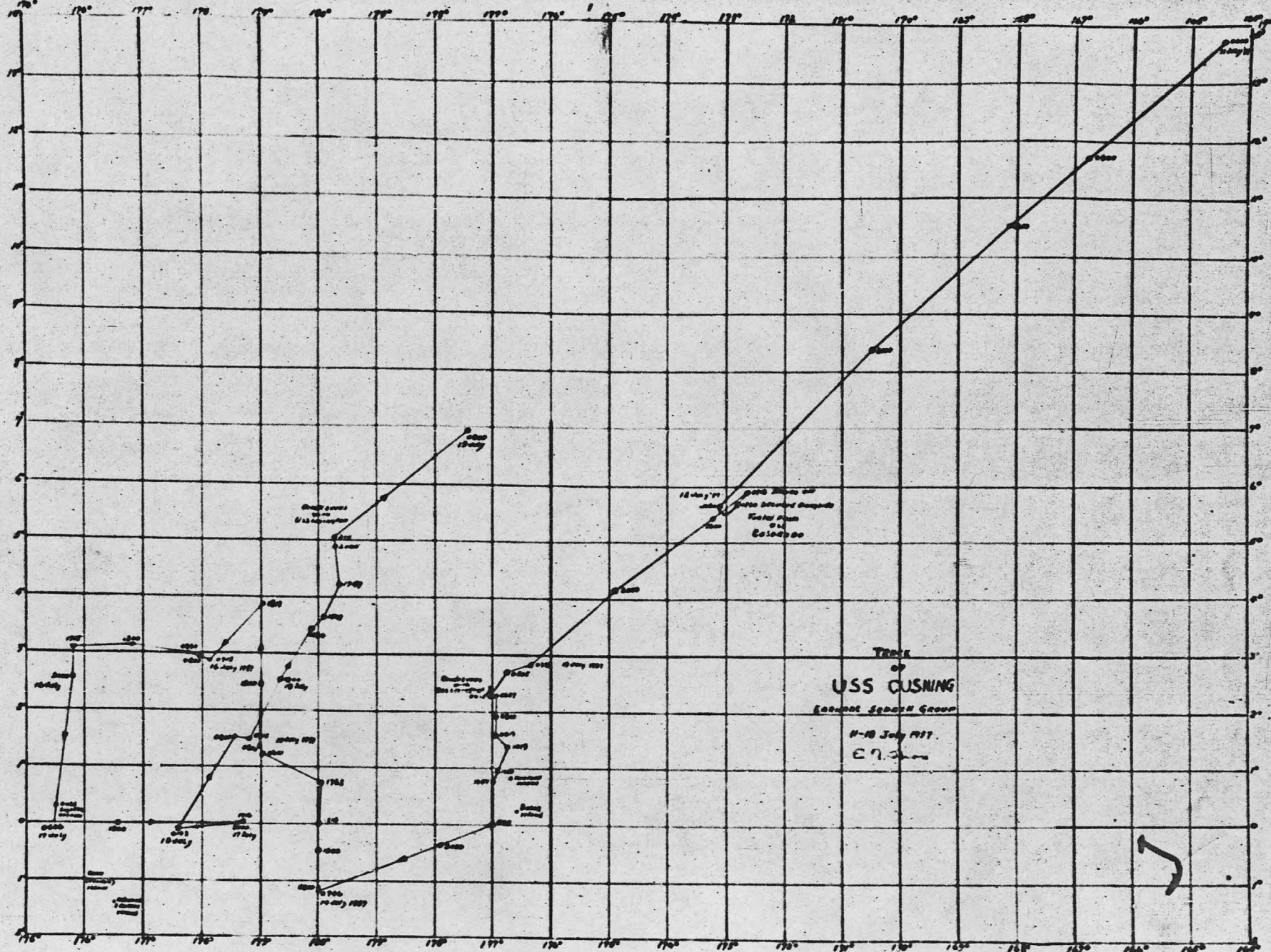

TRACK
OF
USS CUSHING

REPORT
OF
EARHART SEARCH

LEXINGTON GROUP

U. S. S. LEXINGTON
FLAGSHIP

JULY, 1937

K

Lexington Group,
U.S.S. Lexington, Flagship.
Enroute Hawaiian Area.
20 July 1937.

From: Commander Lexington Group.
To : The Commandant, Fourteenth Naval District.

Subject: Report of Earhart Search, forwarding.

Enclosures:
(A) Annex "A", Estimate and Decision, Comdesron Two.
(B) Annex "B", Narrative of Search, Lexington Group.
(C) Annex "C"; Aerological Data.
(D) Annex "D", Lexington Report of Earhart Search Operations.
(E) Appendix "A", Chart Photostat - Earhart Flight Information.
(F) Appendix "B", Chart Photostat - Tract Chart Earhart Search, U.S.S. Lexington and attached aircraft.
(G) Appendix "C", Chart Photostat - The Earhart Search)Showing tracks of all vessels participating).
(H) Appendix "D" - Photostats - Search Plan #1, and #2.
(I) Appendix "E" - Earhart Search Plotting Sheet.

1. Annexes and appendices are submitted herewith as forming as complete a report as possible on operations of the Lexington group, consisting of Lexington with Aircraft Squadrons VS-2, VS-3, VS-4, VS-41, VT-2 and VB-4 embarked, of Commander Destroyer Division Three in Drayton, and Lamson and Cushing, during the period 4 to 18 July, 1937, inclusive, and of search operations of the U.S.S. Swan and U.S.C.G. Itasca while serving under Commander Lexington Group during the period 11-16 July 1937.

2. An effort has been made to confine the substance of this report to matters of fact rather than opinion.

3. Track chart tracings are being forwarded under separate cover.

4. The performance of duty by all units concerned was excellent.

The expeditious and efficient services rendered by the Fourteenth Naval District, the Fleet Air Base, Commander Minecraft, and Commander Submarine Squadron Six in preparation for the search operations, are greatly appreciated.

J. S. Dowell

J. S. Dowell

ESTIMATE AND DECISIONS

EARHART SEARCH

I. MISSION:

To make the most effective search possible in order to locate Earhart plane, or rubber boat, and personnel.

II INFORMATION:

NOTE: All times used herein are Greenwich Civil.

1. KNOWN FACTS:

1. That Standard Lockheed Electra low wing land monoplane, No. X-16020, took off from Lae, New Guinea, latitude 146° 55' E, longitude 6° 45' S at 0000 GCT 2 July, 1937, bound for Howland Island, latitude 0° 50' N, longitude 176° 41' W. Pilot: Amelia Earhart Putnam; navigator: Fred Noonan, expecting to arrive in 18 hours.

2. That the plane's color was dural, with orange trim.

3. That a two man rubber life boat, life belts, flares and emergency water and rations were carried.

4. Rubber boat had a pair of oars and could be kept afloat by patching material and hand pump.

5. That the plane was equipped with radio capable of transmission and reception on 500 KCS, 3105 KCS, and 6210 KCS; assigned call letters "KHAQQ."

6. That the take-off from Lae was delayed awaiting a time tick and repairing broken fuel line.

7. That the plane was equipped with an orange box kite to be flown as distress signal, and by means of which an emergency antenna might be carried to a moderate height.

8. That the distance from Lae to Howland is 2227 nautical miles.

9. That the plane was filled with 1100 gallons of gasoline prior to departure.

10. That the plane's economical air speed was 130 knots.

11. That it's range in still air at this speed, with optimum carburetor adjustment was 3120 nautical miles, or an endurance of 24 hours at 45.8 gallons per hour.

12. That the plane's range in still air at 53 gallons per hour for 20.5 hours was 2719 nautical miles.

13. That the distance covered at average ground speed 105 knots in 20.5 hours would be 2152 nautical miles.

14. That the distance covered at average ground speed 120 knots in 20.5 hours would be 2460 nautical miles.

15. That the plane's position at 0720 GCT was given as 4° 33' S, 159° 06' east, putting it on it's course at 111 knots ground speed. This was the only complete position report received.

16. That the following weather forecast was received by the navigator prior departure Lae: "Lae to 165° E: winds ESE 12-15; 165° to 175°: ENE 18; 175° E to Howland; ENE 15 and squalls to be detoured."

17. That the following messages were received from the plane:

0720, to Lae: Position report lat. 04-33.5 S, long. 159° 07' W.
1030 Nauru Island heard "A ship in sight ahead."
1418 Itasca began receiving incomplete messages on agreed schedules. No answers to questions put to Earhart. No positions given. No success in attempted radio bearings by Itasca, and no apparent success by Earhart.
1745 "200 miles out."
1816 "100 miles out, coming up (fast)."
1912 "one-half hour fuel and no landfall (position doubtful)."
1928 "Circling trying to pick up Island."
2013 "Line of position 157-337" (no reference point given).
2025 "157-337 heading north and south"

18. That the Ontario was stationed in latitude 3° S, longitude 165° E.

19. That the SS Myrtlebank was in approximate latitude 1° 40' S, longitude 166° 45' E.

20. That the Itasca was stationed immediately to northeastward of Howland.

21. That morning of 2 July Itasca was laying a heavy smoke screen which hung for hours.

22. That the strength of radio signals in Itasca was greatest at 1928.

23. GCT sunrise, Howland, on 2 July was 1745.

24. That the plane would float with empty gas tanks, if undamaged.

25. That the plane's normal radio power supply was so located that it could not have been used with plane on the water.

26. Morning of 2 July visibility to south of Howland was excellent. Heavy clouds were about 20 miles northwest. Surface winds ENE 6, shifting to ESE 16.

B. PROBABILITIES ARISING FROM RUMOR OR REASONABLE ASSUMPTIONS

1. That the plane was equipped with an emergency radio set that could be operated from battery power supply.

2. That life saving equipment was stowed in the tail.

3. That the color of the lifeboat was yellow.

4. That the plane had one side door and no escape hatch in top.

5. That gasoline stowage was in tanks in the passenger compartment, and that gasoline was pumped by hand to two 50 gallon gravity tanks in the wings.

6. That the following summarized weather forecast, received at Lae, as the plane was taking off, and later transmitted to the plane three times, was received: "Accurate forecast difficult account lack of reports: conditions average - no major storms; dangerous local rain squalls 300 miles east of Lae and scattered heavy showers remainder of route; winds ESE 25 to Ontario then E to ENE 20 to Howland."

7. That the following weather conditions were encountered in flight:

(a) Ontario ENE force 3 (0700 GCT) SE force 3 (1900 GCT).

(b) Howland Island (2300 GCT 1st (pre-start)

0	ENE 14	3000	ENE 24	6000	ENE 30
1000	ENE 18	4000	ENE 26	7000	ENE 30
2000	ENE 19	5000	ENE 30	8000	ENE 31

8. That the altitude at which the plane flew would have depended upon weather conditions and the desire to estimate drift or pick up a landfall, and cannot be judged.

9. That the navigator was competent and experienced.

10. That at about 1030 the plane passed the Ontario giving a ground speed of 106 or the Myrtlebank giving a ground speed of 118 knots.

11. That at 1928 the plane passed closest to the Itasca and within 100 miles, after a run of 2050 to 2350 miles.

12. That at 53 gallons per hour the plane made 140 knots in still air.

13. That the plane landed on an uncharted reef or island, or on the water, within 300 miles of Howland.

14. That the plane would float with engines nearly submerged, with wings nearly submerged, with fuselage partly submerged, and with tail surfaces out of the water.

15. That the Itasca first reported to Howland by semaphore that plane was NW of island and had evidently missed it (res gestae).

16. That at 2030 the plane landed northwest of Howland.

C. CONDITIONS DETERMINED FROM SAILING DIRECTIONS OR BY EXPERIENCE:

1. That the prevailing winds are easterly, 10 knots.

2. That the average current in the area to north and west of Howland Island is northwest, ½ knot (experienced by Lexington).

3. That the current in the vicinity of Baker Island is westerly, about 20 miles per day.

4. That the current in the southern Gilberts is southwesterly about 1½ knots.

5. That the current in the middle Gilberts is westerly, about 2 knots.

6. That the current in the northern Gilberts is northwesterly, about 1½ knots.

7. That about latitude 4° north is the boundary between the southern equatorial current, flowing westerly, and the counter-equatorial current, which begins to form near the Gilberts, flowing easterly.

8. That along this boundary there are apt to be circular currents and areas in which floating objects would accumulate.

9. That with the plane nearly submerged and tailing with the wind, the wind resistance would be small and the underwater drag great, so that the current effect would be great.

10. That the currents given by the sailing directions were compiled from data obtained largely by sailing mariners, and the wind effect, included in current estimates by all mariners, would hence be fully accounted for by this data.

11. That a rubber boat would be most greatly affected in its drift by the surface wind, regardless of water current.

12. That with a rubber boat, the chances of rowing across wind sufficiently to make land would be excellent for a boat starting 100 miles or more to the eastward of the Gilberts, provided navigational equipment was available.

D. POSSIBILITIES ARISING FROM RUMOR AND REPORTS:

1. On 3 July plane gave distress call and gave position 1.6 and 179, north or south and east or west unreported. Coast Guard San Francisco Headquarters give credibility to this report.

2. That the plane was down on water north of Howland as indicated by radio test arranged through station KGMB.

3. On 3 July plane reported down 225 miles NNW Howland and said something about "Putnam ---- fly kite."

4. HMS Achilles on 3 July heard dashes made by transmitter other that Itasca's in response to request by Itasca for dashes.

5. Radio bearings, 4 July:

   Mokapu 213° 10° (very doubtful)
   Wake 144° 10° (doubtful, passes through Tutuila, Samoa.
   Howland 347° true (approximate).

6. Rocksprings, Wyoming, reported plane on a reef, southeast of Howland Island.

7. Extremely doubtful report "281 north Howland drifting northwest" whether miles or degrees, and whether plane with relation to Howland or vice versa not known (6 July).

8. Report from Melbourne signed "Kirkby" "Plane between Howland Samoa group ten hours west" (8 July).

9. Freitas of Yreka reported Mrs. Putnam's voice saying "Plane on reef 200 miles directly south of Howland, both okay, one wing broken" (8 July late).

10. Mrs. Noonan stated Noonan would turn back if in doubt.

11. Additional reported positions: 176° and 1°.6; 213 miles WNW; 173 W - 5 S Island Josus in vicinity, also island nameless on course further north 171 W 3 S (9 July).

12. George Palmer Putnam requested on 15 July search of 170° E, 0° 9' north, evidently reasoned for 2 knots drift from Howland due west.

III EARHART PLANE'S MISSION: To land safely on Howland Island before exhaustion of fuel supply.

IV COURSES OF ACTION OPEN TO EARHART PLANE:

A. ALTITUDE:

1. To fly close to the water in order to take advantage of reduced headwinds and to obtain frequent drift observations and correct course accordingly.

2. To fly at a moderate altitude, descending as necessary to sight station ships and landfalls.

3. To fly at high altitudes, correcting course by frequent celestial observations, to increase fuel economy.

Number 3 is the most likely method.

B. COURSE:

1. To correct course according to drift observations at low altitude.

2. To head to southward of course as far as longitude 165° E, then to head for objective in accordance with weather forecast received.

3. To deliberately over-correct to southward with the intention of running up a morning longitude line of position through the objective.

4. To deliberately over-correct to northward with the intention of running down a morning longitude line of position through the objective.

In view of the difficulty in sighting Howland toward the eastward in early morning, of which Noonan must have been well aware, it seems most probable that he took either the course of action specified in 3 or in 4 above. Of those the former had the advantage of bringing the plane close to the Phoenix group in case of early shortage of gas, but the disadvantage of winding up over the open sea if Howland was missed. The latter had the advantage of bringing the plane over the Phoenix group if Howland was missed, but the disadvantage of being over the open sea in case of premature gas shortage.

The following indications point to adoption of the former course:

1. The plane was evidently in position to obtain observations during the early morning.

2. Visibility to the southward was excellent and the Itasca's smoke plume could have been seen 40 miles or more, whereas heavy clouds lay to the northward.

3. The Itasca's first estimate of position was northwest.

C. SPEED

1. To run at speed higher than the economical speed, 130 knots, in order to arrive expeditiously and reduce the chances of bad judgement induced by fatigue.

2. To run at the economical speed, 130 knots, to provide a maximum factor of safety.

3. To run below the economical speed in order not to approach the objective until well after sunrise.

Of these, the second is considered far the most probable.

The plane evidently turned between 1900 and 1930 and at 110 knots these times would give runs of 2090 and 2145 nautical miles along the course - somewhat short of objective.

V. MOST PROBABLE ACTION OF PLANE

It is most probable that:

1. The plane cruised at economical speed at a moderate altitude laying course between Howland and the Phoenix Islands.

2. That navigational fixes were reasonable frequent but somewhat in error.

3. That radio bearings were inaccurate or impossible due to atmospherics and to the recognized inherent limitations of high frequency direction finders.

4. That the plane's gas supply was slightly diminished either by a leak or by non-economical adjustment of the carburetor.

5. That headwinds stronger than expected were experienced.

6. That at about 1900, while somewhat short of its objective, the plane turned and headed northward on a line of position run forward from celestial observation about 1700, passing nearest Howland Island at 1928 after a 65 mile run, and, at about this time, began to circle looking for the island.

7. That at about 2000 the pilot announced the directio: but not the reference point for a line of position she was running on, evidently believing it to run through the island, and began running north and south across this line near the point at which her navigator believed the island to be.

8. That at about 2030 the plane landed on the sea to the northwest of Howland Island, within 120 miles of the Island.

VI. OTHER COURSES OF ACTION OF PLANE:

It is possible also that:

1. The plane flew beyond the Island.

2. The plane headed south past the Island.

3. The plane landed on a reef or island either charted or uncharted.

TOTAL REASONABLE AREA IN WHICH PLANE MIGHT BE

DATE	PROBABLE	MOST PROBABLE
2 July	360,000 Sq. Mi.	57,600 Sq.Mi.
13 July	720;000 " "	163,200 " "
18 July	864,000 " "	211,200 " "

VII OWN LIMITATIONS:

1. Number limitations:

Available: Carrier Group, Swan and Itasca. (Colorado ordered detached immediately upon our arrival.

2. Fuel limitations:

Set by Navy Department. The Lexington is the controlling factor, as it was directed she should return to San Diego from search area without refueling. This necessarily limits her speed and that of the entire Earhart Search Group, as the plane guards Drayton, Lamson and Cushing and the Swan and Itasca will have to fuel from her if they do not practice strict fuel economy.

3. Area per day possible consistently under fuel limitations:

(a) Carrier Group 28,800 square miles.

(b) Itasca (assuming 10 mile front) 1320 square miles.

(c) Swan (assuming 10 mile front) 1000 square miles.

4. Total number of days possible:

(a) Carrier Group 13th to 19th - seven (201,600 sq.mi).

(b) Itasca 11th to 17th - seven (9,240 sq.mi).

(c) Swan 11th to 20th - ten (10,000 sq.mi).

5. Total number of square miles under imposed limitations 220,840.

6. Weather limitations: Frequent squalls which reduce visibility and at times make carrier aircraft operations over-hazardous.

VIII ASSUMPTIONS:

1. That the plane landed on water or on an uncharted reef within 120 miles of the most probable landing point, 23 miles northwest of Howland Island.

2. That, if on the water, the plane drifted between the limits northwest 3/4 knot and due west 1½ knots.

IX COURSES OF ACTION OPEN TO US:

1. To systematically search the most probable area in a westerly direction so as to overtake a drifting plane, and so fit our potential search area as to best cover this area, considering its southern sector as having been adequately covered by Colorado and her aircraft and by Itasca and Swan.

2. To cover the most probable area including its southern sector, considering earlier search to the southward ineffective, and thus necessarily sacrifice some of the northerly or westerly area.

3. To search to the best of our ability the widely separated and remote areas mentioned in many conflicting reports.

X DECISION:

To make the most effective possible search with all available forces by:

1. Requesting that Colorado complete search to southeastward, including Phoenix group, prior 11 July, then fuel destroyers on 12 July;

2. Using Swan and Itasca for westward sweep, including thorough search of Gilbert group and maximum probable drift limit;

3. Using Lexington group to its maximum sustained capacity for an intensive search from east to west covering the above defined most probable area except the southeastern sector;

in order to locate the Earhart plane, or rubber boat, and personnel.

NARRATIVE OF EARHART SEARCH

1. PREPARATION:

At about noon, 3 July, the Navy Department directed the Commander-in-Chief, U. S. Fleet, to hold an aircraft carrier in readiness, to have it fuel, and to make all necessary preparations for proceeding to the vicinity of Howland Island for the purpose of conducting a thorough search for Mrs. Amelia Earhart Putnam, her navigator Captain Fred Noonan, and the expensive laboratory-equipped plane.

In turn the Commander-in-Chief directed Commander Aircraft, Battle Force, to detail an aircraft carrier for this duty and to have it ready to proceed on four hours notice.

Commander Aircraft, Battle Force detailed the carrier Lexington, plus the scouting squadrons of carriers, and advised the Lexington, Rigel and Naval Air Station at North Island to make the necessary preparations. The Lexington left Santa Barbara at 4:00 p.m., 3 July and arrived at San Diego at 11:00 p.m., of the same date.

The evening of 3 July, the Navy Department directed the Commander-in-Chief to assign four long range destroyers to accompany the Lexington. At 10:00 p.m., 3 July, the Chief of Staff, Destroyers Scouting Force, called a conference of commanding officers on board the Whitney to determine which vessels were best suited for the search duty. Commander Scouting Force nominated the destroyers Lamson, Drayton, Hull and Worden. A short time later Commander Destroyers, Scouting Force recommended the substitution of the Cushing and Perkins in place of the Hull and Worden, in order to prevent the interruption of force gunnery schools. The Cushing and Perkins were then enroute from the Puget Sound area to San Diego to join the squadron. The Cushing and Perkins were officially detailed for this duty and were directed by Commander Destroyers, Scouting Force to put in at San Pedro, fuel and provision to capacity and to await orders. A short time later the Cushing and Perkins were directed by Commander Destroyers, Scouting Force to proceed, upon completion of fueling and provisioning, and join Commander Destroyer Squadron Two in Lamson off Coronado Roads.

Upon notification that four destroyers would be required to accompany the Lexington, and when it was determined which destroyers would leave, an effort was made to recall the crews. The Lamson's crew was on board in view of the fact that she had the ready duty. Many of the Drayton's crew were missing and could not be located. Commander Destroyers, Scouting Force supplied the necessary signalmen and radiomen. However, the Drayton sailed about 40 men short of her allowance, mostly in seamen and firemen ratings.

The Lexington left San Pedro for Coronado Roads at 6:48 a.m., 4 July, and arrived at 10:47 a.m.

In the forenoon of 4 July, the Commander-in-Chief directed Commander Destroyer Squadron Two to take command of the Lexington Group, consisting of the Lexington, Lamson, Drayton, Perkins and Cushing, and, when in all respects ready, to proceed to assist in Earhart search, cooperating with Commandant Fourteenth Naval District, the Colorado and Itasca.

At 11:45 a.m., 4 July, Commander Destroyer Squadron Two in Lamson and the Drayton met the Lexington in Coronado Roads. Commander Destroyer Squadron Two shifted his broad command pennant to the Lexington and assumed command of the Lexington Group.

Orders were then issued by Commander Destroyer Squadron Two to Cushing and Perkins to report when ready and proceed via important route to rendezvous with Lexington Group.

By orders of the Commander-in-Chief, Mr. Paul Brook, representing the International News Service, came on board.

At 1300 4 July, the Drayton and Lamson got underway from Coronado Roads for rendezvous, and the Lexington to take aboard 60 planes from North Island. The Southard and Chandler were acting as plane guards. A total of 63 officers and 311 enlisted men were received aboard the Lexington from North Island. Sixty planes landed safely, but two were unable to get their hooks down and were directed to return to North Island, complete repairs and return to the Lexington. They landed at North Island at 1445, completed repairs and returned to the Lexington at 1530.

The two destroyers acting as plane guard were released at 1530. The Chandler was recalled at 1550 in order to transport Lieutenant (jg) George Leland to San Diego for treatment at the Naval Hospital. He had become seriously ill with gastric ulcer.

At 1500 Cushing and Perkins reported ready and were authorized to make 28 knots in joining up. Enroute, the Perkins, at 1730, 4 July, developed serious vibrations in the port high pressure turbine, and reported that she was unable to exceed 17 knots. She was directed by Commander Destroyer Squadron Two to proceed to San Diego and go alongside the Whitney for necessary repairs.

At 1910 Commander Destroyer Squadron Two in Lexington, Commander Destroyer Division Three in Drayton, Lamson and Cushing rendezvoused ten miles south of China Point, San Clemente, and departed for Lahaina Roads, speed 23 knots. The Cushing was temporarily assigned to Destroyer Division Three for tactical purposes.

Commander Aircraft, Battle Force requested that the Lexington be fueled at Lahaina, and the Commander-in-Chief so directed.

At 1910 4 July, Commander Destroyer Squadron Two advised the Commandant Fourteenth Naval District that the Lexington Group was proceeding to fuel at Lahaina Roads. At 2135 information was received from Commandant Fourteenth Naval District that one oil barge of 155,000 gallon capacity was the only means for delivering fuel at Lahaina Roads. During the night of 4-5 July Commander Destroyer Squadron Two ascertained that the U.S.S. Ramapo was enroute to Guam, Marianas Islands. Her position was determined from weather reports. It was also determined that by changing her course within a few hours for Lahaina Roads she would arrive simultaneously with the Lexington. At 0940 5 July, Commander Destroyer Squadron Two requested of the Commander-in-Chief by priority despatch the practicability of the Ramapo operating temporarily with the Lexington Group for fueling. The Commander-in-Chief conferred with Commander Base Force and was advised that the scheme seemed practicable but that the Ramapo was operating directly under the Chief of Naval Operations and the Commander-in-Chief, Asiatic Fleet. The Commander-in-Chief, U. S. Fleet, requested the Chief of Naval Operations to assign the Ramapo to this duty and also requested that a reply be sent direct to Commander Destroyer Squadron Two (See CINCUS 0005-1310 of July). During the day the feasibility of using destroyers to transport fuel to the Lexington was considered. This was found to be impracticable because of slow pumping rate of destroyers, the small hoses available, impossibility of Lexington taking suction with her pumps and the necessity for at least three trips for each destroyer. (Destroyers' fuel capacity is 143,000 gallons each, estimated pumping rate 5,000 gallons per hour). At 1839 no reply having been received from the Chief of Naval Operations relative to the Ramapo, and in view of the urgency of the situation and the necessity for the Ramapo receiving immediate orders, Radio Washington was asked by priority operator's signal to advise time of delivery of CINCUS despatch 0005-1310 to Chief of Naval Operations. Reply was then received to the effect that action would be taken at the beginning of office hours Tuesday. After an exchange of messages with the Commandant Fourteenth Naval District, it was determined that, as a last resort, it would be feasible to take the Lexington into Pearl Harbor for fueling provided there was no appreciable wind. However, this was not considered prudent until completion of further contemplated dredging.

At 0945 6 July (Washington time) the Ramapo was issued the necessary orders to proceed to Lahaina Roads for the purpose of fueling the Lexington, replenish fuel thus delivered from supply at Pearl Harbor, and then proceed to Guam.

Tuesday night 6 July, provision and stores orders for Lexington and accompanying destroyers were summarized and sent by despatch to Commandant Fourteenth Naval District. Motion pictures were requested for the destroyers, who had left on too short notice to take care of this detail, but none were available at Pearl Harbor.

Arrangements were made with the Commandant, Fourteenth Naval District to have the Lexington proceed to Lahaina Roads, await the arrival of the Ramapo, fuel from her, and leave as soon thereafter as practicable, and for destroyers Drayton, Lamson and Cushing to proceed to Pearl Harbor for fueling and provisioning, and to take on provisions and stores for the Lexington. A conference with the Commandant was requested for Thursday afternoon. The Lexington arrived at Lahaina Roads at 1146 8 July. The Lexington Group made good 23½ knots during passage Coronado Roads to Lahaina.

Commander Destroyer Division Three with the destroyers was directed at 0800 to proceed independently and arrived at Pearl Harbor at 1430 8 July. Destroyers fueled and provisioned to capacity. The Drayton received 97,958 gallons of fuel, the Lamson 93,836 and the Cushing 96,693. Approximately seven tons of stores were divided among the three destroyers for delivery to the Lexington at Lahaina Roads.

At 12:10 p.m., 8 July, the Avocet went alongside Lexington for the purpose of delivering 10,600 gallons of aviation gasoline and some necessary aircraft engine spares from the Fleet Air Base, Pearl Harbor.

Previous arrangements having been made, immediately upon arrival of the Lexington at Lahaina, Commander Destroyer Squadron Two, the Commanding Officer of the Lexington and two officer assistants embarked in patrol plane furnished by the Fleet Air Base and proceeded to Pearl Harbor for conference with Commandant Fourteenth Naval District. The conference was also attended by Commander Destroyer Division Three, Commander Minecraft, Battle Force, and the Commanding Officer of the Fleet Air Base, Pearl Harbor. Information relative to the search was obtained and instructions were received. Commander Destroyer Squadron Two embarked at 1800 in Lamson for passage to Lahaina Roads.

At 1830 8 July, the Lamson and Drayton completed fueling and left Pearl Harbor for Lahaina. The Cushing remained at Pearl Harbor in order to complete minor voyage repairs. While at Pearl Harbor, the Commandant Fourteenth Naval District ordered 20 seamen, 20 firemen and 1 chief pharmacist's mate transferred to the Drayton for temporary duty during search operations.

At 2000 8 July, the Cushing left Pearl Harbor for Lahaina.

At 0100 9 July, the Drayton and Lamson, with Commander Destroyer Squadron Two and staff embarked, arrived at Lahaina, and Commander Destroyer Squadron Two and staff reembarked in Lexington. At 0300, Cushing arrived Lahaina Roads.

At 0628 9 July the Ramapo arrived, and fueling of the Lexington was commenced immediately.

At 0630 Lexington took aboard stores from destroyers. At the same time she exchanged movie programs with the destroyers.

By authority of the Bureau of Navigation, Mr. Earl M. Wolty, of the Associated Press and Mr. Charles Mounce, of the United Press embarked in Lexington.

At 1000 conference of Commander Destroyer Squadron Two, Commander Destroyer Division Three, destroyer commanding officers and communication officers, and the aircraft department of the Lexington was held in the Lexington.

At 1030 the Commanding Officer of the Lexington and officer assistant returned from Pearl Harbor by patrol plane.

At 1145 9 July, the destroyers Drayton, Lamson and Cushing got underway for the purpose of calibrating direction finders in Lahaina Roads, while the Lexington transmitted on 725 KCS. Times of completion: Drayton 1357, Cushing 1427, Lamson 1431.

At 1456 9 July, fueling of Lexington was completed. Lexington received 903,784 gallons from the Ramapo.

At 1515 9 July, the Lexington got underway for the search area in vicinity of Howland Island, accompanied by Drayton, Lamson and Cushing.

The timely arrival of the Ramapo and the prompt accomplishment of repairs to Cushing and expeditious delivery of fuel and provisions to destroyers by Fourteenth Naval District activities reduced the time necessary to be spent in the Hawaiian area to a minimum. This permitted the search to begin promptly as planned.

At 1630 9 July, Commander Destroyer Division Three was directed by Commander Destroyer Squadron Two to take command of the destroyers, and, upon signal, proceed and rendezvous with the Colorado in latitude 5° 50' N, longitude 173° 15' W, at 0700 zone plus 11½ time on Monday, 12 July, for the purpose of fueling. Upon completion of fueling destroyers were to proceed independently to take station for search operations arriving by 0600, 13 July. At 1830 9 July, signal was sent directing execution of the above.

The speed of the Lexington was set at 18 knots. At 1600 9 July, increased speed to 19 knots in order to reach point of origin - latitude 2-30 N, longitude 177 W - at daybreak on 13 July.

The following despatch was received from Commandant Fourteenth Naval District on 11 July 1937: 0011 COMDESRON TWO TAKE CHARGE OF UNITS IN SEARCH AREA PERIOD SEARCH OF PHOENIX GROUP AREA CONSIDERED COMPLETED PERIOD UPON COMPLETION FUELING DESTROYERS COLORADO RELEASED SEARCH DUTY AND PROCEED PREVIOUSLY ASSIGNED DUTIES FOLLOWING ITINERARY SUBMITTED COLORADO DESPATCH THE NINTH 0945.

II. CONDUCT OF SEARCH BY COMMANDER DESTROYER SQUADRON TWO:

At 1210 11 July, SWAN and ITASCA were directed to continue existing assignments until further orders and make routine reports.

During the conference with Commandant Fourteenth Naval District on 9 July, the possible necessity for search of the Gilbert Islands, British Territory, was considered. On 10 July, Commandant Fourteenth Naval District requested the Navy Department to obtain authority for an aircraft search of these islands. The estimate of the Earhart plane's probable location put her somewhere in an area including the Gilberts, so, on 11 July, Commander Destroyer Squadron Two specifically requested of Commandant Fourteenth Naval District authority for search of that area. Plans were laid for search of the area bounded by latitudes 3° N and 1° S, between longitudes 175° 30' and 178° 30' W and from latitude 3° 40' N to latitude 1° 40' S, between longitude 178° 30' W and 175° 30' E by Lexington aircraft and for search of individual islands of Gilbert Group by the Itasca and Swan. Itasca and Swan were directed at 2240 11 July, to lay course for Arorai and Onoatoa Islands respectively.

On 12 July, the destroyers Lamson, Cushing and Drayton made rendezvous with Colorado and fueled. The length of time required for fueling of each destroyer, and the amounts received by each are as follows:

Lamson	Time 2.3 hours	Amount 44,404 gallons
Cushing	Time 1.7 hours	Amount 41,499 gallons
Drayton	Time 2.5 hours	Amount 42,361 gallons

The Lexington's noon position on 12 July, latitude 6° 14' 45" N, longitude 173° 07' 15" W, course 228, speed 19 knots. The speed of the Lexington was reduced to 18 knots at 1015.

The Itasca continued search in direction of Arorai Island on course 267° T, speed about 12 knots. Noon position latitude 2° 33' S, longitude 179° 24' East. Visability about 15 miles. The Itasca was due to arrive off Arorai about 0100, zone plus 11½ time. Commandant Fourteenth Naval District was advised that the Itasca could reach Arorai on the morning of the 13th, and was requested to obtain the necessary authority as soon as possible.

The Colorado completed fueling destroyers about 1530 (zone time plus 11½ hours) and was then released from Earhart search Group to carry out remainder of her itinerary in connection with the Naval Reserves.

The destroyers proceeded to take plane guard stations in accordance with Search Plan No. 2 (Annex B), to arrive about 0600 13 July. Point of origin 2° 30' N, longitude 177 W. Cushing carrier plane guard, Lamson right flank guard.

At 1800 12 July, the Drayton reported casualty to throttle valve of her port high pressure turbine due to throttle disc of balance piston apparently backing off. This casualty reduced the speed of the Drayton's port engine to r.p.m., for 19 knots. The adverse weather conditions somewhat slowed up the fueling of destroyers and prevented the Drayton, which fueled last, from reaching station promptly 60 miles on port beam of Lexington as originally ordered in Search Plan No. 2. She was directed to lay course for Howland Island at speed of 19 knots to save distance and conserve fuel. By so doing she was able to reach the area of aircraft operations and was plane guard on Tuesday, 13 July as scheduled.

In the evening of 12 July the Navy Department advised that the State Department had been requested to make necessary Diplomatic arrangements for aircraft search of the Gilberts. The Commandant Fourteenth Naval District informed the Navy Department that immediate authority was necessary because of fuel considerations. At midnight 12-13 July, the Itasca was directed to keep clear of the Islands until a visit was authorized. At 0600 13 July the necessary authority was obtained.

On the morning of 13 July, the Swan was searching as directed from a point 2° S 180° toward Onotoa Island, Gilberts, at most economical speed. At 0710 she was directed to proceed immediately to Nukunau, Peru, Tapeteuea and Nonuti Islands in search of Earhart plane, conserving fuel, and be prepared to rendezvous with Lexington at 1500, 17 July in 1° S, 177° E.

On 13 July the Itasca was searching vicinity of Arorai Island. At 0700 she was directed to search Arorai immediately, followed by Tamana and Onotoa, then proceed to northwest and north on western side of Gilberts group investigating Nonuti, Kuria, Maiana, Apia, Taritari and Maraki, and obtaining available information at Tarawa, conserving fuel and reporting progress, and to be prepared to rendezvous with Lexington as noted for Swan.

On 13 July the Itasca searched Arorai and Tamana Islands and vicinity. Residents were contacted at Arorai and stated that they did not hear the plane nor had they seen any evidence of wreckage. The Itasca, by my 0013-1910 was ordered to proceed to Kuria-Apamama Islands in the Gilbert group; thence northward conducting complete search of uninhabited and such search of inhabited islands as deemed necessary, arriving at Taritari 15 July. According to the Sailing Directions all islands of the Gilbert group are inhabited; Tarawa and Taratari are ports of entry; that the District Government Headquarters is located at Taratari, but it was found to be located at Tarawa.

The Swan was directed by my 0013-1855 to search Nukunau, Peru, Onotoa, Taputeouea and Nonuti Islands by the late afternoon of the 16th.

The above routes by the Itasca and Swan would make a complete search of the Gilbert group by surface craft. It might be possible that Mrs. Putnam and her navigator might have drifted to or landed on an island in this group, the prevailing current being westerly and wind SSE.

It was determined that the Itasca and Swam could reach Honolulu without refueling upon completion of their search of the Gilberts. This was verified by both vessels, the Itasca including Howland Island returning to Honolulu on her route. In the event it was found necessary to further include either of these two vessels in the search, their schedules were planned to facilitate a rendezvous with the Lexington on 16 or 17 July for refueling.

The Lexington reached point of origin latitude 2-30 N, longitude 177 W at 0636 13 July - which time was designated as zero hour for commencement of operations. Sixty planes were launched to search in east and west directions as indicated in Search Plan No. 2. First plane left ship at 6:16 a.m., and last plane was recovered at 10:18 a.m.

Heavy rains and squalls interfered with morning search by aircraft. In the afternoon 27 planes were launched at 1303 (last plane took off at 1310), but operations were abandoned due to bad flying conditions and the planes were ordered to land aboard the carrier. At 1356 the planes returned aboard (the last plane was landed at 1411). The approximate area between latitude 2° 50' N and 1' 5" S and between longitude 176° 35' W and 178° 10' W was covered with the exception of the immediate vicinity of Howland which was obscured by heavy rains.

At the end of flight operations, the Lexington proceeded to a position latitude 1° 20' S, longitude 180° to commence flight operations on the morning of 14 July.

On 14 July the Itasca was searching enroute Kuria group, consisting of Kuria, Nanouki and Apamama Islands and was expected to arrive about noon 14 July zone plus eleven and one-half time.

The Swam contacted the chief resident at Nukunau and proceeded to Peru. Radio communication with Peru Island was established on 500 KCS with station ZCC operated by the London Mission Society. All contacts were negative.

With Lamson as left flank guard, Cushing carrier plane guard, and Drayton right flank guard, the Lexington commenced aircraft operations at 0730, and launched 42 planes in accordance with Search Plan No. 1 (Annex A). Point "A" (Plan One) was latitude 1° 20' S, longitude 180°, base course north. The condition of the sea was smooth and visibility good. All planes were landed aboard at 1121. The aircraft reported that they would seen any wreckage or boat if such had been afloat. The Lexington's noon position was latitude 0° 38' S, longitude 179° 59' E.

The second flight of aircraft commenced at 1345, with point "C" of Plan One as the origin of operations in latitude 0° 00° longitude 180° and base course north. As a matter of interest this is the first time a ship of the Navy operated in latitude 0° 00° and longitude 180°. 42 planes were launched. The aircraft were all landed aboard at 1742. The area covered was between latitudes 1° N and 1° 40' S and longitudes 178-30 West and 178-30 East. There were a few rain squalls in the western area so heavy as to cause some of the aircraft in those sections to fly around them. These areas were small and are indicated on the attached chart. The positions of the plane guards, 60 miles on each beam of the carrier are also shown. During the night, the positions of the destroyers Lamson and Cushing were interchanged so that the Lamson took over the carrier duty and the Cushing took station 60 miles on port beam for operations on Thursday 15 July. During the night all vessels of the search group were directed to use their searchlights for at least five minutes during each night watch. A distance of only 40 miles had to be covered during the night and stoerageway was maintained.

On 15 July, the Swan was enroute from Peru to Onata, arriving at the latter island about 1200. The Swan anchored here and sent a boat ashore to contact natives. The Earhart plane was neither seen nor heard. The Swan then proceeded to Taputeouea Island to arrive at daybreak on the 16th, maintaining stoerageway during the night.

The Itasca made negative contacts at Kuria and the neighboring islands. She headed for and arrived at Tarawa during the morning of the 15th. At Tarawa, the commanding officer of the Itasca was interviewed by the District Administrator who stated that there was no sign of the lost Earhart plane in Gilbert Islands. He further declared that the Gilbert Islands were well populated and that he maintained excellent communications with the islands in general and particularly those to the north. Taritari Island to the northward is a port of entry for inter-island steamers. The District Administrator requested the Commander of the Earhart Search Group to inform the Senior Administrative Officer at Ocean Island of the presence of U. S. vessels at the Gilberts. Commander Destroyer Squadron Two then sent a multiple radiotelegram to British Colonial officials as follows:

"RESIDENT COMMISSIONER OCEAN ISLAND AND
SENIOR ADMINISTRATIVE OFFICER TARAWA ISLAND.
ANY INFORMATION YOU MAY GIVE UNITED STATES VESSELS VISITING GILBERTS IN SEARCH OF EARHART PLANE WILL BE APPRECIATED /s/ DOWELL, COMMANDING EARHART SEARCH GROUP."

The District Administrator at Tarawa replied that he would advise the Commander of the Search Group of any information or evidence received.

Upon completion of the contact at Tarawa the U. S. Coast Guard Cutter Itasca requested authority to proceed to Honolulu, via Howland, to relieve personnel. In view of the fact that the islands were well populated to the northward and communication maintained with the District Administrator at Tarawa, the Itasca was directed to proceed to Howland.

At 0719 15 July, the Lexington launched 41 planes in accordance with Search Plan No. One (Annex Afirm). Point of origin (Afirm) was latitude 1° 20' north, longitude 180°, base course north, the Lamson acting as carrier plane guard while the Cushing and Drayton were respectively left and right flank plane guards. At 1023 the planes returned from the morning flight.

At 1356 the afternoon flight of 41 planes took off from point "C" latitude 2° 35' N, longitude 180°. The planes returned at 1636.

The area covered for the day's search was between latitude 1° N to 3° 40' N and longitude between 178-30 West to 178-30 E. A few light squalls were encountered but the aircraft stated they could see through them fairly well. On the whole the search was considered satisfactory.

During the night of 15-16 July, the Lexington and plane guard destroyers proceeded to take stations for operations on the following morning. Drayton right flank, Cushing left flank and Lexington carrier duty.

On 16 July, the Swan investigated Taputeouea and Nonuti. This completed the search of the Gilbert Group of Islands by surface vessels with no sign of the lost Earhart plane. Upon completion of her task the Swan was released and directed to report to Commandant Fourteenth Naval District for further orders. She was directed to return to Pearl Harbor.

The Itasca was enroute Howland - 0800 position latitude 0114 north, longitude 175-38 east, course 90, speed 11 knots. In view of her longer experience with current and wind in the Howland area and her first hand knowledge of conditions since loss of the plane, the Itasca was asked to submit to Commander Destroyer Squadron Two her estimate of the most probable location of the Earhart plane - (DESPATCH) FROM COMDESRON TWO TO ITASCA 0016 ASSUMING THAT EARHART PLANE OR RUBBER BOAT STILL AFLOAT PLEASE SUBMIT YOUR ESTIMATE AS OF NOON TODAY MOST PROBABLE POSITION FIRST OF PLANE SECOND OF RUBBER BOAT 0910. The commanding officer of the Itasca replied: 6016 YOUR 1016-0910 ON ASSUMPTION GIVEN ESTIMATE MOST PROBABLE AREA ORIGIN LATITUDE 2 NORTH LONGITUDE 179-30 EAST THENCE LATITUDE 5 NORTH LONGITUDE 178-15 EAST THENCE LATITUDE 5 NORTH LONGITUDE 175-45 EAST THENCE LATITUDE 2 NORTH LONGITUDE 177 EAST THENCE TO ORIGIN PERIOD ESTIMATE BASED ON FOLLOWING CONDITIONS END OF FLIGHT CLEAR BLUE SKY SOUTH AND EAST OF HOWLAND HEAVY CLOUD BANK APPROXIMATELY 50 MILES NORTH AND WEST OF HOWLAND PERIOD ITASCA HAD LAID HEAVY SMOKE SCREEN FOR TWO HOURS WHICH HAD NOT DISINTEGRATED AND CLEARLY VISIBLE FROM SOUTH AND EAST FOR 40 MILES OR MORE AT ALTITUDE ONE THOUSAND PERIOD DOUBTFUL IF VISIBLE OVER 20 MILES FROM NORTH AND WEST COMMA SIGNAL STRENGTH AND LINE OF POSITION WOULD INDICATE EARHART RECKONING CORRECT AS FOR DISTANCE THOUGH SHE PROBABLY CARRIED LINE OF POSITION EAST BEFORE CIRCLING AND AFTERWARDS

PROBABLY FLEW NORTH AND SOUTH ON THIS LINE PERIOD HER REPORTS INDICATE HIGH FLIGHT WITH OVERCAST AND CLOUDY WEATHER AND EVIDENTLY FLYING IN CLOUDS UNTIL THE LAST FEW MINUTES OF FLIGHT PERIOD SIGNAL STRENGTH INDICATES MAXIMUM DISTANCE 250 PERIOD ESTIMATED PLANE DOWN WITHIN 250 MILES OF HOWLAND BETWEEN 337 and 45 TRUE AND NOT NEARER THAN 30 MILES PERIOD AT LATTER DISTANCE COULD NOT HAVE FAILED TO SEE SMOKE SCREEN IF SHE PASSED SOUTH PERIOD OUR EXPERIENCES SEA AND WIND DRIFT THIS VESSEL MAXIMUM ONE MILE 270 AND DOUBT IF PLANE OR LIFECRAFT WOULD EXCEED PERIOD ON THESE ASSUMPTIONS MOST PROBABLY AREA AS OF 1200 TODAY AS INDICATED ABOVE PERIOD EXCELLENT NAVIGATOR AND EXPERIENCE JUSTIFY ASSUMPTION PLANE DOWN ON LINE OF POSITION OR THAT LINE ADVANCED EASTWARD ONE HOUR ON LINE OF FLIGHT WHICH ASSUME WAS APPROXIMATELY 78 TRUE FROM LAE 1200.

As a matter of coincidence the probable area set forth in the above despatch from the Itasca was being searched by Lexington aircraft while these messages were exchanged.

The Itasca was released from further search duty at 1700, and was directed to report to Commandant Fourteenth Naval District who directed her to further report to Commander Hawaiian Section, U. S. Coast Guard. The latter instructed her to proceed direct to Honolulu from Howland.

At 0700 Lexington commenced flight operations from point of origin latitude 4° N, longitude 178° E, base course west, Search Plan No. 1, with planes searching in north and south directions. At 1042 all planes returned from the search and landed aboard carrier. Lexington's noon position latitude 3-59 N, longitude 177.00.7 E.

At 1253 afternoon flights of 40 planes took off and returned aboard at 1630. The area covered is approximately between latitudes 2-30 N and 5-30 N, longitudes 175-40 E and 179-20 E(see chart attached).

During the night of 16-17 July, the Lexington proceeded from 4° north 176° east east to take station, distance of 180 miles, for operations at 0700 on the 17th of July.

At 0658 17 July the Lexington commenced flight operations with point of origin at latitude 1° 00' north, longitude 175-40 E, base course east. 41 planes took off but only 39 participated in the search. Two planes returned aboard before commencing search. At 1012 landing operations were started. At 1017 4-B-8 experienced a barrier crash ending against one of the after turrets. No personnel were injured. At 1043 all planes returned aboard from the morning flight.

At 1259 on the afternoon of the 17th Lexington aircraft resumed flight operations with a total of 41 planes taking part in the search. Origin of operations latitude 1° 20' N, longitude 176-50 E, base course east; planes searching in north and south directions. At 1647 all planes landed aboard.

The areas searched on 17 July were between longitudes 175-10 E to 176-30 E, latitudes 0° 28' south and 2° 30' north; between longitudes 176-30 to 177-48 east, latitudes 0° 12' north and 2-45 north; between longitudes 177° 45' east to 178-18 east, latitudes 0° 12' north and 1° 18' north.

Through the San Francisco Division of the Coast Guard, Mr. George Palmer Putnam requested reconnaissance of the vicinity longitude 170° east, latitude 0° 09' north for the drifting plane. See ComFranDiv 8015-2335 and 8017-1234. The Commandant Fourteenth Naval District, in his 0017-1100 replied that it was impracticable to search area requested and that all the Gilbert Islands had been searched.

The Navy Department requested the Commandant Fourteenth Naval District, in its despatch 0017-2112, that before the termination of the search on 18 or 19 July practicability of covering the area 170° east longitude and 0° latitude. Commandant Fourteenth Naval District, in his 0017-1705, requested recommendations from Commander Destroyer Squadron Two in regard to the above search and asked whether or not the search group had sufficient fuel. Commander Destroyer Squadron Two, in his 0017-1944, stated that to comply with the Navy Department's desire it was necessary to proceed immediately at most economical speeds and that the remainder of the tentative plan as scheduled for the 18th would have to be abandoned. Further, for one days search it would require four additional days steaming to visit this area, and also there was a possibility of the Lexington requiring fuel at Lahaina instead of returning direct to San Diego as authorized in her itinerary (0017-0955 from Commandant Fourteenth Naval District to the Navy Department) and as required by Chief of Naval Operations 3806-0945 of July 1937. Commander Destroyer Squadron Two, in his despatch 0016-2045 and 0016-1727 had stated that the Lexington group was able to continue its present duty until 21 July if not ordered beyond limits 174° east, 1° south, thus enabling the Lexington to proceed on great circle to San Diego at speed 15, and for the destroyers to proceed to Pearl Harbor for fuel and provisions and thence to either San Diego or San Francisco.

Commander Destroyer Squadron Two considered the search of area 0° latitude, 170° longitude possible but not practical. During the evening of 17-18 July from 0800 to 2400 Lexington and destroyers steamed slowly on a westerly course awaiting instructions from Commandant Fourteenth Naval District. At midnight on 17 July the Earhart Search Group proceeded north to carry out the final days search in accordance with previous plans which would consist of searching areas covered by rain on 14-15 July and search additional area to the north-eastward. Commandant Fourteenth Naval District notified the Navy Department that it was impracticable to search the area longitude 170 E, 0° latitude as requested, and that it would not be searched unless otherwise directed by the Department.

At 0659 18 July, the Lexington commenced morning flight operations and passed point of origin (afirm) latitude 2° 55' N, longitude 177-48 E at 0714, base course 45°, Search Plan No.1. 41 planes were sent off. All aircraft returned aboard at 1036.

The afternoon flight operations commenced at 1300 from point "C", longitude 178° 45 E, latitude 3° 48' north, base course 45°. At 1648 all planes were landed aboard carrier.

The area covered during the morning search lies in the rectangles marked by the following points: from longitude 178° 30' E, latitude 1° 36' N to longitude 176° 28' E, latitude 3° 32' N, longitude 177° 22' E, latitude 4° 48' to longitude 179° 30' E, latitude 2° 38' N, along line of bearing 045° T.

During the afternoon the following was searched: From longitude 177° 35' E, latitude 4° 35' N to longitude 179° 38' E, latitude 2° 35' N; longitude 178° 30' E, latitude 5° 30' N to longitude 179° 30' E latitude 3° 30' N.

After the completion of the search on 18 July, the Earhart Search Group proceeded toward Hawaiian area, the Lexington enroute San Diego, course 052, speed 15 knots, via great circle course, passing near Oahu, and the destroyers Drayton, Lamson and Cushing enroute Pearl Harbor for fuel, provisions, and voyage repairs. The 2000 position on the 18th was longitude 179-52 W, latitude 5° 55' N.

The Drayton had been assigned restricted availability at Pearl Harbor Yard for repairs to port H.P., turbine throttle (Navy Department despatch 0017-1408).

The Lexington group reported to Commander-in-Chief, U. S. Fleet, for duty by Commander Destroyer Squadron Two despatch 0019-1100 from position longitude 176° 50' W, latitude 7° 14' N, at 1000 zone plus eleven and one-half time, giving as a tentative itinerary: (1) Lexington proceed direct San Diego; arriving 30 July 1937. (2) Commander Destroyer Squadron Two, in Lamson, Commander Destroyer Division Three in Drayton, and Cushing proceed to Pearl Harbor, arriving late 23rd or early 24th, fuel, provision and complete voyage repairs, depart 26th, arrive San Diego 1 August.

This itinerary was approved by the Commander-in-Chief, in his despatch 1119-1710, and the "Lexington Group" ordered discontinued as of the hour of hoisting Commander Destroyer Squadron Two pennant in Lamson.

At 1400 on 21 July Commander Destroyer Squadron Two hoisted his pennant in the Lamson and the search organization was terminated.

III. SUMMARY OF OPERATIONS.

The following summary is submitted showing the area in square miles searched by the Earhart search group since 11 July.

(a) Square miles covered by Lexington aircraft:

13 July	.....	11,324 square miles
14 July	.....	27,571 square miles
15 July	.....	26,050 square miles
16 July	.....	29,195 square miles
17 July	.....	27,652 square miles
18 July	.....	29,764 square miles
Total	.....	151,556

During the time flight operations were in progress, the Lexington, Drayton, Lamson and Cushing maintained a lookout in addition to that kept by aircraft.

It will be noted in Search Plans One and Two that a destroyer was stationed as plane guard on each beam distant 60 miles. The third destroyer was 1,000 yards on the port quarter of the carrier.

In summarizing search operations, a ten mile front may be assumed for the Lexington and for the two plane guard destroyers on each beam. After search operations by aircraft were completed, there were still two to three hours of daylight steaming.

It was assumed that while acting as plane guard on the port quarter of the carrier the area searched by the destroyer there stationed would be included in the front searched by the Lexington.

(b) Area in square miles searched by

DATE	LEXINGTON	LAMSON	DRAYTON	CUSHING
12 July	2550	900*	600*	1680*
13 July	1480	1480	1480	Carrier duty
14 July	1440	1440	1440	Carrier duty
15 July	1440	Carrier duty	1440	1440
16 July	1520	" "	1520	1520
17 July	1440	" "	1440	1440
18 July	1650	" "	1650	1650
Total	11,520	3,820	9,570	7,730

* Destroyers fueled from Colorado thus limiting daylight search.

(c) ITASCA - Estimated ten mile front during daylight search.

DATE	SQUARE MILES	
11 July	1900	
12 July	1700	
13 July	500	Searched Arorai and Tamana Islands.
14 July	800	Searched Kuria, Nanouki Islands.
15 July	500	Enroute and visited Tarawa.
16 July	1900	Enroute Howland and released.
Total	7,300	square miles

(d) SWAN -

DATE	SQUARE MILES	
11 July	1100	
12 July	1000	
13 July	1000	
14 July	800	Visited Nukunau
15 July	800	Visited Peru & Onata.
16 July	1000	Visited Taputouea & Nonuti.
Total	5,700	square miles

(e) Summary for surface vessels since 11 July -

Lexington	11,520	square miles	
Lamson	3,820	"	"
Drayton	9,570	"	"
Cushing	7,730	"	"
Itasca	7,300	"	"
Swan	5,700	"	"
Total by surface craft	45,640	"	"

(f) Prior to 11 July, the following area, in square miles, is estimated by this command to have been covered during daylight by the Colorado and her two planes, the Itasca and Swan:

(1) By surface vessels:

Colorado 6-12 July	10,080
Itasca 2-10 July (inclusive)	29,130
Swan 5-10 July (inclusive)	9,950
Total	49,160

(2) By Colorado planes 15,925

(g) Final summary for all operations as determined by this command -

(1)	By surface vessels prior to 11 July	49,160
	By surface vessels 11-18 July	45,640
	Total by surface vessels	94,800
(2)	By aircraft - Lexington	151,556
	- Colorado	15,925
	Total by aircraft	167,481

(3) Grand total ..... 262,281 square miles, or the equivalent of a 500 mile square.

No sign nor any evidence of the Earhart plane was discovered.

SET AND DRIFT AS OBTAINED FROM THE NAVIGATOR USS LEXINGTON:

LATITUDE	LONGITUDE	SET	DRIFT
15 N	163 W	248°	0.6
12 N	166	270°	0.9
11½ N	167-15	295	1.8
9-45	169-15	262	0.4
6	174	180	0.2
3	176	097	0.5
1	177	353	0.9
0	178	276	0.6
1° S	180	238	0.9
0	180	None	
2 N	180	257	1.1
3	180	337	0.4
4	177 E	102	0.8
4	176 E	051	2.0
3	176 E	242	0.5
1	175½	295	0.8
1 *	176½	324	3.1

* Doubtful - believed to be error in D.R.

1½	177½	270	1.1
4	188½	262	0.7
3-45	178½	000	1.0
4	179	300	0.3

Vector average of final sixteen observations is 0.45 knots 314° true.

Lexington Group,
U.S.S. Lexington, Flagship.
Enroute Hawaiian Area.
20 July 1937.

From: Commander Lexington Group.
To : The Commandant, Fourteenth Naval District.

Subject: Report of Earhart Search, forwarding.

Enclosures: (A) Annex "A", Estimate and Decision, Comdesron Two.
(B) Annex "B", Narrative of Search, Lexington Group.
(C) Annex "C"; Aerological Data.
(D) Annex "D", Lexington Report of Earhart Search Operations.
(E) Appendix "A", Chart Photostat - Earhart Flight Information.
(F) Appendix "B", Chart Photostat - Tract Chart Earhart Search, U.S.S. Lexington and attached aircraft.
(G) Appendix "C", Chart Photostat - The Earhart Search)Showing tracks of all vessels participating).
(H) Appendix "D" - Photostats - Search Plan #1, and #2.
(I) Appendix "E" - Earhart Search Plotting Sheet.

1. Annexes and appendices are submitted herewith as forming as complete a report as possible on operations of the Lexington group, consisting of Lexington with Aircraft Squadrons VS-2, VS-3, VS-4, VS-41, VT-2 and VB-4 embarked, of Commander Destroyer Division Three in Drayton, and Lamson and Cushing, during the period 4 to 18 July, 1937, inclusive, and of search operations of the U.S.S. Swan and U.S.C.G. Itasca while serving under Commander Lexington Group during the period 11-16 July 1937.

2. An effort has been made to confine the substance of this report to matters of fact rather than opinion.

3. Track chart tracings are being forwarded under separate cover.

4. The performance of duty by all units concerned was excellent.

The expeditious and efficient services rendered by the Fourteenth Naval District, the Fleet Air Base, Commander Minecraft, and Commander Submarine Squadron Six in preparation for the search operations, are greatly appreciated.

J. S. Dowell

AEROLOGICAL DATA

0800 - 1200 12 July

Overcast skies with heavy rain continued. Surface winds were East North East 22 to 25 knots. Winds aloft East North East 25 knots. Visibility was fair at times except during heavy showers. Alto Stratus and Cumulus were the predominating clouds. Ship's position 07° 15' N - 172° 09' W. Pressure 29.75. Temperature 79°. Humidity 89%, Sea Temp. 84°, Surface wind for one min. 0800 E.N.E. 19 knots.

1200 - 1600 12 July

Overcast skies with rain still prevailed at noon. 2 Alto Stratus with 8 cumulus. Surface winds were East NorthEasterly 20 to 25 knots. 81° humidity 88%. Sea Temp. 84° at 1450 rain stopped. Barometer began to fall rather rapidly dropping .07 to .08 in 3 hour period lowest barometer 29.68. Sky became broken with high and low scattered clouds. Visibility improved from fair to good.

1600 - 2000 12 July

Cloudy to partly cloudy skies, with intermittent moderate showers, cumulus building all the time, no anvil type cumulus were noted. Moderate shower occured at 1745 and lasted about 15 minutes, another shower at 2115 lasting 5 minutes, sky became broken closing in and becoming overcast at midnight; Shortly after mid-night a moderate shower occured lasting at least one-half hour. Sky broke and became partly cloudy with high and low scattered clouds Remaining broken until 0800. Flight operations were held shortly after 0800.

2000 12 July to 0800 13 July

Sky remaining cloudy with seven tenths of Cumulus and 3-tenths of Alto Stratus. Moderate rain squalls observed along the horizon at irregular intervals, with one of light intensity passing the ship 1745-1757. The Cumulus was lowering with very ragged under surfaces and accompanied with virga formation. Visibility good. Mostly undesirable flying weather. Surface wind steady at 18 to 19 knots from E.N.E.

0800 to 1600 13 July

Ship's position 01° 56N - 177° W. 11½ time.
Variable sky during the night with a large amount of high and intermediate clouds of all types. Frequent light and moderate squalls, both before and after midnight; times 2115 - 2128 (light) 0018 - 1142 (moderate). Upper clouds were prevalent while the lower types were well broken with occasional large masses. Undersurface of low clouds was very ragged and associated with much virga. Visibility very good except reduced slightly during the Shower periods. Surface winds veered gradually during the night to south east. Velocity remained fairly constant at about 18 knots, but

fell off considerable after sunrise. Wind SSE 9 knots; Barometer 29.70. Temp. 81°; Humidity 88%; Sea Temp. 84°Dew point 77.

1600 13 July - 0800 14 July

cloud amount remained constant all day but the lower clouds were variable, at times reducting to two and three tenths along the horizon. Frequent rain squalls intensity passing the ship at 1307 to 1347. Visibility very good, except reduced slightly during shower period. Winds were gentle E.S.E. and South Easterly, averaging 8-10 knots. Barometer 29.65. Temp. 84°, Humidity 73%. Dew point 74° and Sea Temp. 83°. Crossed equator at 1625 at 177 56 W. Long.

0800 - 1600 14 July

Ship's position 01° 11' S. 179° 59' E.
Variable sky during the night with intermediate fcums and strato cumulus. Few cumulus continuing along the horizon. Cloudiness increasing slowly before 0800. Visibility very good throughout the night. Surface winds veering to the S.S.E. and S. decreasing in velocity to 5 and 6 knots, between midnight and 0400. Barometer 29.71, Temp. 81°; Dew point 74°. Humidity 79%. Sea Temp. 83°. Ocean Surface without swell, but slightly choppy due to wind influence.

1600 14 July - 0800 15 July

Frequent rain squalls during the period 0800-1600 with two passing the ship - one at 0834 - 0927 and 1307 -1342. Squalls were of moderate intensity and accompanied with increased gusty winds and reduced visibility Sky remained cloudy with the amount of lower clouds variable. The movement of the cumulus was rapid from the SE and variable amounts and variable size of clouds were crossing the field of vision during this entire period. Very good visibility except good during squalls. Temperature unsteady between 77° and 81°F. Barometer 29.66. Dew Point 74° F; Sea Temp. 83° F and Humidity 83%.

0800 - 1600 15 July

Ship's position 01° 33' N. 179° 56' W.
Variable cloudiness during the night with upper and lower clouds. Cumulus as before, continued to move across the field of vision in variable amounts and various size clouds. Frequent rain squalls were observed along the horizons, with one passing the ship at 0345-0415. A large well colored rainbow was observed at 0740. Visibility very good reduced slightly during the rain squalls. Mostly average flying weather - becoming undesirable at times, due to low clouds and showers. Surface winds variable at sunset, becoming SE, steady at 15 and 16 knots. Barometer unsteady at 29.70. Temperature steady at 79°; Dew point 73°, sea temp. 84° and humidity 83%.

1600 15 July - 1600 16 July

Variable cloudiness during the day with considerable high cloudiness. Some of the cirrus appeared to be false cirrus or the parts blown from

the tops of the cumulus. Frequent rain squalls were observed at varying distances from the ship with two passing the ship. One at 0806-0813 and a heavy squall from 1310-1330. The wind increased considerably during these squalls at times reaching 27 and 30 knots. Otherwise the surface wind remained fairly constant from the ESE and velocities at 17-20 knots. Pressure fell steadily all day but now leveled off at 29.63. Temp. unsteady above 80° and dropping below 80°at times of squalls. Sea temp. constant at 84°F. Humidity followed the regular variation, but average about 78%.

1600 16 July - 0800 17 July.

Partly cloudy skies with both high and low clouds CI and Alto Stratus predominating in early evening about 2000 the A ST dissipated and CI and CU remained throughout the night. One shower at 0320 to 0515. Visibility fair to good during entire period. Surface wind remained in ESE, 10 to 18 knots, winds aloft easterly 23 knots in lower levels. Barometer 29.65; Temp. 84° F.

0800 17 July - 1600 16 July.

Ship's position 03°56' N - 175°47' E.
Skies remained partly cloudy with A ST and CU predominating. Cumulus becoming well broken after midnight with clouds of various forms, drifting across the field of vision. Light to moderate intermittent rain squalls from 0300 - 0515. Surface wind remained in the E and ESE, averaging 17 knots with gusts to 26 and 27 knots during the squall periods. Visibility good and very good. Temp. 81°; reducing very slightly during the night. Dew point 74°.Humidity unsteady 80 and 90%. Sea Temp. 84. Barometer 29.73. Barograph trace showed the regular diurnal change with no unusual fluctuations, except for a slight unsteadiness during the rain squalls, probably due to gusty winds.

1600 17 July - 0800 18 July.

Partly cloudy and cloudy skies entire day with cumulus predominating and high clouds of the CI, CIST and A ST forms visible to the south and east and increasing gradually after 0800. Light rain squalls visible at times in the distances to the SE. Visibility very good. Average flying weather. Barometer fall steadily in accordance with the regular diurnal change, now reading 29.66. Temperature very steady during the day at 82°. Dew Point 75°. Humidity unsteady between 80 and 86%. Sea. temp.remained constant at 84°.

0800-1600 July 18.

Ship's position 03° 00' N. - 177°59' E.
Partly cloudy to overcast skies, with much higher and intermediate cloudiness and with frequent passing showers and rain squalls after 0410 lasting until 0620. A distinct cold front passage occured at 0330, accompanied with .05 rise of the barometer, 5° drop in temperature, gusty winds and very heavy showers continuing until 0600. The shower from 0515 to 0620 was light and apparently a post frontal product. The weather

conditions at times other than the frontal passage are as follows: Barometer 29.20; temp. 83°; Dew point 76°; humidity unsteady between 86 and 90%. Surface wind steady between 15 to 20 knots from the east and ESE.

1600 to end of search, 18 July.

Sky condition reducing to partly cloudy and remaining constant throughout the day, with cumulus, predominating and a few tenths of intermediate and upper clouds visible to the East and South East. Very good visibility and with surface wind steady at ESE 15 to 17 knots. Barograph trace showed an unsteady trace during the day, now reading 29.65. Temp. unsteady at 82°F. Dew Point 76°. Humidity unsteady between 76 and 84. Sea temperature 84.

REPORT OF EARHART SEARCH OPERATIONS 3 - 18 JULY 1937

1. In accordance with despatch orders from the Navy Department and from Commander Aircraft, Battle Force, the U.S.S. Lexington departed from Santa Barbara at 1650, 3 July 1937, arriving at San Pedro at 2300, 3 July 1937. Preparations were begun to conduct a search for Amelia Earhart. Fuel and stores were received during the night. Upon completion of fueling at 0605, 4 July, the LEXINGTON departed for Coronado Roads to receive squadrons.

2. In the meantime, by order of Commander Aircraft, Battle Force, the following squadrons, which were temporarily based on shore, at the Naval Air Station, San Diego, California, made the necessary preparations for embarkation:

VS Squadron Two
VS Squadron Three
VS Squadron Forty-One
VS Squadron Forty-Two
VT Squadron Two
VB Squadron Four

Officers and men of these squadrons were recalled from shore leave and liberty. The planes were prepared to fly aboard and a lighter was loaded with baggage and spares.

3. The LEXINGTON arrived at Coronado Roads at 1048, 4 July 1937. The lighter with squadron personnel and baggage was immediately brought alongside and unloading was effected as rapidly as possible.

4. In compliance with OPNAV despatch 0004 - 1200, Captain J.S. Dowell, U.S. Navy, came on board the LEXINGTON and took command of the LEXINGTON Group which then consisted of the following vessels:

LEXINGTON
LAMSON
DRAYTON

The destroyers CUSHING and PERKINS were directed by Commander Destroyer Squadrons, Scouting Force, to fuel and provision at San Pedro and join the LEXINGTON Group later.

Mr. Paul Brook, International News Service Reporter, came on board the LEXINGTON in accordance with OPNAV despatch 1004 - 1522

5. The LEXINGTON, LAMSON, and DRAYTON departed from Coronado Roads at 1258, 4 July 1937. The following squadrons with planes as indicated below were received on board the LEXINGTON:

SQUADRON	COMMANDING OFFICER	NO. PLANES	TYPE
VT-2	Lt. Comdr. Sinton	9	PM
VS-2	Lieut. D.F. Smith	11	SBU
VS-3	Lt. Comdr. MacMahon	9	SBU
VS-41	Lt. Comdr. Taylor	14	SBU
VS-42	Lieut. Hoskins	9	SU-4
VB-4	Lt. Comdr. Roswall	10	BG-1
Lexington Utility	Lieut. (jg) Carver	1	O3U-3

One plane, No. 4-B-4 could not lower its hook and had to return to San Diego. This plane was accompanied by plane No. 4-B-7. Repairs to the hook were effected and both planes returned to the LEXINGTON. Lieut. (jg) George L. Hutchinson, U.S.N. developed serious illness and was transferred from the LEXINGTON to the Naval Hospital, San Diego, via the U.S.S. Chandler at 1620, 4 July 1937.

6. Due to engine trouble the destroyer PERKINS was unable to join the LEXINGTON Group, but the CUSHING joined about 10 miles south of China Point at 1845, and the Group proceeded to the Hawaiian Islands.

7. In accordance with CINCUS despatch 0106 - 1225 the Commander of the 14th Naval District was directed to assume charge of search operations.

8. The LEXINGTON arrived at Lahaina Roads at 1146, 8 July 1937 and the destroyers arrived at Honolulu the same day.

9. Captain Dowell and Captain Noyes of the LEXINGTON flew to Pearl Harbor via Fleet Air Base Patrol Plane for a conference with Commandant, 14th Naval District, regarding the conduct of the search.

10. All vessels were fueled to capacity and provisioned. In addition the LEXINGTON received about 11,000 gallons of aviation gasoline.

11. Mr. Charles Mounce of the United Press and Mr. Earl M. Welty of the Associated Press came on board the LEXINGTON by authority of the Navy Department.

12. The LEXINGTON Group re-assembled and departed from Lahaina Roads for the Howland Island Area at 1515, 9 July 1937.

13. ANALYSIS OF PLANS FOR THE SEARCH

Manifestly it was not possible to search more than a limited area of the Pacific Ocean. Therefore, a study of all available information was made to determine the limits of the areas of probability. From the maze of information and mis-information, it was necessary to sift out that which was authentic and to base conclusions regarding the search thereon. The following facts were established: At about 0000 GCT, 2 July 1937, Amelia Earhart took off in a Standard Lockheed Electra Airplane from Lae, New Guinea, for Howland Island, distance 2227 nautical miles. She was accompanied by an experienced navigator, Mr. Fred J. Noonan. During the flight the plane was in communication with the Coast Guard Cutter Itasca, which was in the vicinity of Howland Island. . . . . The plane reported its position at 0720, GCT 2 July, 1937 at latitude 4°-33' South, Longitude 159-06, about 295 miles from Lae, which indicated that the plane was on its course but making good a ground speed of only 111 knots. The following radio reports were received from the plane by the ITASCA on 2 July 1937:

At 1745 GCT - 0615 Howland time, 15 minutes before the estimated time of arrival, the plane sent the following message:

"Two hundred miles out and no land fall"

At 1816 GCT - 0646 Howland Time:
"Approximately 100 miles from ITASCA, position doubtful".

At 1912 GCT - 0742 Howland Time:
"30 minutes gas remaining, no land fall, position doubtful".

At 1928 GCT - 0758 Howland Time:
"Circling, trying to pick up Island".

At this time the radio signals from the plane received by the ITASCA were of greatest strength.

At 2013 GCT - 0843 Howland Time:
"On a position line 157 - 337 degrees". (This line may have been a sun sight or it may have been a radio bearing observed by the plane on the ITASCA and it presumably passed through Howland Island.

At 2025 GCT - 0855 Howland Time:
"Heading north and south", giving the same position as above.

This was the last authentic message received from the airplane.

14. Numerous radio messages were reported to have been received by various agencies, particularly amateur radio operators, which purported to give information received direct from the plane after it landed. Many of these messages were in conflict and many of them were unquestionably false. None could be positively verified. These messages were a serious handicap to the progress of the search, especially before the arrival of the LEXINGTON Group. Information was received from reliable sources which indicated that the airplane could send no radio message after landing on the water. Supposed receipt of radio messages sent by the missing flyers after they had landed, indicated that the plane was on an island or reef. As a result of some of these messages, the COLORADO, ITASCA, and SWAN were detailed to search the Phoenix Islands, thereby taking them away from the vicinity of Howland Island, which in the early stages of search, was the most probable area. After due consideration it was decided to concentrate the LEXINGTON Group search on the sea area. This decision was based on the assumption that the Earhart plane had landed in the water and that the survivors were afloat either with the airplane or in a rubber boat.

15. Two plans for searching the maximum possible area were formulated and are appended hereto. Search Plan I contemplated operations for an indefinite period. By using 2/3rds of the LEXINGTON planes, opportunity for rest periods and for routine checking of airplanes was afforded every third day. To search efficiently it was considered essential to keep the personnel and planes in excellent condition. About 7 or 8 hours per day was regarded as the maximum flying time that could be expected of personnel and yet have them remain on the alert while searching. Search Plan II was formulated in order that all the ship's airplanes could be used at one time and thus search the maximum area in any

given day. It was recognized that this plan could only be used for a single day and that at all other times Plan I above would have to be used. Both plans were similar in that they placed the planes on a scouting line on either side of the carrier, half on a side, with a scouting distance of 2 miles, and the search was extended 90 miles on either side of the carrier. In the case of Plan I, 42 planes were used, 21 on either side. The advance along the base course was dependent on the number of planes used. An extra plane on either side was used to provide an overlap in order to insure that no holiday was left between the leg out and the return leg. One destroyer was used at the carrier as plane guard for launching and recovering of planes. In addition it was available if needed for emergency rescue work near the carrier. The other two destroyers were stationed on either beam, 60 miles from the carrier on base course, for purpose of effecting rescue. The carrier was advanced along the base course at a speed which would intercept the planes returning from the search. With a destroyer on either flank, planes were never at a greater distance than 30 miles, measured normal to the base course, from the track of a ship. Based on available information it was decided, that the most effective altitude of the search was 300 - 500 feet and the most effective airplane speed was 90 knots. This was confirmed by experience during the search.

16. Information was obtained from the ITASCA, COLORADO, and SWAN to the effect that the average wind from the time of the end of the Earhart Flight until arrival of the LEXINGTON Group, was southeast 10 knots, and the current was westerly, average 5/10 knots. Since the missing plane had been down for about 11 days by the time of commencement of the LEXINGTON Group search, the area westward of Howland Island was chosen as the most probable area for the search. Since Howland Island was the destination of the Earhart plane and inasmuch as NOONAN was conceded to be an excellent navigator, it followed that the plane probably landed fairly close to Howland Island. The weather on the morning of 2 July was reported average and it is reasonable to assume that NOONAN obtained star sights during the early morning hours. A circle of 150 miles radius centered at Howland Island was selected as the probable boundary of the area in which the forced landing took place. This area could be expected to travel westward with the current and wind. If the survivors remained with the floating plane, the wind would have little effect but had they abandoned the plane and used the rubber boat, the effect of the wind would have been added to that of the current. No information was available on which to base an estimate of the effect of the wind on a rubber boat

but undoubtedly wind, if appreciable, would move a rubber boat at a comparatively greater speed than the current. After considering all features of the search it was decided to use Plan 2 (all planes) on the first day, and to search in the vicinity of Howland Island. The reason for searching Howland Island was that it was the destination of the Earhart Plane and if the search began on the extreme eastern limit and worked to the westward, it was believed that eventually a drifting plane or a rubber boat would be overtaken and further, that continuity of the search would thus be effected. Had the plane overshot Howland Island it was concluded that the drift would have taken it back to the westward and therefore no search east of Howland Island was deemed necessary.

17. On the morning of 13 July the LEXINGTON Group arrived at a point about 100 miles north of Howland Island and began the search. The weather was squally with wind velocity 22 to 28 knots and general flying conditions were undesirable. A search covering about 10,000 square miles however was made and the airplanes were recovered. In the afternoon about 27 planes were launched when rain squalls prevented further operations and made it necessary to recall planes already in the air. Even though this first days search, due to the unfavorable weather, did not cover as great an area as was planned, it was decided to move further westward for the next days operation in order not to lose time in arriving at what was considered to be the most likely area. Current and wind experienced by the LEXINGTON Group confirmed the information previously received that drift of the floating plane or rubber boat would be definitely westward and at an appreciable rate. The wind on this day, and on all days of the LEXINGTON Group search, was stronger than expected, averaging about 18 - 20 knots.

18. Commencing 14 July and continuing up to and including 18 July, search Plan I was used. As a coincidence, the afternoon flight of 14 July began at Latitude 00-00 and Longitude 180°. On 14 and 15 July some interference was experienced due to rain squalls but in general the areas on these days were considered about 90 to 95 percent covered. Planes on the scouting lines approaching a rain squall necessarily had to divert their course somewhat to avoid dangerous flying conditions. Usually however, squalls were not very thick and the planes could easily pass through or around them. The

area covered by a heavy squall, of course, could not be searched but this had to be accepted as area lost in order not to delay advancing of the search. Figuring the drift, later search, on 17 and 18 July covered practically all of the area missed on these two days.

19. On 15 July the LEXINGTON encountered a current which gave a decided set to the northwest. Because of this and also the fact that the wind had been from south southeast force 3 to 4 since the beginning of the LEXINGTON Group search, it was decided to extend the search to the northwestward on 16 July. In general the wind and currents were greater in the northwesterly direction than expected. Weather conditions as regards rain squalls improved on the 16th and from this day until the end of the search, practically no area was left unsearched on this account. During the morning of the 16th an unidentified steamer was seen by the searching planes in latitude 04°-38'N, Longitude 177°-32'E. This was the only vessel not a part of the search force which was sighted by the LEXINGTON Group. On this day the northern flank destroyer encountered definite northeasterly winds indicating that it was not necessary to extend the search further to the north.

20. Since the Sailing Directions and Chart indicated that breakers were reported in this area in 1914, on 17 July all pilots were instructed to look for shoal water. No reef or discolored water was sighted although the weather was clear and visibility was good which indicates that this shoal does not exist. On 18 July the search area was selected so as to include areas missed due to rain squalls on 14 and 15 July and to extend the search to the northeastward.

21. The most probable areas having been covered upon completion of air operations in the afternoon of 18 July, orders were received to discontinue the search.

22. Appendix (A) is a chart of the last flight of the Earhart plane. Appendix (B) is a chart showing the area covered by the LEXINGTON Group search. Appendix (C) is a chart of the entire area searched by the Earhart Search Group. Appendix (D) consists of two diagrams showing the track of the carrier, destroyers and aircraft employed in Search Plans 1 and 2. These plans are similar except that more aircraft are employed by search plan 2, the flights are longer and the advance greater. A Flank Scout Commander was placed in charge of each Flank but it was found necessary to further divide each flank into three groups with a group leader immediately responsible

for his group. This facilitated passing around and through squalls and provided flexibility of the Scouting line. During the search operations the problem of recovering planes when squalls existed was a matter of considerable moment. Bearings were frequently taken of the windward squalls and it was found that with careful maneuvering of the carrier they could be avoided. Reports from airplanes of weather conditions to windward were also of value in this connection. By carefully timing the search, the start of which was announced by the flank commanders, the position of any given plane of the search could readily be determined at any instant. Radio bearings were frequently taken both by the planes on their loops and by the ship. These bearings served as a good check of their position. Radio bearings were also taken on the flank destroyers and were of material assistance to these destroyers in maintaining stations. Appendix (E) is a Plotting Diagram for tracking planes while on search.

23. The statistics below indicate the extent of the air operations during the search period 13 July to 18 July inclusive:

Area Searched - 151,556 square miles
Miles Flown - 143,242
Plane Hours in the Air - 1591.1

24. In general air operations were carried out smoothly. Communications were excellent. There was only one instance of radio failure of a plane, which resulted in that plane's elimination from one flight. There were two minor airplane accidents in which damage of material resulted. The more serious of these occurred when plane 4-B-8 failed to engage the arresting gear and the plane crashed into the barrier. The damage was such that a major overhaul is necessary. The second was occasioned by plane 2-T-13 landing off center to the left, which resulted in damage to the left lower wing and landing gear. No injuries to personnel occurred in either of these accidents.

25. Except for the comparatively small areas that were blanked out by rain squalls, the search was thorough, and it is the conviction of the aviators who did the flying that neither the Earhart plane nor the survivors were in the area searched. An estimate was obtained from the ITASCA, which vessel had had the most experience in the Howland Island area, of the most probable location of

the missing flyers on 16 July, if afloat. This estimate coincided with that of the LEXINGTON Group.

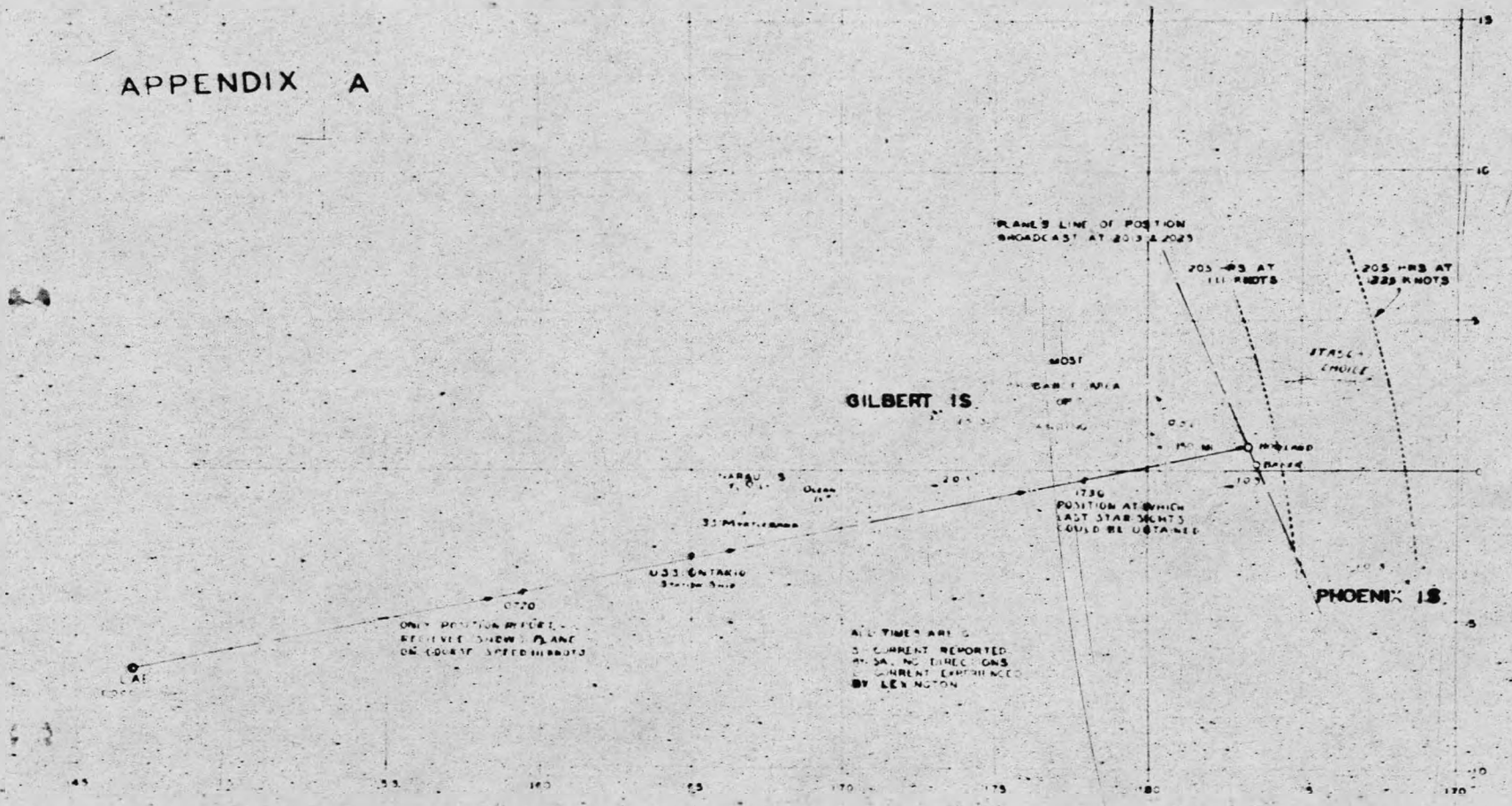
26. As a result of the experience of six days continuous flight operations, it is believed that the search plans devised are sound. The performance of personnel and material was satisfactory in all respects.

27. Although unfortunately the fate of the missing flyers remains a mystery, it is considered that the search made was efficient and that the areas covered were the most probable ones, based on the facts and information available.

Leigh Noyes.

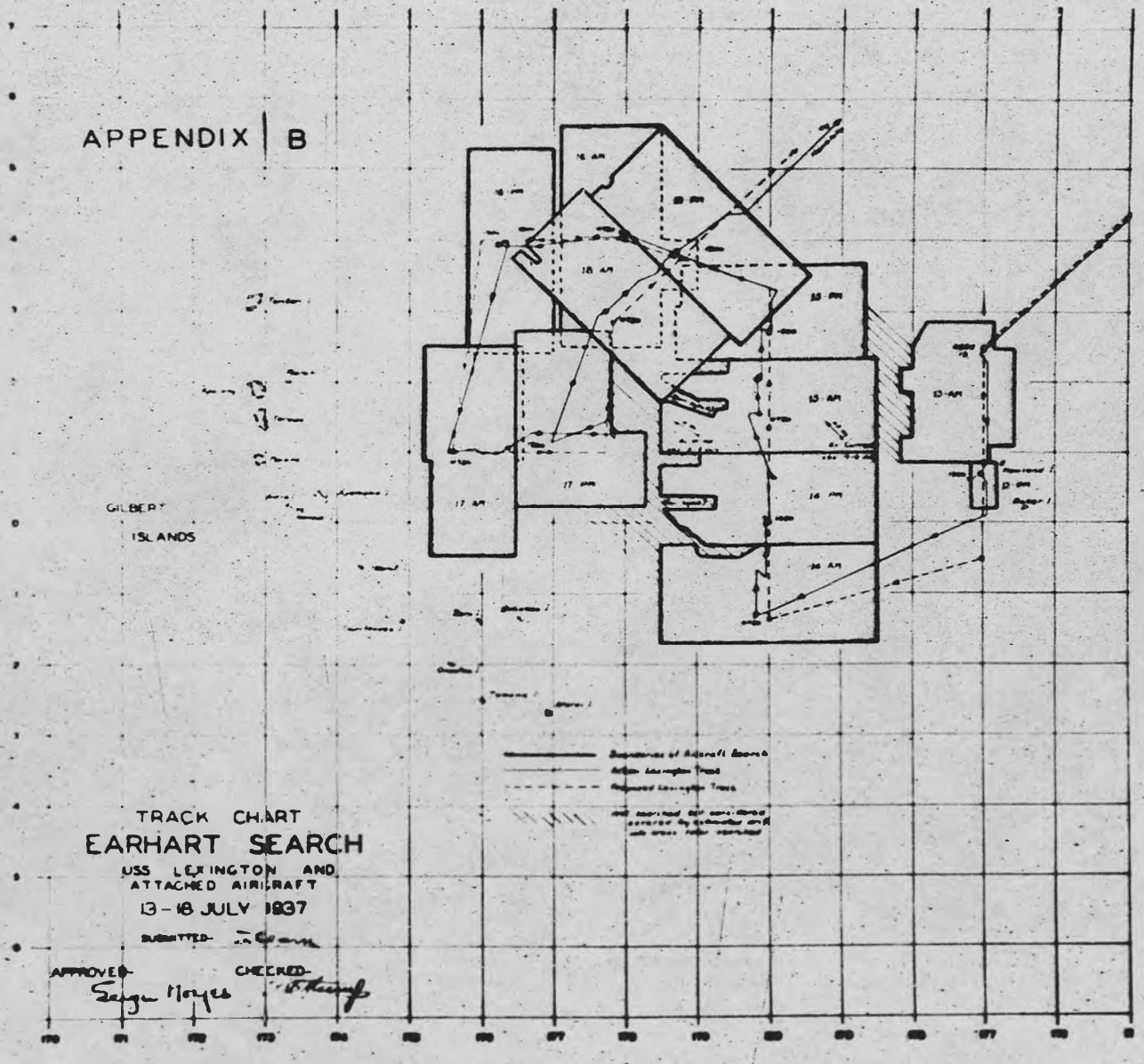
LEIGH NOYES
Captain, U.S. Navy,
Commanding, U.S.S. Lexington.

APPENDIX A



EARHART FLIGHT INFORMATION

APPENDIX B



TRACK CHART

EARHART SEARCH

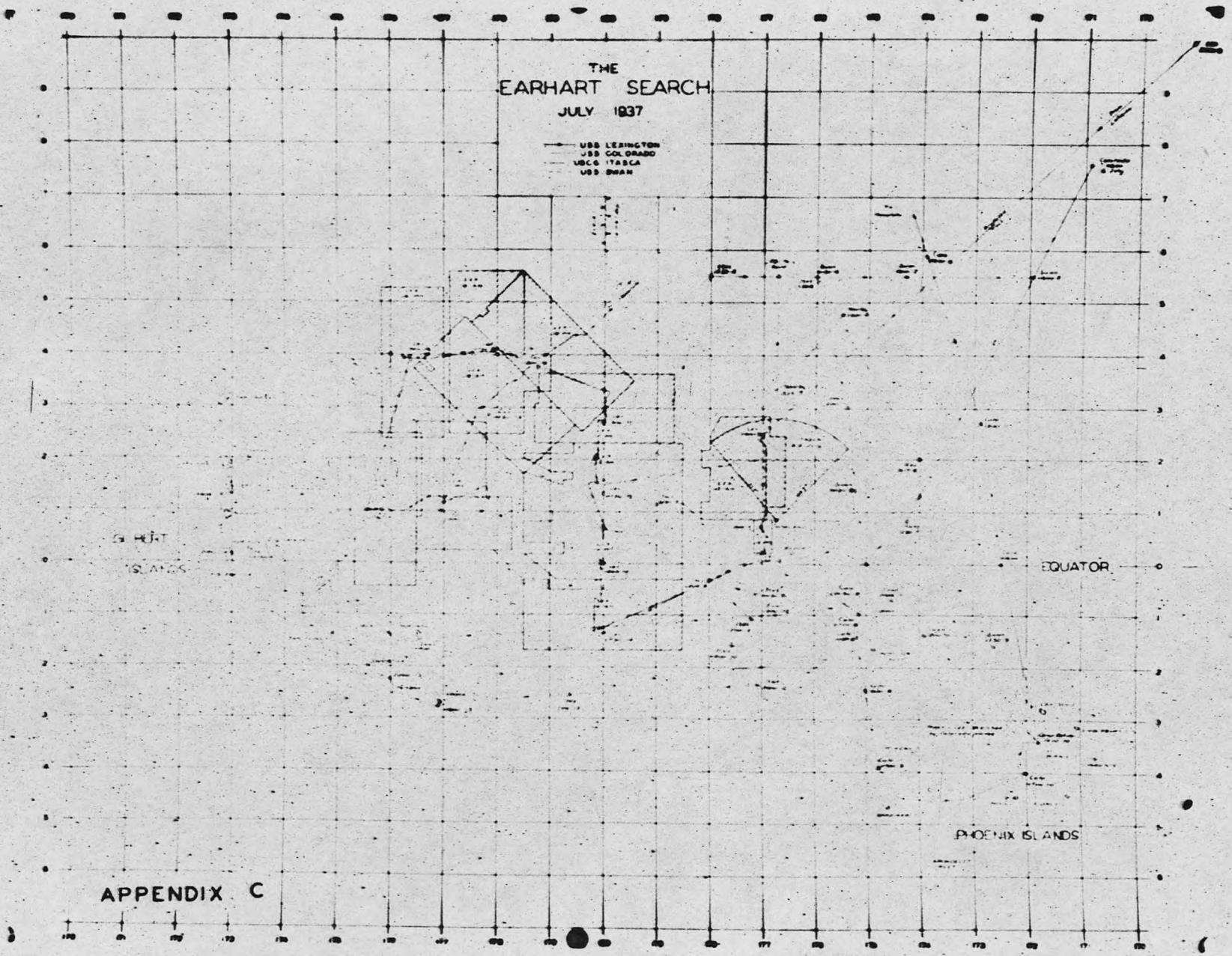
USS LEXINGTON AND
ATTACHED AIRCRAFT

13 - 18 JULY 1937

SUBMITTED

APPROVED Sayre Noyes

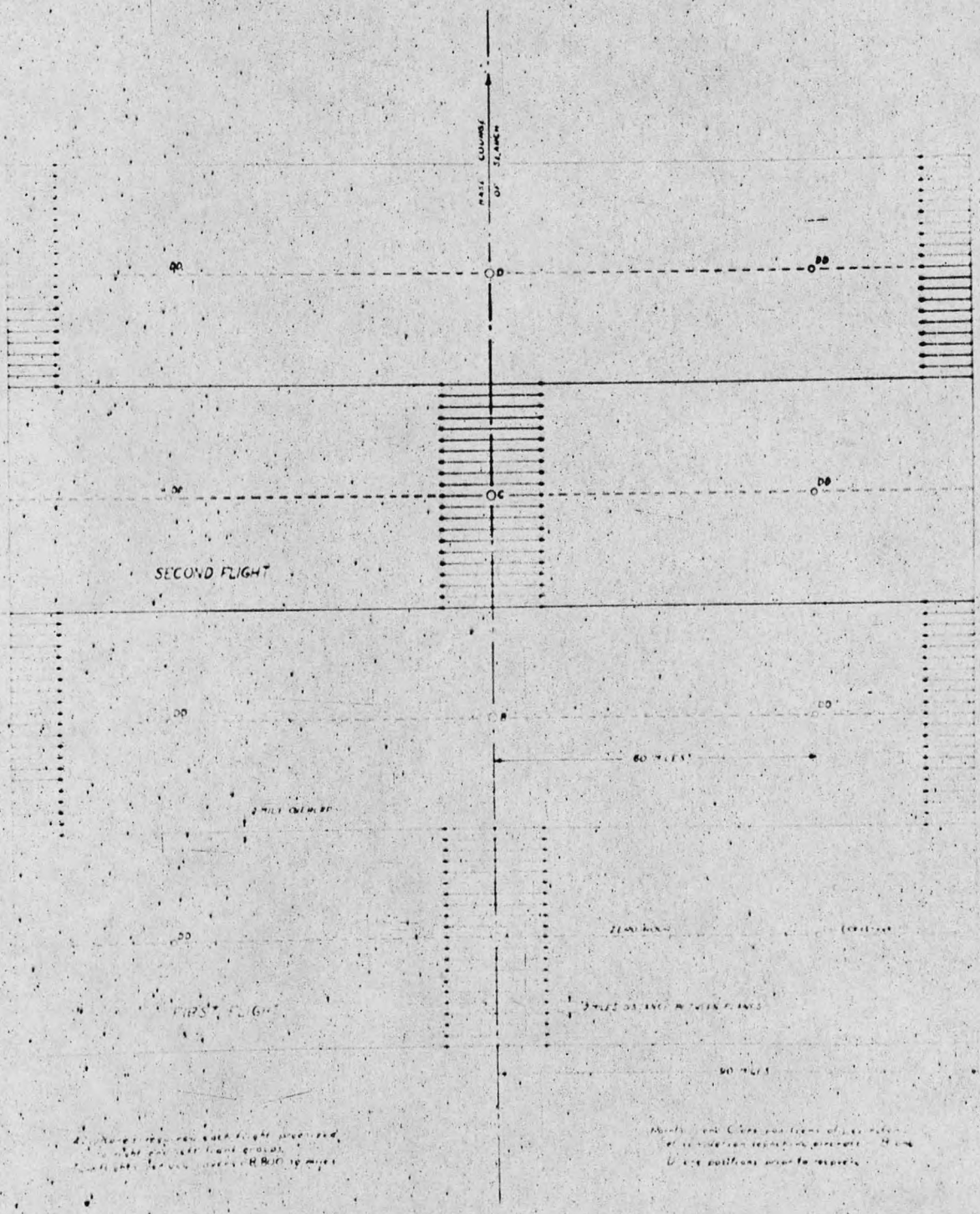
CHECKED


THE
EARHART SEARCH
JULY 1937
USS LEXINGTON
USS COLORADO
USCG ITASCA
USS SWAN
EQUATOR
PHOENIX ISLANDS

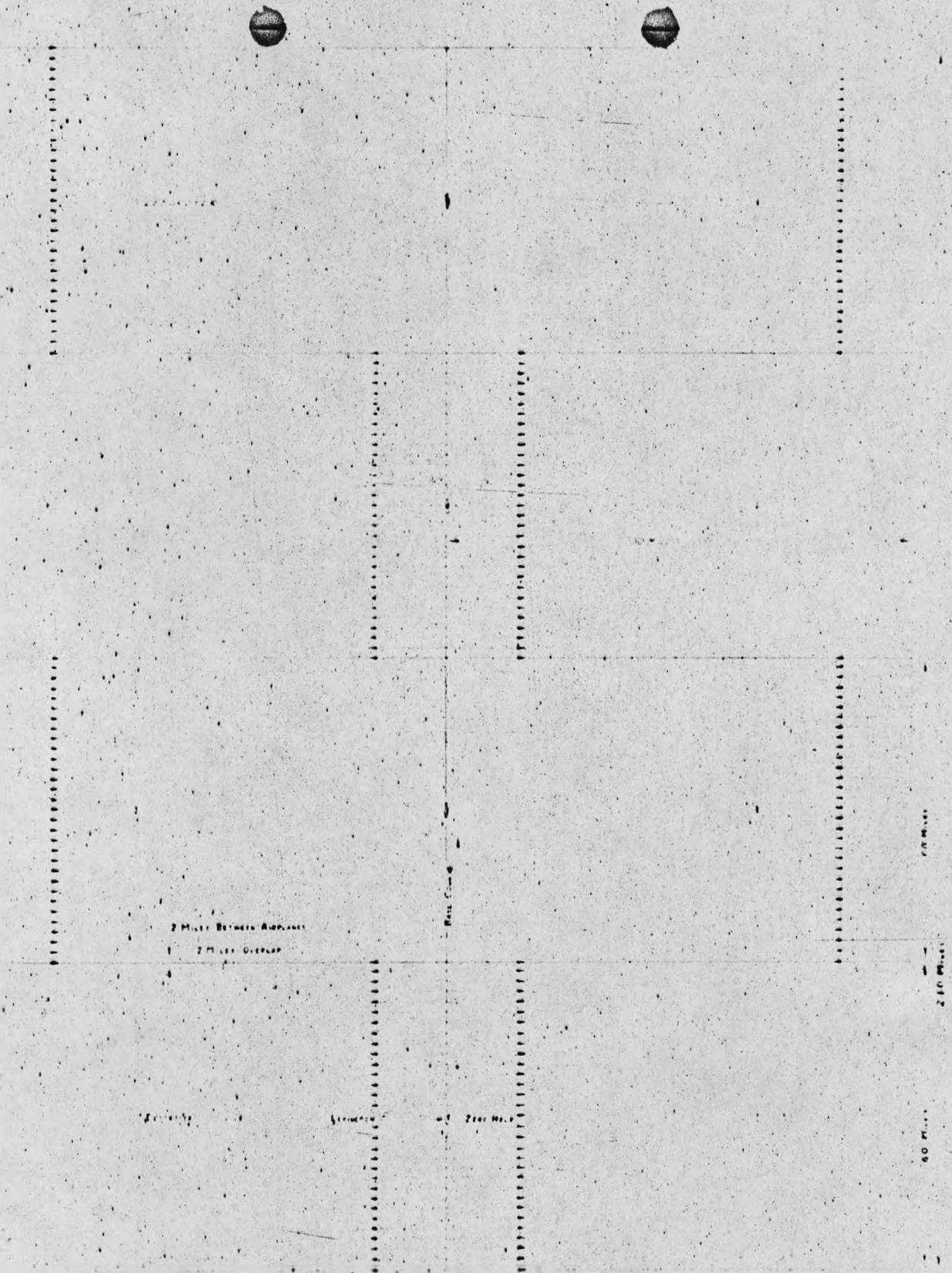
APPENDIX C

Search Plan No 1

SCALE 1 IN = 10 MILES



Appendix (D)



Appendix (D). SEARCH PLAN 2

LEFT GROUP

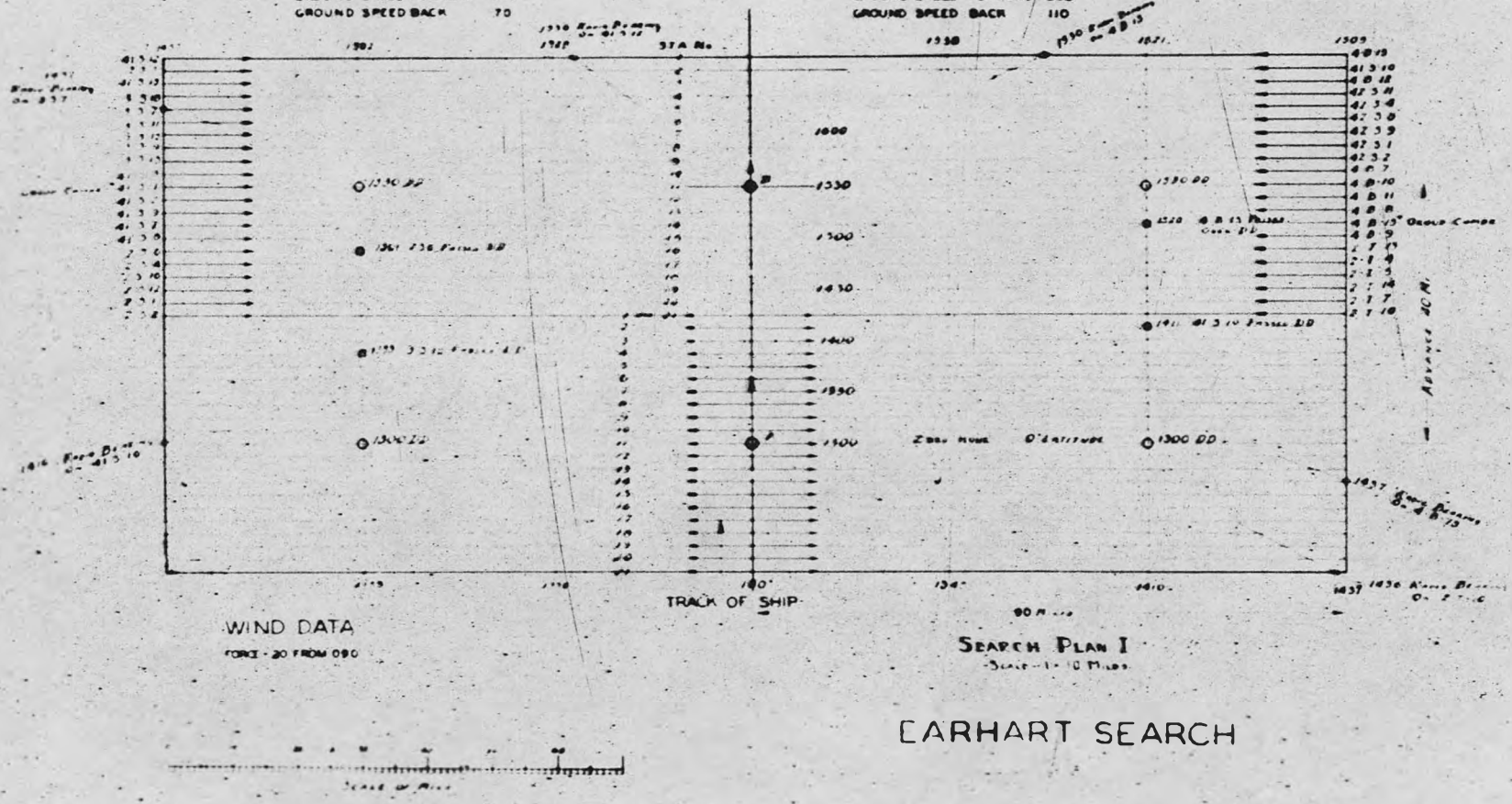
	ACTUAL	ESTIMATED
COMMENCED SEARCH	1320	1320
COMMENCED 2ND LEG	1410	1409
COMMENCED 3RD LEG	1437	1437
ARRIVAL AT SHIP	1553	1554

TRUE AIR SPEED	90
GROUND SPEED OUT	110
GROUND SPEED FORWARD	875
GROUND SPEED BACK	70

RIGHT GROUP

	ACTUAL	ESTIMATED
COMMENCED SEARCH	1320	1320
COMMENCED 2ND LEG	1437	1437
COMMENCED 3RD LEG	1505	1505
ARRIVAL AT SHIP	1552	1554

TRUE AIR SPEED	90
GROUND SPEED OUT	70
GROUND SPEED FORWARD	875
GROUND SPEED BACK	110



EARHART SEARCH

PLOTTING SHEET

APPENDIX E

AIR PLOT

USS LEXINGTON