



**THIS IS A RE-CREATION OF THE MISSION TO PHOTOGRAPH THE JAPANESE MANDATED ISLAND OF TRUK ATOLL OUTLINED IN FRED GOERNER'S 1967 BOOK, *THE SEARCH FOR AMELIA EARHART*, IN CHAPTER 23, PAGE 311.**

**MAXIMUM RANGE AIRSPEED**

HOUR	IAS	TAS	GS	MILEAGE TRAVELED	BURN RATE	FUEL #'S BURNED	FUEL REMAIN	A/C WEIGHT	ALT
0	0	0	0	0	0	0	1100 GAL	14,700	8,000
Winds 090/29 mph									
1	177	205	197	191*	66.5 *	429	1028.5	14,271	8,000
2	187	217	209	400	66.5	399	962	13,872	8,000

Position report at 0218 GMT received by Lea, New Guinea.

3	197	236	228	628	66.5	399	895.5	13,473	10,000
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Position report at 0319 GMT received by Lea, New Guinea.

4	181	217	209	837	59.5	357	836	13,116	10,000
4+55	181	217	209	1,030	58.5	354	777.5	12,762	10,000

They reached Point A at 0455 GMT and turned from course 015 degrees to 083 degrees. Point A is located at 150 degrees 47 minutes East/ 7 degrees 18 minutes North.\*\*

5+01	200	240	211	1,048	69.75	36	771.5	12,726	10,000
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She made a position report at 0519 GMT it was received at Lae, New Guinea.

5+22	200	240	211	1,126	69.75	132	746	12,594	10,000
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They reached Point B at 0522 GMT and turned to a course of 122 degrees. Point B is located at 152 degrees 06 minutes East/ 7 degrees 30 minutes North.\*\*\*

5+59	200	240	216	1,263	69.75	288	701.5	12,306	10,000
6	200	240	216	1,479	65.50	395	636	11,911	10,000
7	200	240	216	1,695	61.25	368	574.5	11,543	10,000

Winds are 090/24 mph

At 0718 GMT she made a position report- 4 degrees 20 minutes South/ 159 degrees 42 minutes East. The report was received at Lae, New Guinea. Her actual location was 4 degrees 14 minutes North/ 157 degrees 14 minutes East.

8	200	240	219	1,914	57.75	347	516.75	11,196	10,000
9	200	240	219	2,133	54.25	326	462.5	10,870	10,000
10	200	240	219	2,352	51.25	308	411	10,562	10,000

She spotted the freighter *SS Myrtle Bank* at 0959 GMT 2349 miles into the journey. They flew over the *SS Myrtle Bank* at 1001 GMT.

11+16	200	240	219	2,410	48	60	401	10,502	10,000
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They reached Point C at 1116 GMT. Point C is where the course intersects the publicized course line at 2 degrees 35 minutes South/ 167 degrees 47 minutes East. Winds are 090/24 mph

11+59	133	159.6	136	2,546	37	222	364	10,280	10,000
12	133	159.6	136	2,682	36	216	328	10,064	10,000
13	133	159.6	136	2,818	35	210	293	9,854	10,000
14+37	133	159.6	136	2,904	34.3	126	272	9,728	10,000

They reached Point D at 1437 GMT- the village of Buriki, Tabiteuea Island. Winds are 090/20 mph

14+59	133	160	140	2957	34.3	80	258.7	9,648	10,000
15	133	160	140	3,097	34.3	206	224.4	9,442	10,000
16	133	160	140	3,237	34.3	206	190.1	9,236	10,000
17+32	133	160	140	3,311	34.3	110	171.8	9,126	10,000
17+55	133	160	140	3,420	34.3	79	158.7	9,047	10,000
17+59	133	160	140	3,430	34.3	17	155.8	9,030	8,000

She would have started a slow descent for Howland at 1800 GMT and descended to 1000 feet. She most likely did a reduced power descent to conserve as much fuel as possible instead of the powered descent recommended by Kelly Johnson.

18	130	137.8	114	3,534	34.3	206	121.5	8,846	1,000
19+11	130	132.6	140	3,555	34.3	38	115.2	8,808	1,000

She reported that gas was running low at 1911 GMT. They would have been 93 miles SSE of Howland Island. \*\*\*\*

19+16	130	132.6	140	3,567	34.3	17	112.3	8,791	1,000
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She would have flown another 5 minutes north and then turned southeast. They would have been 81 miles SSE of Howland Island. She would have then reversed course and proceeded south on the 337/157 sun line.

At 1926 GMT they would have been 101 miles SSE of Howland heading away.

19+26	130	132.6	121	3,597	34.3	34	106.6	8,757	1,000
19+41	130	132.6	121	3,567	34.3	51	98	8,706	1,000

At 1941 GMT the half hour was up and they had failed to locate Howland Island. At this point she would have climbed to 8000 feet and headed for her alternate landing area-Gardner Island.

19+59	130	132.6	123	3,605	36.3	72	86	8,634	8,000
20+45	140	162.4	152	3,871	34.3	154	60	8,480	8,000

They would have reached Gardner Island at 2045 GMT with 60 gallons of fuel remaining.

She made radio calls after landing. Fuel consumption to run the right engine at 900 rpm to charge the batteries was 6 gallons per hour. This would have translated into 10 hours of radio transmission time plus the time it would take to run to batteries completely down.

She landed with 1 hour and 45 minutes of fuel remaining. At 8000 feet and 140 mph she could have flown another 266 miles.

If the winds at the *USS Ontario* were 058/26 knots (058/30mph) it would have increased the distance covered on the leg from Point B to Point C by 27 miles. All examples we have seen don't make any allowance for the winds to die down during the hours of darkness. Another point which would have increased the distance traveled.

It is also entirely possible that there was a south to north wind of 15-20 knots from New Guinea north to Truk Atoll during this time. A 15 knot tail wind would have resulted in a 222 mph ground speed for the first three hours of the flight, instead of 204 mph. Hours four and five would have had a ground speed of 257. Thereby this would have resulted in an additional 140 miles covered in 5 hours. The winds from the south are seasonal in that area during the month of July. An additional 140 miles in the first 5 hours would have resulted in a savings of 44 gallons of fuel plus fuel savings in the leg between Points A and B. A gain of 15 miles would also have resulted in the leg from Points B to C. This was due to the wind which would have been prevalent in the first 2 hours of the Point B to Point C leg. These savings would have more than negated any adverse effects by a wind of 058/26 knots.

\* 6 miles is deducted for the difference in airspeed between 177 and 130 for the 16 minutes required for climb out. An additional 5 gallons of fuel over and above 66.5 gallons per hour is added to the 1<sup>st</sup> hour's fuel burned. This adjustment is to compensate for take-off and climb out.

\*\* Point A can not only be located by celestial navigation, but also by radio navigation. It is at the

**intersection of the 135 degree bearing from Guam (586 miles away) and the 234 degree bearing from Wake Island (1351 miles away). According to a March 22, 1936 article authored by Fred Noonan that was printed in the Baltimore Sun on page MM4, "...the engineers were successful in increasing the range (of the Pacific radio beacons) to the remarkable distance of 2000 miles."**

**\*\*\* Point B can also be located by radio navigation. It is at the intersection of the 128 degree radio bearing from Guam (648 miles) and the 232 degree bearing from Wake (1270 miles). The course line parallels the 123 bearing from Guam and could be received at Point C on the publicized course line at 1925 miles from Guam.**

**\*\*\*\* At 1912 they had 3 hours and 25 minutes of fuel remaining for the trip to Gardner, which was 2 hours and 22 minutes away (worst case calculations). That would leave her an hour of fuel as a reserve (a little over 40 %). She would have been cutting her reserve time down, but obviously she thought that finding Howland Island was more important than landing at Gardner with an hour of fuel remaining. Since they hadn't found Howland by 1942 GMT, she would have given up and made for Gardner as her last resort.**

**We might mention at this point that Gardner Island is located on the 158.44 radio bearing to American Samoa (Tutuila Radio), a distance of 712 miles. Since Pan Am didn't have any routes to American Samoa, we don't believe the beacon could be received 2000 miles away. BUT, they did have beacons for ships which were good to 600 miles (more at 8-10,000 feet). It is strange that Betty (a 14 year old girl in Tampa, Florida who reports listening to Amelia for an hour and a half one afternoon after her disappearance) would have noted the number 158.44 in her partial transcript of the incident.**

**At Maximum Range Airspeed they could have flown 22 hours and 30 minutes and covered 4137 miles with all circumstances as outline.**