

**NATIONAL TRANSPORTATION SAFETY BOARD**  
Vehicle Recorder Division  
Washington, D.C. 20594

July 19, 2016

## **Personal Electronic Devices and Cameras**

### **Group Chairman's Factual Report By Bill Tuccio, Ph.D.**

#### **1. EVENT SUMMARY**

Location: Ketchikan, Alaska  
Date: June 25, 2015  
Aircraft: de Havilland DHC-3  
Registration: N270PA  
Operator: Promech Air, Inc.  
NTSB Number: ANC15MA041

On June 25, 2015, about 1215 Alaska daylight time (AKDT), a single-engine, turbine-powered, float-equipped de Havilland DHC-3 (Otter) airplane, N270PA, sustained substantial damage when it impacted mountainous tree-covered terrain, about 24 miles northeast of Ketchikan, Alaska. The airplane was being operated under the provisions of 14 *Code of Federal Regulations* Part 135, as an on-demand visual flight rules (VFR) sightseeing flight when the accident occurred. The airplane was owned by Pantechicon Aviation, of Minden, Nevada, and operated by Promech Air, Inc., of Ketchikan. The commercial pilot and eight passengers were fatally injured. Marginal visual meteorological conditions were reported in the area at the time of the accident. The flight departed a floating dock located in Rudyerd Bay about 44 miles northeast of Ketchikan about 1200 for a tour through Misty Fjords National Monument Wilderness. A company VFR flight plan was in effect. At the time of the accident, the flight was returning to the operator's base at the Ketchikan Harbor Seaplane Base, Ketchikan.

#### **2. GROUP**

On December 1, 2015, a personal electronic devices (PEDs) group convened.

Chairman: Dr. Bill Tuccio  
Aerospace Engineer  
National Transportation Safety Board (NTSB)

Member: Chris Shaver  
Air Safety Investigator  
NTSB

Member: Dr. Bill Bramble  
Human Performance Group Chairman  
NTSB

Member: Patrick Hempen  
Air Safety Investigator  
Federal Aviation Administration

Member: Clark Hassell  
Director of Operations  
Promech Air, Inc.

Earlier drafts of this report and associated data were reviewed by the Investigator-in-Charge (IIC) and the following group chairmen: Meteorology, Operations, and Survival Factors.

### 3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received the following PEDs, cameras, and files:

Device Manufacturer/Model:	Apple iPhone 6
Serial Number:	F17PMM3MG5MD
Identification:	TDA-002
Device Manufacturer/Model:	Apple iPhone 6
Serial Number:	DNQPJ2XBG5MD
Identification:	PED-001
Device Manufacturer/Model:	Apple iPhone 5
Serial Number:	C36K4L4FDTTN
Identification:	PED-002
Device Manufacturer/Model:	Apple iPad Air
Serial Number:	C36K4L4FDTTN
Identification:	PED-003
Device Manufacturer/Model:	Canon Rebel EOS Xt
Serial Number:	Not Determined
Identification:	IMG-004
Device Manufacturer/Model:	Nikon SLR Camera
Serial Number:	Not Determined
Identification:	IMG-005
Device Manufacturer/Model:	Apple iPhone 6
Serial Number:	F17P18X5G5MH
Identification:	PED-006

Device Manufacturer/Model: Apple iPhone 4S  
Serial Number: Not Determined  
Identification: PED-007

Device Manufacturer/Model: Motorola Droid  
IMSI: 311480073869634  
Identification: TDA-001

Device Manufacturer/Model: Witness Photos

### **3.1. Device Descriptions**

PEDs are a category of devices comprised primarily of portable computing devices and mobile phones. Portable computing devices are typically capable of internet access, email, messaging services, and can run user-installed applications to perform specific tasks. Depending on the model, mobile phones can perform many of the same tasks as portable computing devices, plus have photograph, video, voice call, and text messaging capabilities. PED user and system data is typically stored on non-volatile memory<sup>1</sup> and can be accessed through manufacturer-provided interfaces.

Cameras related to this investigation were digital SLR cameras. The cameras record to removable storage devices.

Witness photos were digital photos supplied by passengers on a prior flight with the accident pilot.

### **3.2. Data Recovery**

All devices exhibited varying amounts of damage. All devices were repaired sufficient to download information. The camera recordings (IMG-004 and IMG-005) were accessed by their undamaged, removable, solid-state storage. Other PEDs were repaired and, when necessary, passwords were obtained from the surviving families. Figures 1 through 9 show photos of each of the recovered devices.

The pilot's phone (TDA-001) was sent to a commercial forensic recovery vendor and successfully recovered. The forensic vendor provided a report expressed in UTC time along with various files that expanded on information in the recovery report.

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<sup>1</sup> Non-volatile memory is semiconductor memory that does not require external power for data retention.



**Figure 1. Apple iPhone 6 (TDA-002).**



**Figure 2. Apple iPhone 6 (PED-001).**



Figure 3. Apple iPhone 5 (PED-002).

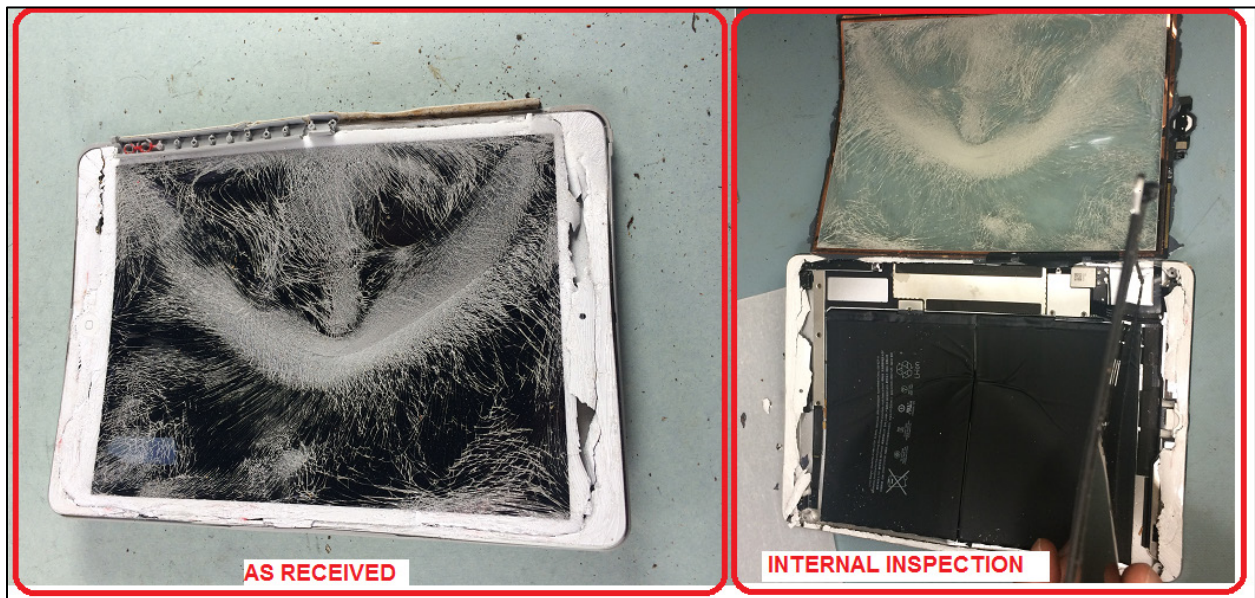


Figure 4. Apple iPad Air (PED-003) (as received, left; internal inspection, right).



Figure 5. Canon Rebel EOS Xt (IMG-004) (removable storage shown in inset).



Figure 6. Nikon SLR Camera (IMG-005).



**Figure 7. Apple iPhone 6 (PED-006).**



**Figure 8. Apple iPhone 4S (PED-007).**



**Figure 9. Motorola Droid (TDA-001).**

#### **4. AIRCRAFT REFERENCE INFORMATION**

Figure 10 provides a reference photo of the accident aircraft, N270PA<sup>2</sup>. Figure 11 provides a reference of seating positions used in this report.



**LEFT SIDE**

**RIGHT SIDE**

**Figure 10. Accident aircraft.**

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<sup>2</sup> Photos provided by IIC.

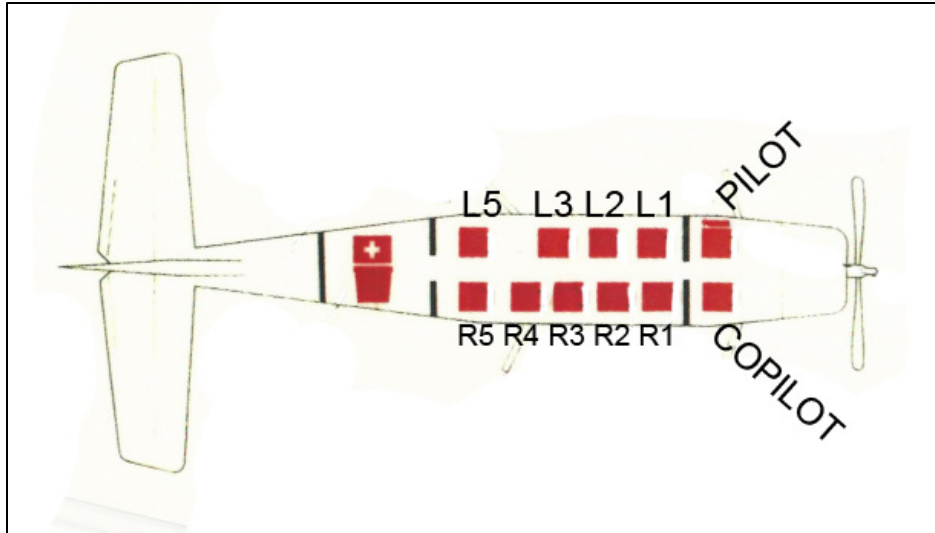


Figure 11. Seating position reference.

## 5. ACCIDENT FLIGHT DEVICE CONTENTS

### 5.1. Summary

Table 1 provides a summary of pertinent data recovered from each device. Devices PED-003 and PED-006 were operated by the same person. All content in this section of the report was from the accident flight.

Table 1. Summary of pertinent data recovered.

Identifier	Seating Position <sup>a</sup>	Content Summary
TDA-002	Not Applicable	No accident flight content
PED-001	L2	Inflight photos (including interior aft of the forward bulkhead); 20-second inflight video; one completely obscured photo about four hours after the accident
PED-002	L5	Inflight photos (including a photo of a female passenger)
PED-003	L1	Inflight photos (including interior, selfies, and photo of male passenger in cockpit); 11-minute, 7-second inflight video
IMG-004	R1	Inflight photos, aircraft exterior before boarding
IMG-005	COPILOT	Inflight photos (including passengers in cabin and instrument panel)
PED-006	L1	Inflight photos (including interior and photos of male passenger in cockpit)
PED-007	Not Applicable	No accident flight content
TDA-001	PILOT	Pilot history (no pertinent media content)

<sup>a</sup>When possible, seating position was determined from a composite of collected information; otherwise a description of the side of the aircraft was used.

## 5.2. Time Correlation

In agreement with the IIC, the authoritative timing for this report was the Chelton<sup>3</sup> Integrated Display Units (IDUs) Global Positioning System (GPS) recorded time.<sup>4</sup> Chelton IDU time was recorded in UTC and converted to AKDT by subtracting 8 hours. Table 2 summarizes the synchronization method used for each device.

Table 2. Time Correlation.

Identifier	Offset	Method
TDA-002	Not Applicable	No accident flight content
PED-001	None	Used iPhone recorded time, verified accurate to within +/- 30 seconds
PED-002	None	Used iPhone recorded time, verified accurate to within +/- 1 second
PED-003	+1204:30	For photos, used iPhone recorded time, verified accurate to within +/- 1 second; for video, added offset to video elapsed time (offset determined by comparison of multiple Chelton IDU data points to video imagery)
IMG-004	+1214:27	Aligned photo IMG_1266 from device IMG-004 with photo DSC_0724 from device IMG-005
IMG-005	+1059:37	Aligned photo of Chelton IDU (DSC_0709) with Chelton IDU time
PED-006	None	Used iPhone recorded time, verified accurate to within +/- 30 seconds
PED-007	Not Applicable	No accident flight content
TDA-001	-0800:00	Offset from UTC to AKDT

## 5.3. Methodology

All recovered content was reviewed and identified as pertinent or non-pertinent. Pertinent content was then described in detail, starting with the 11-minute 7-second video from PED-003. Using a saturation point approach,<sup>5</sup> each additional piece of content was described to the extent it added new information to the investigation.

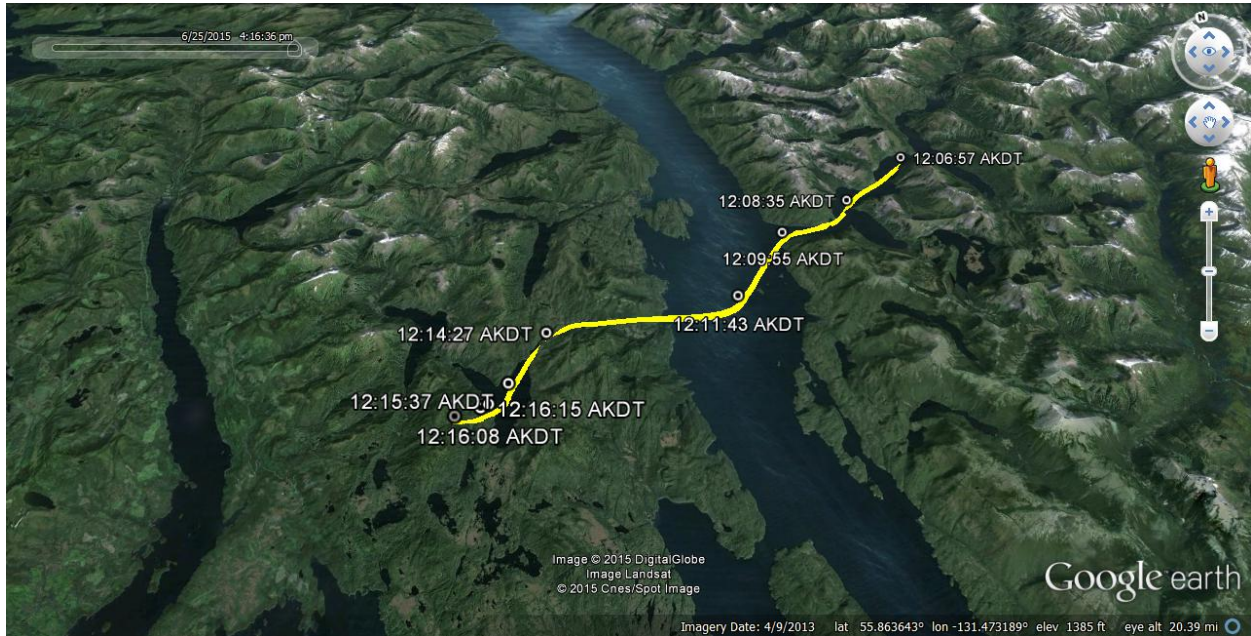
## 5.4. Reference Flight Path

Figures 12 and 13 show a Google Earth overlay of the accident flight path obtained from the Chelton IDUs. The weather, season, and lighting conditions shown are not representative of the conditions at the time of the accident. Select points are annotated with times to help elaborate upon descriptions in the following sections.

<sup>3</sup> Units were originally made by "Wulfsburg Electronics," acquired by Chelton, then acquired by Gensys Aerosystems.

<sup>4</sup> See the Cockpit Displays Factual Report in the public docket for this accident.

<sup>5</sup> See Vogt, W. P., D. C. Gardner, and L. Haeffele M. 2012. *When to use what research design*. New York, NY: Guilford Press.



**Figure 12. Entire accident flight.**



**Figure 13. End of accident flight.**

## 5.5. Content Description

Collectively, the recorded content contained video and images from before boarding N270PA through 1216:15 AKDT. The images show the aircraft proceeding into

progressively reducing cloud ceilings and decreasing visibility.<sup>6</sup> Appendix A chronologically summarizes all images referenced in this report.

### 5.5.1. PED-003: Apple iPad: 11-minute 7-second Video

The following is a transcript of the iPad video taken from the L1 position. The video began shortly before the takeoff run, and continued to the center of Ella Lake.

1204:30: Passenger was seated in position L1, forward of wing strut. Generally, the recording was pointed slight left and forward. Recording began when N270PA was water taxiing for takeoff.

1204:32: Camera panned from left to right, showing the forward interior of the aircraft and the male passenger in the COPILOT seat. As the camera panned, directly in front of the camera was a passenger briefing placard similar to the exemplar shown in figure 14. The pilot's right arm was visible. The passenger was wearing rimless eyeglasses and had his headsets wrapped around his neck (below and not on his ears). The passenger's hands were at his side and not on the control wheel.

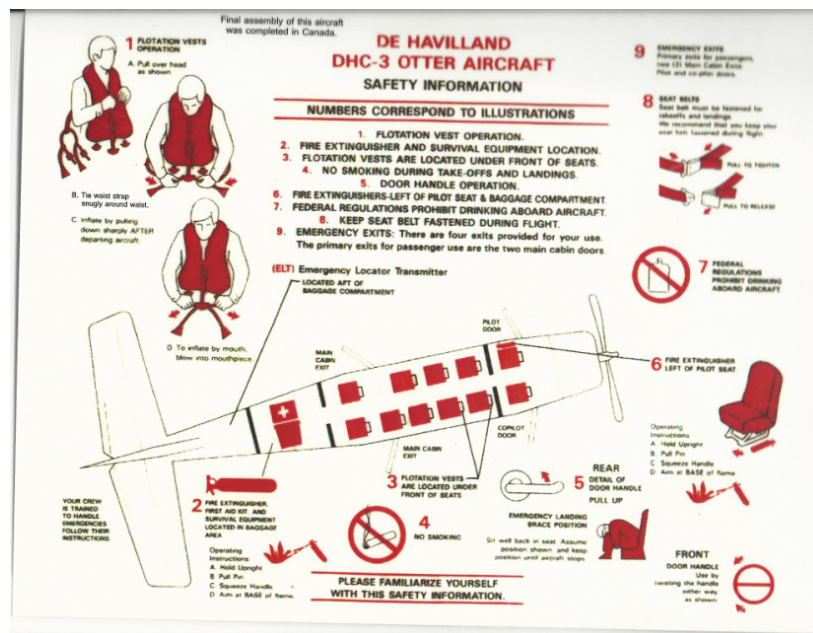


Figure 14. Exemplar briefing card.

1204:39: The camera continued to pan to the right and recorded passenger R1's hand holding an SLR camera (the camera was pointed out the window). The ring finger of the left hand had a silver-colored ring on it. The water outside was calm, with some ripples.

<sup>6</sup> FAA Advisory Circular AC 00-6A defines “visibility” as “The greatest distance one can see and identify prominent objects.” In all cases where visibility is referred to in this report, the visibility was a group consensus estimate of visibility, sometimes aided by measurement on digital maps.

1204:43: The camera panned left and again captured the cockpit. The windscreen contained numerous drops of water. The COPILOT-seated passenger was pointing his camera towards the pilot (though only the pilot's right elbow was intermittently visible).

1204:46: The camera returned to pointing outside (slight left and forward). The water surface was calm with some ripples and the visibility to the nearby shoreline (less than 2,000 feet away) was unobstructed. It was not possible to determine if any precipitation was present and there was no visible moisture on the side window. The pitot tube was visible protruding from the left wing.

1205:22: The engine sound increased, and N270PA began to accelerate parallel to the nearby shoreline.

1206:00: At about this time N270PA became airborne and climbed.

1206:18: While still below the nearby tree line, N270PA began a left turn towards the west. The inflight visibility was at least 3 miles and there were scattered scud clouds<sup>7</sup> at about 200 feet AGL forward and above the aircraft.

1206:43: In the trees to the left of the aircraft, scattered scud clouds were in contact with the trees (where the aircraft was over the water, the aircraft was clear of clouds).

1207:03: N270PA passed waterfalls (Bailey Falls) on the left.

1207:39: N270PA passed a small bay to the left (the local name for the terrain south of the bay is the "Amphitheatre"). Visibility was greater than 3 miles and scud clouds were in contact with trees on the southeast side of the bay and obscuring parts of the terrain in that area.

1207:59: The camera panned up towards a 3,000 foot MSL mountain peak (according to a topographic map). There were no clouds touching the peak and an overcast (of undetermined height) was visible above the peak.

1208:04: The camera panned back down towards the water. The water was nearly calm. No discernable precipitation was present.

1208:34: Left of N270PA was "Punch Bowl Cove." The visibility was greater than 3 miles in this direction and there were scattered scud clouds in the cove layered between 200 and 500 feet AGL, including some in contact with the trees. There was a higher overcast above. Higher peaks were partially obscured by clouds.

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<sup>7</sup> As used in this report, scud clouds mean small, ragged, cloud fragments. FAA Advisory Circular AC 00-6A defined scud as "Small detached masses of stratus fractus clouds below a layer of higher clouds, usually nimbostratus" and "low ragged clouds."

1209:04: N270PA passed slightly below a small area of scattered clouds. To the left of the flight path, a mountain on the left side of the aircraft was partially obscured by clouds.

1209:39: N270PA momentarily passed through a thin cloud that did not obscure the videographer's view of the terrain below.

1209:47: The motion of the propeller was visible in the front of the recorded image.

1209:53: As N270PA approached the channel, the west side of the channel was visible. Visibility was estimated to be at least 5 miles (figure 15).



**Figure 15. Frame at 1209:53 AKDT (frame 00-05-22.19.jpg).**

1209:55: Southwest from N270PA's position, the visibility was greater than 5 miles and the ceiling was above the aircraft. There were lower scattered scud clouds on the east and west sides of Behm Channel, and obscuring the higher peaks. N270PA passed over a small, thin cloud that did not completely obscure the videographer's view of the terrain below.

1210:19: Figure 16 shows a video frame at this time from the camera. The frame shows the southwest part of the channel relative to N270PA's track. There were lower scattered scud clouds on the east and west sides of the channel, and obscuring the higher peaks.



**Figure 16. Frame at 1210:19 AKDT (frame 00-05-48.15.jpg).**

1211:02: N270PA passed islands east of New Eddystone Rock, including passing over a FAA weather camera (Behm Canal Weather Camera).

1212:23: Figure 17 shows a video frame at this time from the camera. The frame shows the west part of the channel, slightly left of the future track of the aircraft. Lower scud clouds give way to denser clouds to the west, obscuring the higher terrain.



**Figure 17. Frame at 1212:23 AKDT (frame 00-07-53.13.jpg).**

1212:31: Figure 18 shows a video frame at this time from the camera (the camera had panned south southeast). The frame shows the south part of Behm Canal free of significant low-level cloud cover and visibility greater than 5 miles.



**Figure 18. Frame at 1212:31 AKDT (frame 00-08-01.06.jpg).**

1212:46: The aircraft arrived at the west side of Behm Canal, entering Ella Bay, over scattered to broken clouds below the aircraft. Below the clouds were narrow bodies of water and evergreen trees.

1212:53: A creek (Ella Creek) was clearly visible below the aircraft; however, there were scud clouds surrounding the creek that were in contact with the surrounding terrain. Some of the scattered clouds were below the aircraft.

1213:35: N270PA momentarily passed near scud clouds. The clouds did not completely obscure the photographer's view of the terrain.

Between 1213:35 and 1214:07 the aircraft passed near one or two thin scud clouds. At this time the aircraft was passing over Ella Narrows. There was a hill to the left of the aircraft, and the hill's ridgeline was visible.

1214:07: N270PA momentarily passed near or through thin scud clouds. The clouds did not completely obscure the videographer's view of the terrain.

1214:15: A few droplets of water began streaming outside of the videographer's window.

1214:20: Figure 19 shows a video frame at this time from the camera (the camera had panned up slightly). The camera was pointed towards the south. Broken clouds were visible at about the height of the airplane and extended to the top of the video frame. Higher terrain off the aircraft's left was obscured by clouds.



**Figure 19. Frame at 1214:20 AKDT (frame 00-09-50.10.jpg).**

1214:35: N270PA momentarily passed through thin scud clouds. The clouds did not completely obscure the photographer's view of the terrain.

1214:51: As N270PA approached the end of the Ella Narrows, forward (and left) of the aircraft, two ridge lines were visible through a slight obscuration to visibility.

1214:57: N270PA had reached the northeast corner of Ella Lake (just beyond the end of Ella Narrows). Figure 20 shows a video frame at this time from the camera. The camera was pointed left-forward, clouds were visible in contact with the hills just above the height of the aircraft, and they obscured the higher terrain. Forward of the aircraft, a ridgeline was visible (through obscured visibility), about 3 statute miles forward of the aircraft. A portion of the south shore of Lake Ella was also visible through the obscured visibility. The obscuration to visibility could not be determined, but may have been rain, drizzle, mist, fog, and/or haze.



**Figure 20. Frame at 1214:57 AKDT (frame 00-10-27.08.jpg).**

1215:19: N270PA began passing through mist to light rain. The duration of the rain (i.e., intermittent vs. continuous) could not be reliably determined.

1215:30: The shoreline of the south end of Ella Lake was visible through the obscured visibility. The field of view of the camera showed the east shoreline of Ella Lake and a small portion of the west shoreline (the remainder not visible due to the field of view of the camera).

1215:32: Figure 21 shows a video frame at this time from the camera. The camera was pointing forward enough to include the arc of the propeller. The cloud bases forward were obscuring the terrain and to the left were slightly above the aircraft. Objects were visible, obscured by light rain, about 2 statute miles forward of the aircraft.



**Figure 21. Frame at 1215:32 AKDT (frame 00-11-01.28.jpg).**

1215:38: The video ended when the aircraft was near the center of Ella Lake.

### 5.5.2. IMG-005: Nikon Camera: Multiple Still Photos

Table 3 provides detailed descriptions. Photos were all taken from the passenger in the COPILOT position and include the last photo recovered from the aircraft during the flight, at 1216:15 AKDT.


**Table 3. Detailed descriptions from IMG-005.**

<b>Filename</b>	<b>Time (AKDT)</b>	<b>Description</b>
DSC_0693.JPG	1203:16	Cockpit of N270PA at dock prior to start of flight. Engine and avionics were off and pilot was not in cockpit; the left (pilot's) door was open and the dock was visible. Standby altimeter was indicating 0 feet. TAWS Inhibit switch was in the inhibit position. Water droplets were visible on the windscreen.
DSC_0694.JPG	1203:23	N270PA was at the dock. Photo of left side of cabin. Female in L1 (photographer of PED-003 and PED-006); female in L2; male in L3 (L3 was wearing an orange, white, and grey jacket with an "SI" logo on the right arm). L1 was wearing her lap seatbelt and headset, and had an iPad with a keyboard in her lap (the iPad identified as PED-003). L1 was wearing a white jacket. L2 and L3 did not have their headsets on.
DSC_0697.JPG	1204:12	N270PA was pulling away from the dock. L1 had removed her jacket and was wearing a pink and black striped shirt (and still wearing her seatbelt). L2 was wearing her lap seatbelt. L1 had her headset on. L2 and L3 did not yet have their headsets on. Dock was wet.
DSC_0700.JPG	1207:04	Zoomed image of L1 holding iPad with keyboard. L2 was wearing headset and sunglasses.
DSC_0701.JPG	1207:10	N207PA in flight, photo out of the front right part of the right windscreen. Visibility greater than 5 miles with scattered low scud clouds, some in contact with the surrounding hills. Overcast skies, ceilings generally above the terrain; although, some mountain peaks were obscured.
DSC_0703.JPG	1207:30	Left facing photo, included pilot's face (profile), part of Chelton IDU displays, and exterior. Scud clouds of unknown sky coverage were visible below the aircraft altitude. The pilot was wearing black rimmed glasses. Although viewed from an oblique angle, no significant tinting was visible in the eyeglasses of the pilot. TAWS Inhibit switch was in the inhibit position.
DSC_0704.JPG	1207:41	Forward facing photo. Propeller arc visible. Visibility was at least 5 miles. Few scud clouds in contact with the trees to the right of the aircraft at about the same altitude as the aircraft.
DSC_0708.JPG	1208:21	Close up image of windscreen (background was blurred). Drops of rain on windscreen.

Filename	Time (AKDT)	Description
DSC_0709.JPG	1208:35	Image of cockpit. Left Chelton IDU configured as PFD with terrain features displayed. Right Chelton IDU configured as a moving map with red and yellow terrain color highlighting ahead of the aircraft position on either side of the Ruyard Bay displayed on the unit. Fuel flow 55.1 gallons per hour. Standby altimeter read about 550 feet. TAWS inhibit switch was set to inhibit. Torque read 44 psi. RPM read 1,800. ITT read 650 (undetermined units). N1 read 96%. Analog clock read about 1209:06. Amps/Volt gauge was positioned at about 26 Amps (undetermined if gauge was reading Amps or Volts). Analog airspeed read about 135 mph. There was a "CO-DETECTOR" below the clock with a date of "5-8-15" written on it. See figure 22.



Figure 22. Photo at 1208:35 AKDT. DSC\_0709.JPG.

Filename	Time (AKDT)	Description
DSC_0710.JPG	1208:57	Forward view across the channel. Mountains on the west side of the channel (where the aircraft would be at about 1212:43 AKDT) were partially obscured. There was a lower scattered scud layer to the aircraft's left (partially obscuring terrain) and another scattered scud layer towards the west side of Behm Canal; the scud layers extended from at or below the aircraft and continued vertically into a higher overcast. See figure 23.
 <p data-bbox="451 1163 1170 1192"><b>Figure 23. Photo at 1208:57 AKDT. Photo DSC_0710.JPG.</b></p>		
DSC_0718.JPG	1212:17	View towards the north, towards Revillagigedo Island. Scattered scud clouds below the aircraft altitude. The top of Revillagigedo Island was visible below a higher overcast.

<b>Filename</b>	<b>Time (AKDT)</b>	<b>Description</b>
DSC_0719.JPG	1212:48	View of partially obscured mountain tops above the aircraft and scattered scud clouds below the aircraft. See figure 24.



**Figure 24. Photo at 1212:48 AKDT. Photo DSC\_0719.JPG.**

Filename	Time (AKDT)	Description
DSC_0721.JPG	1213:47	Downward oriented photo, includes forward part of right float. Lower Ella Lake visible. Visibility in the direction of the flight path had deteriorated relative to the visibility crossing Behm Canal (i.e., greying out). Scattered scud clouds in hills to the north were in contact with trees. See figure 25.



Figure 25. Photo at 1213:47 AKDT. Photo DSC\_0721.JPG.

<b>Filename</b>	<b>Time (AKDT)</b>	<b>Description</b>
DSC_0725.JPG	1216:08	Photo showing evergreen trees. Visibility partially obstructed by thin cloud cover. Vantage point is downward. See figure 26.



**Figure 26. Photo at 1216:08 AKDT. Photo DSC\_0725.JPG.**

Filename	Time (AKDT)	Description
DSC_0726.JPG	1216:15	Last image from N270PA. Part of right cockpit windscreen was visible. Rain on windscreen, no forward visibility. Propeller arc visible. Lower right portion of windscreen contained a darker area, similar to mostly obscured terrain. See figure 27.





Figure 27. Photo at 1216:15 AKDT. Photo DSC\_0726.JPG.

### 5.5.3. IMG-004: Canon Rebel Camera: Multiple Still Photos

Table 4 provides detailed descriptions. Photos were all taken from the passenger in the R1 position.

**Table 4. Detailed descriptions from IMG-004.**

Filename	Time (AKDT)	Description
IMG_1264.JPG	1212:07	Northwesterly view of west side of Behm Canal. Scattered scud clouds below the altitude of the airplane along the coastline. See figure 28.
 <p data-bbox="451 961 1170 995"><b>Figure 28. Photo at 1212:07 AKDT. Photo IMG_1264.JPG.</b></p>		
IMG_1265.JPG	1214:06	Downward facing photo. Scud clouds below the plane partially obscure the terrain below and to the sides of N270PA. See figure 29.
 <p data-bbox="451 1780 1170 1814"><b>Figure 29. Photo at 1214:06 AKDT. Photo IMG_1265.JPG.</b></p>		

#### 5.5.4. PED-002: iPhone 5: Multiple Still Photos

Table 5 provides detailed descriptions. Photos were all taken from the passenger in the L5 position.

**Table 5. Detailed descriptions from PED-002.**

Filename	Time (AKDT)	Description
IMG_1075.JPG	1208:07	Photo of female passenger in the R5 position; headset was on. Wearing a white Columbia jacket.
IMG_1081.JPG	1213:03	Downward facing photo (left float in photo). Scattered scud clouds below N270PA.

#### 5.5.5. PED-001: iPhone 6: Multiple Still Photos and Video

Table 6 provides detailed descriptions. Images were all taken from the passenger in the L2 position.

**Table 6. Detailed descriptions from PED-001.**

Filename	Time (AKDT)	Description
IMG_0814.JPG	1206:02	Cabin interior facing from L2 towards the cockpit. Image outside of aircraft not visible due to bright light saturation. Passengers in L1, R1, and COPILOT positions partially visible. Pilot's right arm visible. Image was slightly blurred.
IMG_0816.MOV	1209:30	20-second video. Aircraft in flight, camera pointing toward southeast. Scattered scud clouds southeast of aircraft were in contact with trees; clouds at about the same altitude as N270PA.
IMG_0819.JPG	1633:05	Completely obscured photo; orange color. <sup>8</sup>

#### 5.5.6. PED-006: iPhone 6: Multiple Still Photos

Table 7 provides detailed descriptions. Images were all taken from the passenger in the L1 position.

**Table 7. Detailed descriptions from PED-006.**

Filename	Time (AKDT)	Description
IMG_0786.JPG	1202:57	Photo of passenger in COPILOT seat. Passenger lap belt visible and secured. Visibility out forward windscreen obscured; higher terrain was visible. Water droplets were on the right windscreen and on the portion of the left windscreen that was in the field of view of the photo. Fuel gauges showed: (a) front tank, about 33 gallons; (b) middle tank, about 90 gallons; and (c) rear tank, about 5 gallons.

<sup>8</sup> According to the IIC, this was about the time first responders arrived at the aircraft.

Filename	Time (AKDT)	Description
IMG_0788.JPG	1203:10	Photo of passenger in COPILOT seat. Passenger lap belt visible and secured; passenger looking at camera (device IMG-005). Shoulder harness clasp visible attached to secured lap belt. Visibility out forward windscreen obscured; higher terrain was visible. Water droplets were on the right windscreen and the portion of the left windscreen that was in the field of view of the photo.
IMG_0790.JPG	1209:33	Photo of passenger in COPILOT seat. Passenger lap belt visible and secured. Shoulder harness clasp visible attached to secured lap belt. Pilot right hand on stabilizer trim wheel. Broken clouds visible outside cockpit windscreen.

### 5.5.7. TDA-001: Motorola Droid: Pilot History

The Motorola Droid (TDA-001) smartphone belonged to the accident pilot. Content was reviewed to describe pilot activity in the three nights prior to the accident, as well as other specific details of interest to the investigation.

Table 8 summarizes span of smartphone activity for each day from June 22, 2015, through June 25, 2015. Activity was determined by a review of text message, phone, and internet browser history recovered from the phone. On all days, the first and last activity occurred on the internet browser history.<sup>9</sup>

**Table 8. Pilot smartphone activity from June 22, 2015 through June 25, 2015.**

Date	First activity (AKDT)	Last activity (AKDT)
6/25/15	0700	0743
6/24/15	0449	2229
6/23/15	0348	2112
6/22/15	0426	2038

Smartphone activities on June 25, 2015, the day of the accident, began at 0700 AKDT and continued until 0743 AKDT. There was no phone or text message activity on the day of the accident, only internet activity at the following types of websites: social media, email, used airplane websites, and two aviation websites:

- At 0743 AKDT, <http://aawu.arh.noaa.gov/displayTAF.php?site=PAKT>, “AAWU - Alaska Aviation Weather Unit.”
- At 0704 AKDT, <http://avcams.faa.gov>, “FAA Aviation Weather Cameras – Home.”

Other specific details pertinent to the investigation were as follows:<sup>10</sup>

- On June 24, 2015, at 2159 AKDT, the pilot sent a text message, “Hang in there, had fun, thanks.”

<sup>9</sup> In this report, activity was considered outbound calls and text messages (as opposed to inbound, which may not have had sufficient metadata to determine pilot interaction).

<sup>10</sup> Spelling errors as in original text messages.

- On June 24, 2015, at 2153 AKDT, the pilot sent a text message, “Thanks, going to bed, nite!”
- On June 24, 2015, at 2024 AKDT, the pilot sent a text message, “I move in tomorrow, so I'm selebrating tonite.”
- On June 24, 2015, at 1617 AKDT, the pilot sent a text message, “I how so, I just back from last flight and will call her.”
- On June 14, 2015, at 1926 AKDT, the pilot sent a text message to Promech Air's dispatcher, “Like I said disrard, I'm drunk, what the hell, about killed myself in the Misty's today needed to unwind.”
- On June 9, 2015, at 1859 AKDT, the pilot sent a text message, “Just chill in, first revenue flight in the Otter tomorrow!”
- On June 5, 2015, at 2239 AKDT, the pilot sent a text message, “Otter Check ride tomorrow.”
- On May 31, 2015, at 1925 AKDT, the pilot sent a text message, “Flying the Otter tomorrow!”

## **6. PRIOR FLIGHT INFORMATION**

### **6.1. Witness Photos**

Seven photos were supplied to the NTSB. According to the IIC, the photos were taken by a passenger on the prior flight (from Ketchikan to Rudyard Bay) in N270PA with the accident pilot. The metadata on the photos indicated the photos were taken on June 25, 2015 between 2326 and 2342 with an unknown time zone. Collectively, the photos show N270PA flying into progressively deteriorating weather conditions, as follows:

- From 2326 to 2327, visibility greater than 5 miles, below an overcast.
- At 2342, reduced visibility, below or in bases of clouds.
- At 2342, with no clearly identifiable visual landmarks, as shown in figure 30.



**Figure 30. Prior flight photo at 2342 on June 25, 2015.**

## **APPENDIX A**

### **Photo Chronological Summary**

This appendix provides a chronological summary of all photos in this report. Figure numbers reference the original figure number in the body of the report.



**Figure 30. Prior flight photo at 2342 on June 25, 2015.**



**Figure 22. Photo at 1208:35 AKDT. DSC\_0709.JPG.**



**Figure 23. Photo at 1208:57 AKDT. Photo DSC\_0710.JPG.**



**Figure 15. Frame at 1209:53 AKDT (frame 00-05-22.19.jpg).**



**Figure 16. Frame at 1210:19 AKDT (frame 00-05-48.15.jpg).**



**Figure 28. Photo at 1212:07 AKDT. Photo IMG\_1264.JPG.**



**Figure 17. Frame at 1212:23 AKDT (frame 00-07-53.13.jpg).**



**Figure 18. Frame at 1212:31 AKDT (frame 00-08-01.06.jpg).**



**Figure 24. Photo at 1212:48 AKDT. Photo DSC\_0719.JPG.**



**Figure 25. Photo at 1213:47 AKDT. Photo DSC\_0721.JPG.**



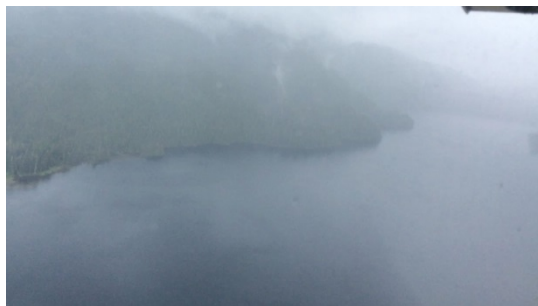
**Figure 29. Photo at 1214:06 AKDT. Photo IMG\_1265.JPG.**



**Figure 19. Frame at 1214:20 AKDT (frame 00-09-50.10.jpg).**



**Figure 20. Frame at 1214:57 AKDT (frame 00-10-27.08.jpg).**



**Figure 21. Frame at 1215:32 AKDT (frame 00-11-01.28.jpg).**



**Figure 26. Photo at 1216:08 AKDT. Photo DSC\_0725.JPG.**



**Figure 27. Photo at 1216:15 AKDT. Photo DSC\_0726.JPG.**