

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, DC 20594

July 26, 2019

Personal Electronic Devices (PED)

Specialist's Factual Report

By Sean Payne

1. EVENT

Location:	Harmon, ND
Date:	November 18, 2018
Aircraft:	Cessna 441, N441CX
Operator:	Bismarck Air Medical, LLC.
NTSB Number:	CEN19FA030

On November 18, 2018, at 2240 central standard time, a Cessna 441, N441CX, was destroyed when it broke up in-flight and impacted an open field near Harmon, North Dakota. The airline transport certificated pilot, flight nurse, and paramedic were fatally injured. The airplane was registered to and operated by Bismarck Air Medical under the provisions of Title 14 *Code of Federal Regulations* Part 135. Visual meteorological conditions prevailed at the time of the accident, and an instrument flight rules (IFR) flight plan had been filed for the air medical cross-country flight. The flight originated from Bismarck Municipal Airport (BIS), Bismarck, North Dakota, at 2230, and was en route to Sloulin Field International Airport (ISN), Williston, North Dakota.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received a personal electronic device (PED) on April 22, 2019.

Recorder Manufacturer/Model:	Samsung Galaxy S9
IMEI Number:	3524110090811673

3.1. Recorder Description

A PED is A Portable Electronic Device (PED) is any piece of lightweight, electrically-powered equipment. These devices are typically consumer electronic devices capable of communications, data processing and/or utility. Examples

range from handheld, lightweight electronic devices such as tablets, e-readers, and smartphones to small devices such as MP3 players and electronic toys.

3.2. Recorder Damage

The phone was not immediately available to the NTSB post-accident. Instead, a family member of the deceased had the PED in their custody. The phone was damaged in the accident. The NTSB did not have custody of the phone and was unable to document the damage of the phone. The family member paid a third-party company to have the phone repaired. The NTSB received the phone on April 22, 2019. The family member was able to provide the passcode and the PED was unlocked and was able to be forensically examined.

Figure 1 is a photo of the PED as received by the NTSB on April 22, 2019.



Figure 1. The Samsung Galaxy S9 as received by the NTSB

3.3. Timing and Correlation

The PED devices contained the wireless carrier's timestamp which was evaluated to be accurate and utilized for this report.

Timestamps are given in the format HH:MM:SS.00, where HH stands for the hour, MM for minute and SS.00 for second to the nearest hundredth decimal place. The times are given in local time of the accident (CST).

3.4. Device Investigation

A forensic download of the phone indicated that the phone had been powered on multiple times in the time between the accident and the NTSB having received the device. An examination of the electronic records produced by the forensic download showed that the phone had been used in a limited manner since the accident. The extent of the usage appeared to be limited to an individual

responding on the deceased's behalf and informing others via SMS that the individual had passed.

In a discussion with the forensic investigation software manufacturer, at the time of examination, it was not possible to determine if material had been deleted from the PED. This material includes, but is not limited to, text and SMS messages. Upon review of timestamp information associated with the electronic material, there was no obvious indication that material had been deleted.

The PED's email database was not examined.

The following summarizes SMS and text messages found on the device. The evidence is presented per conversation, and in chronological order to the extent possible. Conversations were either between the accident pilot and an individual or the accident pilot and a group of individuals.

Punctuation and spelling have not been corrected. Where necessary brackets have been added for clarity. In general, the content and typology of the messages were not attempted to be corrected by the author of this report unless it was absolutely necessary for clarification purposes.

Conversation with Company Pilot 1 (CP1)

On August 1, 2017, CP1 stated the following to the accident pilot: "Hey [Accident Pilot] remember we talked about doing this training....wink wink nod nod....well the training sheet is in your training book just so you know" Along with the message a picture was sent of a signed training sheet with the accident pilot's information with entries signed for Crew Resources Management (CRM) Ground Training Modules, Emergency Training & HAZMAT Training. Some other fields were left unsigned.

Group Message with Director of Operations, Bismark Air Medical (DOBAM), Company Pilot 2 (CP2) and Company Pilot 3 (CP3)

On August 23, 2018, DOBAM stated, "441 [accident airplane] is back in service. Bring the stratus¹ with if you want an extra backup..." The accident pilot responded, "Is the XM down?" DOBAM then stated, "No for a back up ahrs". The accident pilot then stated, "ahhh...I see". Then a few hours later the pilot listed four different airports, "Bis gdv apa bis". The DOBAM then replied with a thumbs up emoji. The DOBAM then added, "take my stratus" and moments later, "its on the bookshelf". The accident pilot responded, "Ive got mine" and "Is it not fixed??" CP1 then stated, "I'm at the airport now do you want me to have them pull the airplane". DOBAM responded, "It is but it's the 441 and I don't trust it. [Unknown Pilot²] and I test flew it today". DOBAM then went on to say "I am going to put a work order in for an exorcism if [of] that plane".

¹ Reference to Appareo Stratus, a portable AHRS and ADS-B receiver.

² Names are redacted from this report.

Group Message with DOBAM, CP1, CP3 and an Unidentified Pilot

On October 11, 2018, the accident pilot texted the following accompanied by two supporting photos, "So 441CX needs some TLC. There is a fastener missing from the front right nose baggage door and there are 2 screws missing from the floor plate where the carpet meets the vinyl under the thrust quadrant. Then, there is approx. 4hrs until the Phase 3 inspection is due. This time includes the +10hrs as we are all ready over the 8406 due time." The accident pilot then went on to state, "Disregard the phase 3. There were 2 status sheets in the book and I saw the old one. The copilot sunvisor needs to be tightened up though." DOBAM then stated "431 will be primary tomorrow. Did you get the gyro flag?" and then the accident pilot stated "No".

Conversation with DOBAM

In two separate conversations on August 22, 2018 and September 6, 2018, the DOBAM indicated the accident aircraft was in maintenance between August 22-23, 2018 and then later on September 6, 2018.

In another conversation on November 18, 2018, the day of the accident, the following messages were noted:

Around 08:51 AM the DOBAM asked, "Where is the flight to". The accident pilot replied, "ISN. Nurse cant make it there until 1020ish so I'm not leaving until 1030ish." The DOBAM replied with a thumbs up emoji. Later, at 11:28 AM, the accident pilot stated "1xx departing for isn". On the day after the accident, November 19, 2018, around 12:22 PM, the DOBAM stated, "Call center and close your flight plan".

Conversation with "Medical Flight Page"

"Medical Flight Page" appeared to be a point of contact in the accident pilot's phone that dispatched pilots from Bismark Air Medical.

On the accident day, November 18, 2018, a message stated, "There is a possible flight. The pilot currently on call needs to contact 220-6136, RN currently on call, you will be contacted shortly."

Group Message with DOBAM, a company pilot (CP1) and Other Company Pilots (CP2 & CP3)

Between October 13th and October 15th, the group messages discussed the accident airplane being down for maintenance due to an issue with the left rear seat track slide.

On November 9, 2019, the accident pilot made a mention to DOBAM and the other company pilots to update their iPads before medical flights and warned that updating the electronic flight bag (EFB) takes time and medical flights potentially could not be dispatched quickly if the iPads did not have up to date EFBs. The accident pilot went on to state, "I realize that we don't have iPad approval yet but they are a great backup tool in case of an emergency".

In referencing a flight on the accident airplane on November 12, 2018 from MOT [Minot International Airport, Minot, ND] to APA [Centennial Airport, Denver, CO] "Med crew just notified me that there will be at least an hour at the hospital. Also HSI processed [preprocessed] 25 degrees from Minot to Denver and auto pilot started the jerking again!" The DOBAM then asked, "did you go into free mode". The pilot responded, "had to".

Three photos were discovered on the accident pilot's PED taken on the same day (November 12, 2018) that seemed to correlate with the conversation displayed above. These photos are presented as figures 2, 3 and 4 and are found at the end of this report.

On November 15th, 2018, the following was discussed in a group text message:

The accident pilot stated, "Here is something else to think about Rugby operations....there isnt a hangar available for incimate weather and no deice capabilities here either. I know we carry the small "deice kit" but its not gonna work when its snowing all day and the plane is covered in snow/ice. We may have to come up with a contingency plan like going to MOT during those times...". DOBAM replied, "Yeah we will look into it" and CP2 then replied, "This is what we planned on with the Navajo. If it was going to get contaminated, we planned MOT, but ONLY if we could guarantee getting back. Otherwise would scrub trip. I also had sprayer of TKS to leave in [name] heated hangar in case of in-advertant contamination. It is not fun...I have the scars."

Conversation with an Unknown Individual

On November 24, 2018, an unknown individual texted the accident pilot, "RIP my friend You should have taken the King Air."



Figure 2. A photo taken on November 12, 2018 at 6:16:37 PM CST.



Figure 3. A photo taken on November 12, 2018 at 6:44:44 PM CST.



Figure 4. A photo taken on November 12, 2018 at 6:44:50 PM CST.