

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, DC 20594

March 23, 2022

Onboard Image Recorder

Specialist's Factual Report
By Sean Payne

1. EVENT

Location:	San Juan, Puerto Rico
Date:	June 2, 2020
Aircraft:	Piper PA-23-250, N14181
Operator:	Private
NTSB Number:	ERA20LA202

2. GROUP

A group was not convened.

3. SUMMARY

On June 2, 2020, about 1333 Atlantic standard time, a Piper PA-23-250, N14181, was substantially damaged when it was involved in an accident during takeoff from Fernando Luis Ribas Dominicci Airport (TJIG), San Juan, Puerto Rico. The airline transport pilot and one passenger were fatally injured while another passenger was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 post-maintenance flight test.

4. DETAILS OF INVESTIGATION

On June 10, 2020², the National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following video file:

Recorder Manufacturer/Model:	Unknown PED
Filename:	"Clip from inside N14181 seconds before the accident Re3cd 6 10 2020.MP4"¹

¹ The file name has an error where a "3" was used.

4.1. Recorder Description

The video file was generated from a portable electronic device (PED). The exact model of PED was not noted as it was not recovered in the accident.

A 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.

4.2. Recorder Damage

The PED was not recovered from the accident. The PED belonged to the rear, right seat passenger. The passenger text the video to someone not on the aircraft during the accident sequence.

4.3. Video Files

The video was provided at a resolution of 480 x 848 pixels and at a frame rate of 29.97 frames per second (fps). It is likely the native video file on the PED was recorded at a higher quality, however, the PED was not recovered from the accident.

4.4. Timing and Correlation

The timestamps used in this report are expressed as video elapsed time. A correlation to local time was not attempted. The timing format is given in SS:FF, where SS stands for the number of elapsed seconds and FF stands for the number of elapsed frames.

4.5. Summary of Recording Contents

In agreement with the Investigator-In-Charge, a video group was not convened, and a summary report was prepared.

4.5.1. “Clip from inside N14181 seconds before the accident Re3cd 6 10 2020.MP4” Summary

The video file was taken in a vertical format. The video was recorded from the rear, right seat of the aircraft. The video provided a view generally in the forward direction, however, at points in the video, the passenger recording the video panned to the left and right which made landmarks visible outside of the aircraft. At times, the recording captured a view of the accident pilot, his control inputs, the instrument panel and throttle quadrant.

At 00:00, the recording provided a view off the right wing of the aircraft. The aircraft was in a climb pitch attitude.

At 01:29, the recording showed the right engine nacelle and the right engine propeller. There was motion blur present on the right engine propeller blades.

The recording panned to the left and then captured almost a full view of the instrument panel, the accident pilot, the occupant in the right front seat and the throttle quadrant.

At 03:21, when the full instrument panel was captured, the following was noted:

- The aircraft was in a climb pitch attitude.
- The airspeed indicator's needle was visible in roughly the 2 o'clock position. A comparison was made to the marking indications on the airspeed indicator in the wreckage, and the needle corresponded to somewhere in the range between 90 and 100 mph. The airspeed indicator's needle was visible in this position throughout the rest of the video when it was captured.
- The pilot had both hands on the yoke and was inputting a right roll command (nearly 45-degree right roll input on the yoke).
- The left engine throttle, right engine throttle, left engine propeller control, right engine propeller control and left engine mixture control were visible. The right engine mixture control was not visible. All visible engine controls appeared to be in the full forward position.
- The JPI engine monitor was visible. Many display settings were difficult to discern, however, the following was noted.
 - The fuel flow for the left engine was noted at a near zero position, whereas the fuel flow for the right engine was near the top of the indicator bar (higher fuel flow).
 - The fuel level indicator on the JPI showed both left and right main tanks in a near full position, with the left main tank indicating slightly higher than the right main tanks.
 - The auxiliary fuel level indicator on the JPI indicated both left and right auxiliary tanks were in a near zero position.
 - Fuel pressure for the left engine was lower than fuel pressure for the right engine
 - Oil temperature for both the left and right engines were near the top of their indicator ranges, with the left engine oil temperature indicated slightly lower.

- Oil pressure for both the left and right engines were near the center of their indicator ranges, with the left engine oil pressure indicated slightly lower.
- Manifold pressure for the left and right engines were unable to be determined from the view of the JPI.
- RPM for the left and right engine was determined by comparing the position of the gauge pointers in the pixelated recording to an exemplar JPI unit. One area of pixels that appeared to represent the pointer for the left engine suggested that the left engine was operating somewhere between 1000 and 1500 RPM. A different area of pixels that appeared to represent the pointer for the right engine suggested that the right engine was operating near the top of the gauge's green arc for RPM. According to documentation for this aircraft, the top of the green arc should have been set at 2575 RPM².

The camera continued to pan left and by 06:00, captured a view out of the left wing. The left aileron showed a right roll command. Some motion blur was visible on the left propeller blade as it was captured by the camera's image. In reference to visible landmarks, the aircraft was about 3,000 feet from the runway 09 threshold, and the aircraft was airborne in a pitch attitude with approximately 2,200 feet of paved runway surface available ahead of it.

By 08:00, the camera panned back to the right and captured the accident pilot, occupant in the right front seat, portions of the left engine's propellers and a portion of the instrument panel. The motion blur of the left engine's propeller blades suggested they were moving at a lower rate than the right engine propeller blades which were previously visible at 01:29.

In the next few frames, the pilot's control inputs were visible again. The aircraft was still in a climb pitch attitude and the pilot was inputting a right roll command. No portion of the throttle quadrant was visible as it was blocked by the front seat passenger's shoulder. The JPI showed indications similar to those described above at 03:21.

By 09:09, the camera continued to pan to the right. The right engine nacelle, the right propeller, and view forward and to the right of the aircraft was visible. The aircraft was left of runway centerline, off the left side of the runway. The runway 27 numbers were visible. Based on landmarks, there was about 1,200 feet of paved runway surface ahead and to the right of the aircraft. The right engine propeller blades exhibited significant motion blur. The aircraft was still in a pitch attitude.

² From the Airplane Type Certificate Data Sheet, the "Engine Limits" for all operations was specified to be 2,575 rpm.

The recording ended at 10:05. The aircraft was left of runway 27, approximately over taxiway A6. The right engine was visible, and the propeller blades on the right engine exhibited motion blur.