

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

February 25, 2016

Satellite Messaging System

Specialist's Factual Report By Sean Payne

1. EVENT SUMMARY

Location: Carey, Idaho
Date: July 2, 2015
Aircraft: Piper PA-22
Registration: N8195C
Operator: Private
NTSB Number: WPR15FA206

On July 2, 2015, at an undetermined time, a Piper PA22, N8195C, collided with terrain near Carey, Idaho. The pilot was operating the airplane under the provisions of Title 14 *Code of Federal Regulations* (CFR) Part 91. The commercial pilot sustained fatal injuries. The airplane was destroyed during the accident sequence. The cross-country personal flight departed Moab, Utah, at 1726 mountain daylight time (MDT) with a planned destination of Stanley, Idaho. Visual meteorological conditions prevailed, and no flight plan had been filed

2. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following personal electronic files:

Device Manufacturer/Model:	SPOT Tracker
Serial Number:	N/A – Electronic File Transfer

2.1. Device Description

SPOT is a handheld GPS tracking device that utilizes a satellite network enabling text messaging and GPS tracking services depending on the subscription level purchased by the user. With the exception of the extreme northern and southern latitudes, as well as some areas of the Pacific Ocean, the messaging service has nearly worldwide capability. Depending on the subscription level, the messaging service can allow for either text message transmission and/or GPS breadcrumb¹ tracking capability. When

¹ Breadcrumb – a list of historic GPS positions generated by the user's device, typically automatically, that constitute a trail over a given time interval.

GPS breadcrumbs are in use, the device has the capability to provide latitude and longitude updates as often as every ten minutes. GPS altitude information is currently not possible to be transmitted by the system.

2.2. Data Recovery

As a result of the investigation of the pilot's personal electronic device (see Personal Electronic Device – Specialist's Factual Report in the public docket for this investigation), email records indicated a possible communication link with a satellite messaging provider. The NTSB requested these records from the satellite messaging provider using the pilot's email address as a reference. On February 2, 2016, the NTSB received records from the satellite messaging provider for the device associated with the pilot's email account. Messages for the device marked as ESN² number 0-7360507 were subsequently determined to have belonged to the accident pilot and were recorded during the accident flight.

3. DEVICE INVESTIGATION

3.1. SPOT Personal Tracker

Records from the satellite messaging provider for SPOT device ESN 0-7360507 are included in tabular format below (Table 1). The satellite messenger service records contained four GPS data points on July 2, 2015. A column was added to convert the UTC time to MDT. Subsequent figures have their time displayed as MDT.

Table 1. Records provided for ESN 0-7360507 from the satellite messaging provider.

Message	Esn	Message Time - GMT	Message Time - MDT	Latitude	Longitude	Model Id	Message Type
1	0-7360507	02-Jul-2015 14:14:57	02-Jul-2015 08:14:57	38.89077	-109.92303	SPOT	TEST
2	0-7360507	02-Jul-2015 15:59:11	02-Jul-2015 09:59:11	41.25158	-111.46016	SPOT	TEST
3	0-7360507	02-Jul-2015 16:46:14	02-Jul-2015 10:46:14	42.16662	-112.28772	SPOT	TEST
4	0-7360507	02-Jul-2015 18:14:36	02-Jul-2015 12:14:36	43.10316	-113.35661	SPOT	TEST

Figure 1 is an overview of the four plotted points retrieved from the satellite messaging provider. The GPS positions show the device logged at test³ point on July 2, 2015, at 08:14:57 A.M. MDT in the vicinity of Canyonlands Field Airport (KCNV) Moab, Utah. The second test point on 09:59:11 A.M. MDT was recorded approximately 23 nautical miles east of Ogden, Utah. The third test point was recorded on July 2, 2015, at 10:46:14 A.M. MDT in the ramp area of Malad City Airport (KMLD), Malad City, Idaho. The last test point was recorded approximately 13 nautical miles southwest of the wreckage location on July 2, 2015, at 12:14:36 P.M. MDT.

Figure 2 is a Google Earth overlay of the third test point recorded on the day of the accident at 10:46:14 A.M. MDT showing the recorded location in detail, in the vicinity of the ramp area at KMLD.

² ESN – Electronic Serial Number – A unique number used to identify a specific CDMA type cellular device.

³ Test point – The satellite messaging provider indicated that “Message type: Test” correlates to the user using the “Check-in/OK” button on the device. This type of message is activated by the user to send a “Check-in/OK” message.

Figure 3 is a Google Earth overlay of the fourth and final recorded test point, recorded approximately 13 nautical miles southwest of the wreckage location.

Figure 1. An overview of the four recorded GPS positions for ESN 0-7360507 on July 2, 2015.

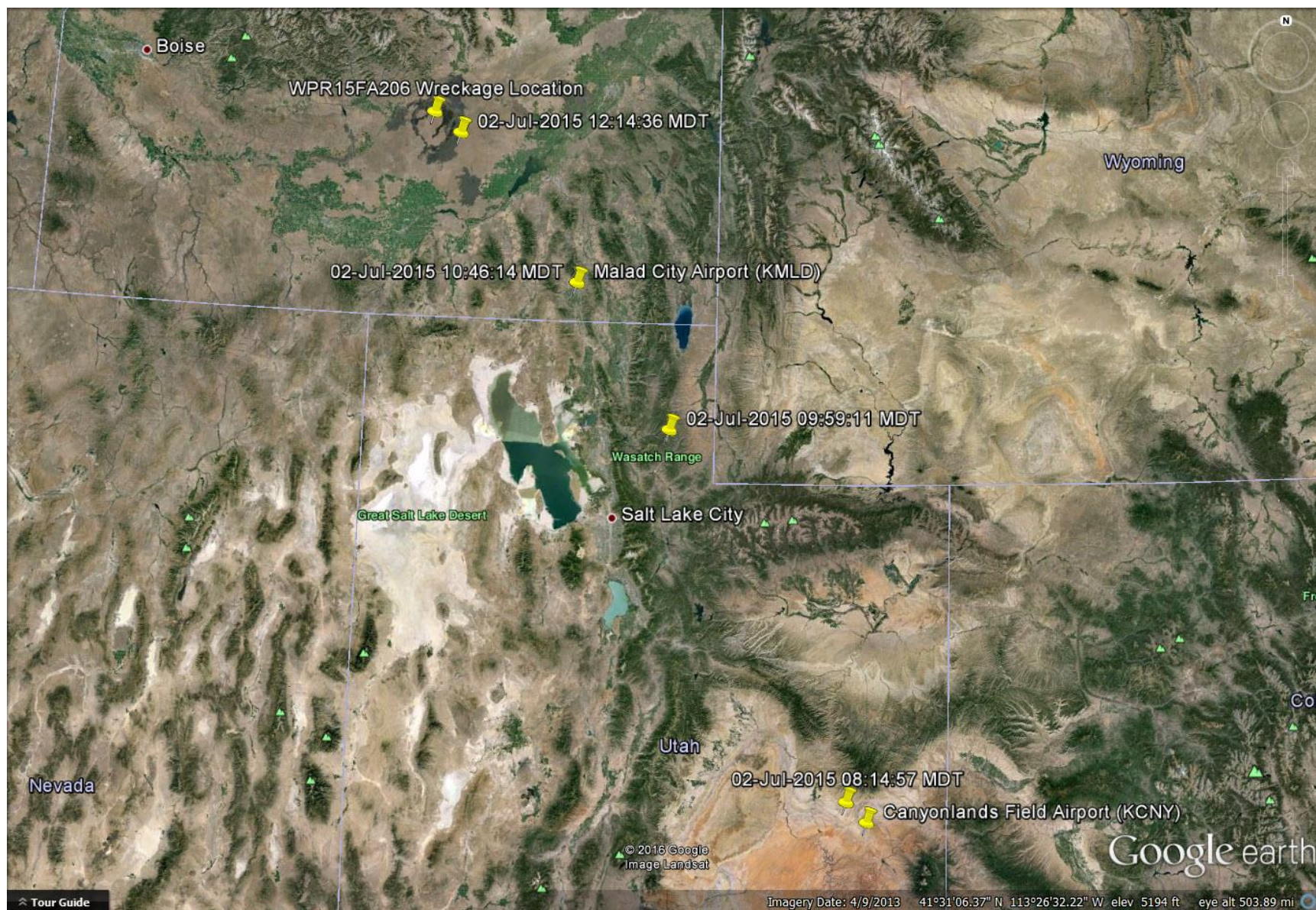


Figure 2. An overlay of the GPS position recorded in the vicinity of KMLD on July 2, 2015.

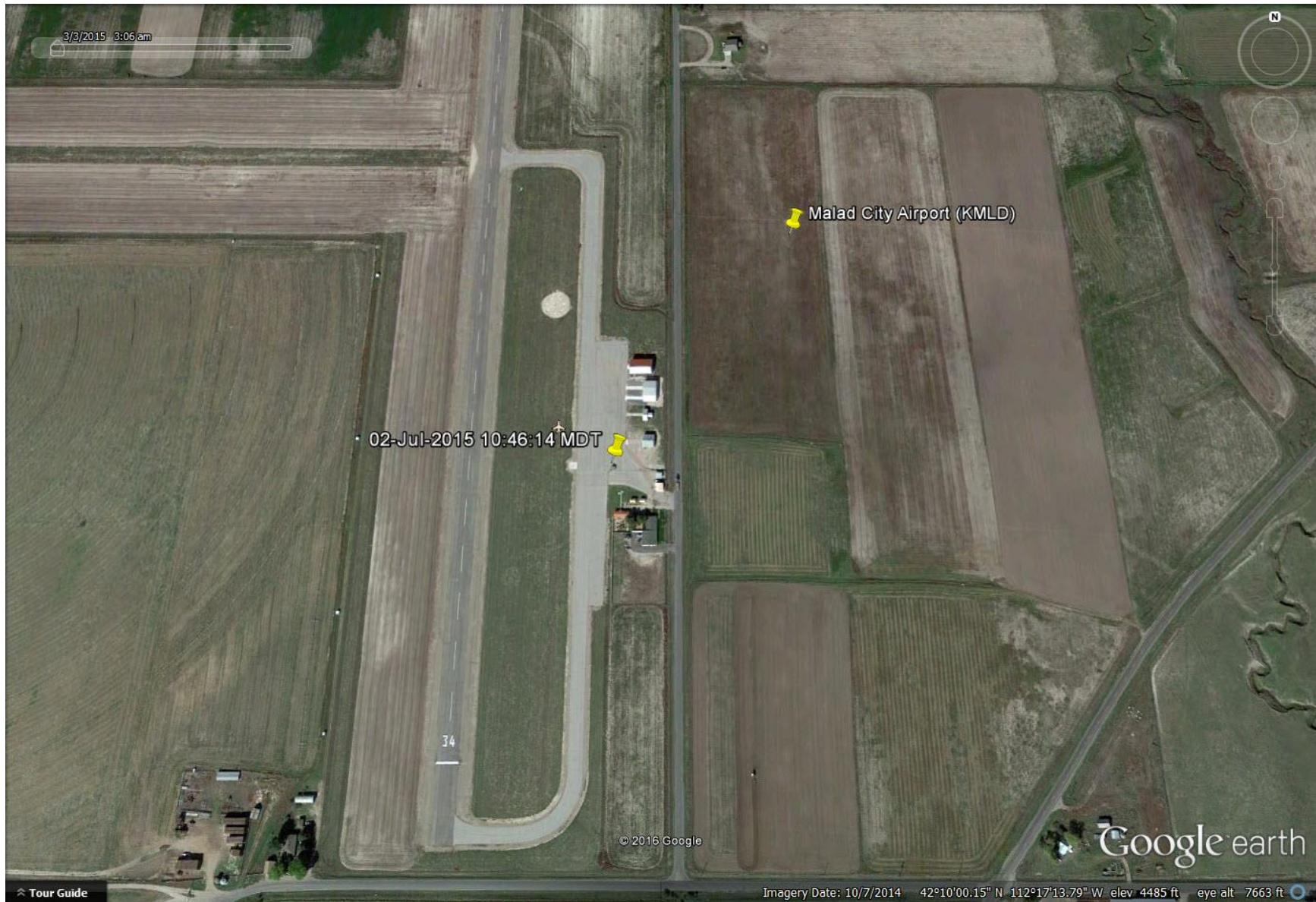


Figure 3. A overlay showing the relation of the wreckage position in relation to the last GPS point transmitted on July 2, 2015.

