



## NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering  
Washington, DC

### MEDICAL FACTUAL REPORT

January 30, 2017

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Medical Officer

#### **A. ACCIDENT: CEN15FA281 - Beloit, Ohio**

On June 26, 2015, about 1830 eastern standard time, a homebuilt Europa XL airplane, N149RS, impacted terrain near Beloit, Ohio. The airplane was substantially damaged and the private rated pilot was fatally injured. The airplane was registered and operated by Sancap Aircraft Inc., under the provisions of 14 *Code of Federal Regulations* Part 91 as a personal flight. Visual meteorological conditions prevailed and the airplane was not on a flight plan. The local flight originated from the Tri-City Airport, Sebring, Ohio at an unknown time.

#### **B. GROUP IDENTIFICATION:**

No group was formed for the medical evaluation in this accident.

#### **C. DETAILS OF INVESTIGATION**

##### Purpose

This investigation was performed to evaluate the pilot for any medical conditions, the use of any medications/illicit drugs, and the presence of any toxins.

##### Methods

The FAA medical case review, FAA medical certification files, FAA toxicology report, and autopsy report were reviewed.

### FAA Medical Case Review and Medical Certification Files

According to the FAA medical files, the 72-year-old male pilot was 76 inches tall, weighed 193 pounds, and reported he had accrued 1,820 total flight hours as of his most recent FAA medical certification exam, dated June 01, 2011. He had a history of coronary artery disease treated with bypass grafts in 1988 and right coronary artery stents in 2004. He reported the use of, atorvastatin (a cholesterol lowering medicine marketed as Lipitor<sup>1</sup>); clopidogrel (a platelet inhibitor used to reduce the risk of heart attacks and strokes<sup>2</sup>); and aspirin (an over-the-counter medication used to control pain, inflammation and fever also used to decrease the risk of recurrent heart attacks). Other than the identified coronary artery disease and surgery, the physical examination did not identify any abnormal findings. The pilot sent the FAA medical certification division a current cardiology evaluation that documented his past cardiac history and showed no progression of his disease or reversible ischemic findings. The FAA reviewed the reports and issued him a special issuance third class medical certificate with the following limitations: Must have available glasses for near vision. Not valid for any class after May 31, 2012.

Following the requirement of his special issuance, the pilot submitted an interim cardiology evaluation dated January 2012, which showed no significant cardiac changes from prior examinations. The FAA again issued the pilot a special issuance of a medical certificate, which stated the certificate, expires on June 30, 2013 and requested that on or about April 2013 the pilot submit updated reports on his cardiovascular status. There is no evidence that the pilot submitted reports on or about that date.

Later, the pilot sent the FAA a follow-up cardiology evaluation dated December 11, 2014. During that visit, the pilot denied chest pain, shortness of breath, palpitations, lightheadedness or syncope. In addition to the previously identified medications, the pilot's medications included nitroglycerin (a medication used for the acute relief of cardiac chest pain<sup>3</sup>) and irbesartan (a medication used to treat high blood pressure and marketed as Avapro<sup>4</sup>). The cardiologist documented in August 2012 the pilot had had burning chest pain evaluated with a cardiac catheterization that showed worsening coronary artery disease with progression of the mid left anterior descending coronary artery stenosis to 90 percent. The lesion was located before the bypass anastomosis, thus compromising retrograde flow to proximal branches of left anterior descending artery. The note further documented that the pilot felt well on medical therapy. Additionally, the physician wrote the patient did well on a stress test and achieved 85 percent of the predicted of maximum heart rate but had an abnormal heart rate recovery with a lower than expected heart rate at

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<sup>1</sup> National Library of Medicine (U.S.). 2016. *DailyMed*. Bethesda, MD: U.S. National Library of Medicine, National Institutes of Health, Health & Human Services. LIPITOR- atorvastatin. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=c6e131fe-e7df-4876-83f7-9156fc4e8228> Accessed 12/29/2016.

<sup>2</sup> National Library of Medicine (U.S.). 2016. *DailyMed*. Bethesda, MD: U.S. National Library of Medicine, National Institutes of Health, Health & Human Services. PLAVIX- clopidogrel <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=01b14603-8f29-4fa3-8d7e-9d523f802e0b> Accessed 12/29/2016.

<sup>3</sup> National Library of Medicine (U.S.). 2016. *DailyMed*. Bethesda, MD: U.S. National Library of Medicine, National Institutes of Health, Health & Human Services. NITROGLYCERIN- nitroglycerin tablet. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=c555f8de-477f-0225-98a2-baf8945bbd63> Accessed 12/29/2016.

<sup>4</sup> National Library of Medicine (U.S.). 2016. *DailyMed*. Bethesda, MD: U.S. National Library of Medicine, National Institutes of Health, Health & Human Services. AVAPRO- irbesartan. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=7885b2a8-be4e-48ab-8113-4e6ab791eb98> Accessed 12/29/2016

one minute. Furthermore, while the pilot had a normal blood pressure response and high functional capacity for age and gender but he had borderline ST depression during the stress test (an EKG finding sometimes associated with decreased blood flow to the heart muscle). Finally, the cardiologists documented that there were no significant changes in the pilot's exercise stress test and his plan was to continue medical management with nitroglycerin, atorvastatin, aspirin, and clopidogrel and wrote, "The pilot can reapply for his pilot's license."

On March 25, 2015 the FAA Medical Certification Division sent the pilot a letter that stated "We have received your recently submitted medical reports; however, we have not received a FAA examination for you... We will not review or comment on information submitted to us unless an individual has a current medical application on file with us." The pilot did not reapply for his pilot's medical certificate.

#### Autopsy

According to the Mahoning County Coroner Autopsy Report, the cause of death was multiple blunt force injuries and the manner was accident. Additionally, the report documented a contributing factor to the cause of death was coronary artery disease and chronic hypertension. The autopsy estimated the pilot's weight at 200 pounds. The heart weighed 480 grams; the average for a man his weight is 425 grams (range 281-489 grams).<sup>5</sup> The report documented patent coronary artery bypass grafts were connected to the left coronary system. The extent of occlusion of the pipe like vessels was not documented. The right coronary artery had multiple metal mesh stents in the walls of the proximal and mid-length of the lumen. Circumferential atherosclerotic plaques narrowed the vessel's midpoint by 70% of its expected diameter proximally and distally occasional plaques narrowed the lumen by 50%. No occlusive lesion were observed. The myocardium was described as homogenous, red-brown with a flabby consistency. The endocardium was described as smooth and glistening. Microscopic examination of the heart muscle described hypertrophic cardiomyocytes (enlarged heart muscle cells) with rare areas of interstitial fibrosis (scarring). Additionally, a section of the left anterior descending artery had calcified intramural atherosclerosis with 70% occlusion (the exact vessel location of the microscopic section was not documented in the report).

#### Toxicology

FAA Bioaeronautical Laboratory toxicology analysis did not identify carbon monoxide in blood or ethanol in urine. Testing detected irbesartan in urine and blood. Irbesartan is described above.

### **D. SUMMARY OF FINDINGS**

The pilot had a history of severe coronary artery disease treated with multi-vessel bypass surgery, stents and medication. Additionally, he had elevated cholesterol and high blood pressure treated with medications. Since his last medical certification examination, an exercise stress test showed no significant changes but his coronary artery disease had progressed as demonstrated by a cardiac catheterization that showed 90 percent occlusion of the left anterior descending coronary artery with impaired blood flow to a part of the heart muscle. His cardiologist added nitroglycerin to his treatment regime and wrote in the progress note that the pilot could reapply for his pilot's medical certificate.

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<sup>5</sup> Kitzman DW, Scholz DG, Hagen PT, Ilstrup DM, Edwards WD. Age-related changes in normal human hearts during the first 10 decades of life. Part II (Maturity): A quantitative anatomic study of 765 specimens from subjects 20 to 99 years old. Mayo Clinic Proc., 1988. 63(2): p. 137-46.

The autopsy identified multi-vessel coronary artery disease with up to 70 percent occlusion of the left anterior descending coronary artery treated with coronary artery patent bypass grafts. Additionally, the report documented metal stents in the right coronary artery with areas of up to 70 percent occlusion. Finally, the autopsy documented a contributing factor to the cause of death was coronary artery disease and chronic hypertension.