Flight MH17 - Downed by a Proximity-Fuse Missile?

Early investigative reports, regarding the disaster of Malaysian Airlines Flight MH17, reveal that it was likely destroyed by a surface-to-air (SAM) missile which had a proximity-fuse detonation system.

How does a proximity-fuse detonation system work? What is its impact on people?

The development of the proximity fuse, during World War II, was one of the top-secrets of the war (and is credited with helping to shorten the conflict). This WWII-era video explains how the system works (and compares it with other types of bomb detonations).

Although MH17 was downed in 2014, if it was actually destroyed by a BUK-delivered missile, that missile would have detonated with a proximity fuse. The principle used during WWII is the same principle used with a Soviet-era BUK missile system.

A proximity-detonation system causes the missile to explode before it hits the target. As a result, shrapnel from the exploding missile comes at the target—in this instance, a plane—which when pierces the plane's "skin."

If that, in fact, was the cause of the disaster, what would have happened to the people on board the stricken plane?

More likely than not, they would have been instantly impacted by the blast force which would have caused the plane—likely traveling around 500 miles per hour—to instantly decelerate.

The forces on the plane itself, from such a sudden deceleration event, would have been profound. So would the effect on the passengers and crew. Everyone on board may have lost consciousness soon after it occurred.

Dr. James Vosswinkel, a trauma surgeon, led a study to determine how sudden deceleration effected passengers when TWA Flight 800 crashed off New York's Long Island in 1996. He, and his colleagues, found that trauma to a human, in a mid-air explosion, occurs from three main sources:

- The force of the blast itself, as it impacts the plane;
- The massive deceleration when a plane, flying at 500 miles per hour, literally stops in mid-air; and
- The impact of the fall as the stricken plane heads toward Earth.

In addition, losing cabin pressure at 33,000 feet can cause a loss of oxygen within seconds. That would also lead to a person's loss of consciousness.

If travelers aboard Flight 17 had a loss of consciousness, soon after the plane was stricken, they may not have experienced the full trauma of the plane falling more than six miles to the ground.

This video clip, featuring historical newsreel footage about proximity-fuse detonation, is online via YouTube. We learn more about it from its YouTube description:

> *The proximity fuse was a radio transmitter/receiver that detected an object in its path. When the object was close enough, about 30 feet, the fuse would go off.*
>
> *Before the proximity fuse, the range to the target had to be estimated and that range dialed into the shell. This was difficult against a maneuvering attack aircraft. The trick was to get the tiny radios rugged enough to withstand firing from an anti-aircraft gun.*
>
> *...The proximity fuse was such a valuable secret that it was forbidden to be used over enemy territory until late in the war in case the enemy found a dud and become aware and possibly reproduce the technology or develop a countermeasure.*
>
> *Heralded as an "organizational achievement transcending anything of the time ... one of the most effective alliances among the military, academia, and industry," the development of the Proximity Fuze during World War II was credited for reducing the duration of the war by at least a year. WWII is singularly distinguished as the only war in history in which the outcome of the war was significantly influenced by scientific breakthroughs that created weapons unknown at the war's commencement.*
>
> *Development of a radio-transmitter proximity fuse to detonate near a plane would require not just technological breakthroughs involving a variety of fields of expertise, but miniaturization of electronic systems that had never been accomplished, plus near perfect cooperation and coordination of the military forces (specifically the Navy and Army), universities (principally five), diversity of scientists from a variety of fields, industry (engineering laboratories, quality control, and production facilities), amateur radio operators, ordinance experts, testing facilities, along with an unprecedented level of teamwork.*
>
> *Further, the project had to remain top secret during the war, despite ultimately employing about 1 million people in the production effort.*

The system which worked so well during World War II still works today. The Soviet-era BUK missile system employs detonation-fuse technology.

If it is proven that such a missile strike caused the crash of MH17, we now have a better understanding of the mechanism which caused the deaths of all 298 people aboard the plane.

Credits:

Historical newsreel footage online via BomberGuy's Channel at YouTube.

See Alignments to State and Common Core standards for this story online at:
http://www.awesomestories.com/asset/AcademicAlignment/Flight-MH17-Downed-by-a-Proximity-Fuse-Missile-

See Learning Tasks for this story online at:
http://www.awesomestories.com/asset/AcademicActivities/Flight-MH17-Downed-by-a-Proximity-Fuse-Missile-