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Fuel Tank's Condition Makes Malfunction Seem Less Likely

By DON VAN NATTA JR.

Investigators examining the wreckage of Trans World Airlines Flight 800 have concluded that the center fuel tank caught fire as many as 24 seconds after the initial blast that split apart the plane, a finding that deals a serious blow to the already remote possibility that a mechanical accident caused the crash, officials said yesterday.

For weeks investigators have said that if a mechanical malfunction -- rather than a bomb or a missile -- brought down the Boeing 747, an explosion in its center fuel tank, situated between the wings, would most likely have been responsible.

But in recent days, investigators have concluded that the initial blast occurred elsewhere. They reached that conclusion after discovering that pieces of the fuel tank wreckage were "virtually unscathed."

This led investigators to conclude that the explosion did not rip through the center fuel tank, but rather occurred elsewhere.

A senior investigator said the new evidence shows that the initial blast that severed the plane occurred slightly forward of the spot where the wings meet the fuselage, probably in the passenger cabin.

Now that investigators say they think the center fuel tank did not explode, they say the only good explanations remaining are that a bomb or a missile brought down the plane off Long Island, shortly after it left Kennedy International Airport for Paris on July 17. All 230 people on board were killed.

Despite the new finding, National Transportation Safety Board officials are unwilling to rule out a mechanical failure. They note that most plane crashes that do not result from human error or a criminal act are caused by a series of events that have never occurred before, making it virtually impossible to envision every theory in the early stages of an investigation.

By keeping open the possibility of a malfunction, safety board investigators can continue to pursue all possibilities, no matter how remote.

"I don't think anything rules out anything at this point," said Robert T. Francis, vice chairman of the safety board.

Mr. Francis was noncommittal about whether there was tangible evidence that an explosion ripped through the center fuel tank. "I would not want to say there was an explosion in the center fuel tank," he said.

Another of the senior investigators said last night that they would not officially rule out a mechanical malfunction until they were ready to make public a conclusive determination that a bomb or rocket downed the airplane.

But in 10 field tests at Calverton, L.I., chemists have detected residue consistent with an explosive, though in each case, subsequent tests at the F.B.I. lab in Washington were not conclusive. The manufacturer of the machine used at Calverton said that false results occur in only a fraction of cases. While the machine has its

detractors, some senior Federal investigators say the positive results over the last few weeks have some validity.

The center fuel tank held about 50 gallons of jet fuel at the time of the crash. Almost every possible mechanical accident that investigators have envisioned has involved a quick series of malfunctions, perhaps including a spark from an adjacent electrical junction, that set off an explosion in the tank.

As the investigators theorized, a fuel tank explosion would have knocked out the plane's electrical system, disabling the flight data recorder and separating the forward area of the plane from the rest. Nothing else on board is thought to have had the ability to do all that.

During the last two days, however, investigators discovered that some pieces of the fuel tank were charred or covered with soot from a fire, while other pieces showed little or no significant damage, suggesting that the tank did not explode. One official said recovered parts of the fuel tank are in "pristine condition."

"It is clear that whatever set off the tank did not severely damage the tank," said one official, who insisted on anonymity. "Something else, most likely later, blew up the tank."

Besides the condition of the fuel tank's wreckage, investigators say that the pattern of the debris they have recovered off the ocean floor has also persuaded them that a mechanical malfunction is highly unlikely. The pieces of the plane that were blown off first have been recovered from the debris field closest to Kennedy International Airport.

Investigators displayed a chart yesterday that showed another piece of evidence suggesting that the blast occurred where the front of the wings meet the fuselage. A narrow stripe of the fuselage ahead of the wings was displayed in red, meaning that those pieces have been recovered from the area closest to Kennedy Airport and were the first to be blown off the plane.

Farther along the flight path, wreckage from the first class cabin and cockpit was found. A mile and half beyond that, wreckage from the engines, wing and tail have been recovered. From that pattern, investigators have drawn conclusions about how the first explosion caused the plane to break up at 13,700 feet.

The blast's force decapitated the plane, severing the cockpit and first-class cabin, which then fell into the Atlantic Ocean. The rest of the plane flew on, descending rapidly, and as it did thousands of gallons of jet fuel spilled out of the wings and the center fuel tank between them. At 8,000 feet, about 24 seconds after the initial blast, the fuel caught fire, engulfing the remainder of the jetliner into a giant fireball.

The finding about the center fuel tank came as a surprise even to the investigators who think a bomb exploded on board. They had assumed in recent days that if a bomb exploded on board, it was located somewhere above the center fuel tank, instantly triggering an enormous explosion inside it.

While investigators, speaking not for attribution, said they have concluded that the center fuel tank did not explode, publicly they have refused to say that.

"There's a lot of damage in that area and there's a lot of smoke and burn, and I would not want to say there's an explosion at this point," Mr. Francis said yesterday.

The center fuel tank had been filled in Athens for a trip to Kennedy earlier in the day on July 17. Nearly all of the fuel was used on that trip.