The ntsb and icao in accident investigation engineering essay

This paper provides a report on the National Transportation Safety Board and the International Civil Aviation Organization and their contributions to aircraft accident investigation. Brief histories of the two organizations along with a few highlighted events are provided.

The NTSB and ICAO in Accident Investigation

The NTSB, America’s legendary investigative body, is charged to find causes for transportation related accidents and make recommendations. ICAO, an agency under the United Nation’s jurisdiction, is charged to promote and standardize international aviation throughout the world. The purpose of this paper is to look into these important two organizations and see how they contribute to the aviation industry’s accident investigation abilities. First, let us get familiar with the NTSB and ICAO and learn a little bit of their histories.

NTSB History

National Transportation Safety Board has an interesting history, which shaped the organization into the well-respected investigative body we know today. In 1926, Congress passed the Air Commerce Act of 1926. The act charged the U. S. Department of Commerce to form an investigative body to research and report on aircraft accidents. In 1940, the Civil Aeronautics Board’s Bureau of Aviation Safety was created. This newer agency took over the responsibility of aircraft accident investigations. In 1967, the Department of Transportation was created and NTSB was established to be an independent agency under the “ umbrella” of the DOT. The NTSB is charged to investigate accidents in aviation, ground transportation, shipping, railroads, and pipelines. The NTSB also investigates accidents involving

hazardous material transport. In 1974 Congress moved the NTSB out of the DOT to make the agency independent citing, “…No federal agency can properly perform such (investigatory) functions unless it is totally separate and independent from any other … agency of the United States.”. The NTSB has performed over 132, 000 aviation and thousands of surface transportation accident investigations. The agency is on call 24 hours a day, 365 days a year. The NTSB on occasion has been invited to other counties to assist with their aircraft accident investigations. (History of The National Transportation Safety Board, n. d.)

Now that we have a basic understanding of who the NTSB is as a government agency, we can transition over to the history of ICAO.

ICAO History

People outside of aviation know little about the International Civil Aviation Organization. According to ICAO’s website, the International Civil Aviation Organization (ICAO) was created by the United Nations, in 1944. Their purpose is to promote safe, secure, and sustainable development of civil aviation with the cooperation of the United Nations Members. (International Civil Aviation Organization, n. d.)

To this day ICAO still strives to meet and exceed their goals established back in 1944. Around two years ago, ICAO had declared its strategic objectives for 2011-2013. ICAO would like the members of the United Nations to continue to support the agency’s standards and recommendations, to promote a better international civil aviation environment. ICAO desires that everyone can operate to the level where optimum safety, security and sustainability

can be achieved. ICAO has three strategic objectives. First, “ Enhance global civil aviation safety”. Second, “ Enhance global civil aviation security”. Finally, “ Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment”. (International Civil Aviation Organization, n. d.)

ICAO, the UN backed agency, could be better compared to the United States’ Federal Aviation Administration (FAA) or and other nations equal. However, unlike the FAA, ICAO lacks the ability to enforce regulations and dictate policies. The FAA has the power to enforce the FARs and levy penalties. Unlike the FAA, ICAO has, on rare occasions, conducted aircraft accident investigations and submitted reports in accordance to its own Annexes. The two aviation disasters, that ICAO investigated and reported, worth mentioning are the 1973, Libyan Arab Airlines Flight 114 and 1983, Korean Airlines Flight 007.

Libyan Arab Airlines Flight 114

Libyan Arab Airlines Flight 114 was ICAO’s first accident investigation. This disaster occurred during the 1973 Yom Kippur War, between Israel, Egypt, and Syria. There were 108 fatalities resulting from the Israeli Air Force shooting down of the Boeing 727. According to the Aviation Safety Network, an internet database developed for the Flight Safety Foundation, the following events occurred. Libyan Arab Airlines Flight 114 was traveling from Benghazi, Libya to Cairo, Egypt. On the aircraft’s approach to Cairo weather became a huge factor, due to the amount of heavy cloud cover. The aircraft strayed off course into the Sinai desert and into Israeli occupied air space. 2

Israeli Air Force fighter jets intercepted the civilian airliner and tried to get it to land. Libyan Arab Airlines Flight 114 did not comply with the fighter jet's request and tried to return to Egypt. The Israeli fighter jets shot down the aircraft forcing the pilots of Flight 114 to attempt a belly landing, in the desert. Upon impact, the airliner burst into flames and all were killed. ICAO conducted the investigation and reported the Cairo beacon was probably not functioning at the time of the event. The approach control radar was out of order too. (Aviation Safety Network, n. d.)

ICAO was tasked to investigate the aircraft accident, by the United Nations, since Israeli-Arab relations were non-existent. The neutral party conducted its investigation, interviewed involved parties and drew out its causes and recommendations. It would be ten years later, that ICAO would have to assume the accident investigator role. This time an incident involving the United Sates and the USSR, who are deeply entrenched in the Cold War.

Korean Airlines Flight 007

Based on this researcher's exploration, the 1983 Korean Airlines Flight 007 incident was the first time where the NTSB and ICAO interacted directly with each other. According to the Aviation Safety Network, the following events occurred to KAL-007's demise. Korean Airlines Flight 007 was flying from New York City to Seoul, Korea, with one stop in Anchorage, Alaska. After being refueled in Alaska KAL 007 began its final leg to South Korea. The part of the trip would run along Soviet borders and air space. This was a normal route for aircraft traveling from North America to Asia. During this time, the Soviet Military were conducting tests in this region and USAF RC-135

recognizance aircraft were conducting operations. The USAF presence would prompt a Soviet fighter response. KAL007 unintentionally was flying in and out of Soviet airspace, which warranted a fighter response. The Boeing 747 airliner did not respond to the Soviet fighter pilot’s warnings. The fighter pilot was instructed to shoot-down the unresponsive aircraft. The fired missiles damaged the aircraft, causing a massive decompression of the airliner and causing the jet to crash into the ocean. (Aviation Safety Network, n. d.)

Since Korean Airlines Flight 007 originated from the United States, the NTSB jumped into action to begin their investigation of the accident. It was their legal obligation to perform the investigation, but the U. S. State Department “ squashed” the NTSB and made a formal request to have ICAO conduct the investigation. The State Department and the Reagan Administration did not view this event as an aviation accident but as a civilian aircraft downed by the Soviet Air Force. This would be ICAO’s second aircraft accident investigation, since the 1973 Libyan Arab Airlines Flight 114. Perhaps a neutral party was appropriate for the situation, but ICAO has no authority to demand participating countries to provide evidence. ICAO could only ask for voluntary information only. According to an FAA journal, Transportation Certification Update, Summer 1995, in 1992 ICAO, the NTSB led a delegation to the Russian Federation during the AIG/92. The purpose of the trip was to develop a consensus to improve the content within Annex13 and improve that accident investigation process. In 1993, ICAO with the NTSB reopened the investigation on Korean Airlines Flight 007. (FAA, 1995)

With the Cold War ending in the late 1980s and early 1990s, ICAO was finally able to acquire additional information to present a more “ acceptable” report

for the KAL 007 investigation. ICAO and the NTSB were able to see declassified documents, and research additional evidence that prior to the end of Communism would not have been possible. However, even today there are dozens of websites and books that believe there is a more sinister story behind the 1983 Korean Airlines Flight 007 disaster.

NTSB & FedEx 1406

The NTSB as an agency possesses a legendary amount of experience and accomplishments, but they are also human too. The inflight fire of Flight FedEx 1406 comes to mind. . According to the Aviation Safety Network, FedEx 1406 was traveling from Memphis, Tennessee to Boston, Massachusetts when the smoke detectors within the cargo bay systematically activated. The smoke detectors, on the upper deck, activated in the following sequence 9, 8, 7, 10, and 6. The crew was able to land safely at an airfield in Newburgh, New York. The aircrew evacuated safely, but once the compartment hatches were opened, the aircraft erupted in flames. The firefighters were able to extinguish the fire but the aircraft was a total lost. The fire, that burned inside the cargo hold penetrated through the fuselage and cutting the tail section off the aircraft. (Aviation Safety Network, n. d.)

The controversy with this accident was that the NTSB and the National Fire Protection Association (NFPA) could not agree with the source and origins of the inflight fire. Both the NTSB and the NFPA had vast amounts of data to back each other’s claims. According to Walters & Sumwalt’s book, Aircraft Accident Analysis: Final Reports, the air carrier had no idea about the nature of its cargo. The NTSB had recommendations for both the FAA and the

Department of Transportation. Today all persons sending out mail packages or cargo must declare their contents to ensure these items are properly packages and positioned for transportation. This was one accident where nobody involved died and major improvements to cargo transport were implemented. The NTSB and the NFPA could agree on the fire but lives are being saved from the lessons from this accident. (Walters & Sumwalt III, 2000).

Conclusion

In closing, the NTSB and ICAO have kept their promises in promoting and maintaining a safe and secure aviation industry. It is unfortunate that the aviation industry is inherently reactive and needs aircraft accidents and disasters to prompt changes. The FAA and Congress use the recommendations, from the NTSB, to enact improvements and change laws. Sometimes airlines and aircraft manufactures still drag their feet when complying with the newer standards. Today aviation is the safest mode of transportation. Organizations like ICAO, the FAA, the NTSB, and their counterparts provide tremendous service to the citizens of the world. These agencies along with strict regulations make air-travel, as humanly possible, universally safe and secure.