Concorde – Success Or Failure? Essay, Research Paper

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The Concorde – Success or Otherwise?

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Abstract

The Concorde, a joint British-French venture that began as early as 1956, has been described as everything from an economic disaster to a modern marvel. Key British decision makers viewed supersonic air transportation as a necessity to remain at the front in the race among industrial age nations, as well as being able to keep face with the Americans who had leapt to a seemingly insurmountable lead in the air carrier industry. Through four Prime Ministers and various Parliamentary leaders, the Concorde managed to survive skeptics and go into joint production with the help of government subsidizing and very secret research into development, production, and operation costs. To this day that report remains a secret within the United Kingdom, but many have done their own research into these topics. What they have found leads one to believe that the Concorde is not quite the success, economically speaking, that British Airways and Air France would have the world to believe.

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Concorde – Success or Otherwise?

In July of 2000, the Concorde suffered its first fatal accident in the 30 plus year history of its existence. With this crash came the expected questions of the aircraft’s reliability and safety record, which were found to be remarkably good as compared to industry standards. Also coming into question is the necessity of supersonic transport, which leads to the world wondering just how good this aircraft is. Is it safe; is it economically sound; is it worth the costs and risks involved? I will attempt to answer these questions as objectively as possible, concentrating on the success or failure of the program in the United Kingdom.

BACKGROUND

By 1959, the British government considered supersonic transport a confirmed principle and began investigation into production and project development. From 1960-1962, the British and French governments discussed a joint supersonic transport venture, leading to a treaty signed between the two for joint design, development, and production. Also during this time, the USSR began research into developing their own model of a supersonic transport, jokingly referred to by the outside world as the “Konkordski”. The United States was also compelled to enter the supersonic transport race for the same reasons the French and British did. These reasons could all be traced back to national pride. The Americans were torn over the subject, with the majority taking a definite pro- or anti- position. President John F. Kennedy even told the graduating class of the Air Force Academy in 1963 that the nation would be committed to the supersonic transport’s development: “This commitment, I believe, is essential to a strong and forward-looking Nation, and indicates the future of manned aircraft as we move into a missile age as well” (US State Department, 2001). This prophecy, of sorts, would prove to be untrue, as the supersonic transport (SST) would not be pursued by the United States, due largely to economic

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reasons. The French and British, however, would obviously go on to develop the Concorde through the 1960’s and early 1970’s, with the first aircraft entering service in 1976. These aircraft are no doubt a technological marvel. Supersonic passenger transport is a testament to the rapid pace of human engineering discovery. Though the specific numbers and figures are vague, however, it is universally agreed upon that the Concorde is an economic disaster. No matter how much revenue the Concorde generates, it will never be able to repay what it cost to develop and produce.

Program Development

For my purposes here, the SST development began in 1956. That November the Supersonic Transport Aircraft Committee (STAC) was established. The purpose of this group was to assemble a group of government officials and British aircraft and engine manufacturers to begin the debate over the topic. Through previous research into the SST, the people at Farnborough (location of the STAC) had discovered only crude and “silly” aircraft (Gillman, 1977). However, through the help of German aerodynamicist Dietrich Kuchemann, it was deemed some time in 1957 that it would indeed be possible to build the SST.

Not surprisingly, the STAC produced its report in 1959 saying that the SST was a very real possibility and that research and development should go on. This could be considered as the beginning of opposition to the program. Though the STAC officially recommended the SST development, there were certainly individuals who opposed it vehemently. One of the most glaring problems was the dismal economic outlook. It was estimated at the time, by the STAC, that cost would range from $165 million to $266 million. This cost, even if the $266 million figure is assumed, is off by a factor of about fifteen. The British government’s estimate in 1977 of total shared cost for the program was just under $1.7 billion. With considerations given to production costs and losses taken by

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British Airways and Air France, that figure shoots to over $2.1 billion (Gillman, 1977). Government officials began to see the opposition growing. Those who favored the project scrambled for an economic partner to keep it alive. Those who opposed long for the program to be made public, seeing sure defeat due to political pressure.

The friends to the Concorde got their wish in 1962 when French President Charles de Gaulle pleaded with the British for a cooperative SST development. In November of that same year, the treaty was signed by the French and British to co-develop the SST, providing that both countries “must in all aspects of the project make an equal contribution regarding both the costs to be taken on and the work to be carried out, and to share equally proceeds from sales” (Hamilton, 2000).

The project would be carried out by four companies, two each for the airframe and engine. British Aircraft Corporation, or BAE (British) and Sud Aviation (France) would be responsible for the airframe. Bristol Siddeley and SNECMA (British and French, respectively) would handle the development of the Olympus 593 engine. With the treaty signed and both nations eager to begin development and production, the project hit its first snag. Following the general election in 1964, the new Labor Party announced in November that Britain would withdraw from the SST project. In January of 1965, however, this statement was retracted and the program was once again under way.

The Concorde continued to face adversity throughout development. What was thought of as a mach 2 aircraft capable of London to New York travel with 150 passengers was fast become an aircraft that could reach just beyond mach with 130 passengers. And would fall about 200 miles short of New York. Then 100 passengers. Or eighty, depending on the Atlantic headwinds. Or seventy, depending on the heat when departing out of Bahrain. Logistical nightmares were not

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the only problem. With every weight adjustment and airframe redesign, there seemed to be an engine redesign. With each engine redesign came an increase in noise. Coincidentally, the eco-movement was in full swing, and the increasingly stringent noise laws were putting a stronger and stronger chokehold on the SST program.

The embattled program is not without its accomplishments, however. Just the fact that the program survived and supersonic travel is available to the public is considered a marvel in itself. The first test flight of the Concorde took place on March 2nd of 1969, with it being a twenty-eight minute successful flight. On the Concorde’s 45th test flight, the program called for mach speed flight. During 1969, the world would see Concorde make its maiden test flight, first mach flight, and first night landing, all successfully. With these feats, the economic situation of the program seemed to take a back seat to the wonder and amazement of the aircraft.

In January of 1976, the Concorde set off on her maiden flights. British Airways sent a Concorde to Bahrain, and Air France’s version made the trip to Rio. With the economic situation and environmental issues looming over the head of the Concorde, this day of glory would not be denied. The British press praised the event, with Air Commodore E.M. Donaldson of the Daily Telegraph saying, “This without doubt must be the greatest leap forward in air travel the world has ever known” (Gillman, 1977). Most sentiments followed this, with a few obvious exceptions, such as the quote from Herb Coleman, London editor of Aviation Week: “he seats are very comfortable, up to first class forward. But it’s less adequate if you want to around. If you’re used to wide-bodied planes Concorde’s cabin tends to close around you — it’s like being back in Constellation days. There’s a high noise level although not enough to inhibit conversation. Apart from that it’s just another aircraft as far as I’m concerned” (Gillman, 1977). Thought these sentiments were echoed by many, I presume, the overwhelming reaction was positive. The pro-Concorde lot finally had their day in the sun.

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The year of 1976 would not continue to be the upside of the Concorde story. In March of that year, the New York and New Jersey port authorities banned the Concorde from entering. This would put a serious bind on planned Concorde operations, as the route from London to New York was a driving factor since the late 1950’s. On the other hand, permission was not only granted by U.S transportation Secretary William Coleman for Concorde flights into Washington, D.C., he granted them in style. The first arrival of the Concorde in Washington was a flight of two, one French and one British, with a simultaneous approach and touchdown on parallel runways.

1977 would prove to be a somewhat better year overall, as the Concorde reached its first year in service. In that year, she carried over 45,000 revenue-generating passengers and traveled over 3.5 million miles. In February, the U.S. Civil Aeronautics Board granted permission for overland flight from Washington to Dallas. Also, and possibly the most important, the Concorde was allowed to operate into New York in November, after months of testing and long delays due to protests. However, the pendulum always swings both ways, and Malaysia banned the Concorde from operation there after only three flights.

The Concorde was now a mainstay in civil aviation, but had become anything but ordinary. It still drew crowds on arrival at airports around the world, because of the aircraft itself and the desire to see just who was traveling onboard. After the initial “honeymoon” was over, the critics continued. The question now turned to safety, but was answered time and time again by successful, safe flights even when problems arose. Three times the Concorde suffered rudder failure in flight before it was replaced throughout the fleet. Each time, the flight ended without incident. In 1994, an aircraft suffered three outer windowpanes shattering in flight at over 55,000 feet. There was no loss of pressurization, and the flight continued without incident to its

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destination. The Concorde was fast gaining the reputation as the safest air travel option, if not the most expensive. This trend would continue until July of 2000, when the program would suffer its first lost aircraft in over thirty years of operation. Air France Concorde 203 crashed after takeoff from Paris, killing all 109 people on board and three on the ground. The Concorde has been grounded and has not been returned to flying status as of this date.

Conclusion

Though noise could prove to be the Achilles’ heel of the Concorde, there were other problems as well. One that sometimes goes unnoticed is the presence of such great expectations of the program. A fleet of 200-300 was proposed in the beginning. As of 1977, the British government considered 100 to be overly optimistic. With only 20 produced, and no more slated to be, the initial figures were obviously way off the mark. Combined with the horribly miscalculated production and development costs, this points directly at utter economic failure. The question the success or failure of the Concorde, I believe, is still not answered even after thirty years. The current fleet is slated for operation until 2010 by most accounts. This alone could be considered evidence of success; an aircraft in operation for this amount of time, while withstanding the stresses of supersonic flight. However, the Concorde is a commercial airplane. That is, it was designed for business purposes and business are in place to make a profit. The Concorde has yet to profit and shows no hope of producing one by 2010. The only savior of the program has been government subsidies accounting for the losses of British Airways, totaling some $36.5 million annually. That being said, my conclusion is that success or failure ultimately depends on what subject is in discussion. If it is in regards to technological advance and any testament to aerospace engineering and aircraft development – then the Concorde has been a complete success. However, in sole terms of economics, the program has been a dismal failure.

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Bibliography

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