

From Joe Bond, FRAeS.

I was involved with this, ill-fated project, from November 1957 until April 1965.

It began with a phone call from the Chief Project Engineer at Supermarine in the second week of my paternity leave for my second son. He asked if I could return immediately to the Project Office at Hurnby? Park near Winchester, because I was the only one available who could prepare a suitable aircraft configuration to meet the latest operational requirements.

A small team of say 6-8 people was formed comprising those with expertise in various subject such as aerodynamics, structures, systems, vulnerability, weights, etc.

I prepared a configuration, with two engines, with reheat, in the fuselage and a swept back wing, tailerons and all moving fin. It had a high wing and low tailerons, which I considered was essential for longitudinal stability throughout the pitching moment range.

Some earlier aircraft had a pitch-up problem within the alpha-range, due to other configurations of nosing and tailplane.

Then circa May 1958 the design staff at Supermarine were informed they were to be transferred to the Swindon factory.

At this point, Sir George Edwards, who had designed many successful aircraft at Weybridge, became aware of our work on the TSR2 specification. He thought there was a chance he could obtain the contract and decided our small team should not be moved to Swindon. We therefore arranged for us to continue our studies at Hurn on a temporary basis.

Subsequently, Sir George came to Hurn circa September 1958 and asked us to move to Weybridge because, with his contacts, he thought the odds of his obtaining the contract were favourable.

I can still recall the day when we arrived at Weybridge station on a very hot day and proceeded along the Walton-on-Thames road, trying to find a hotel with sufficient accommodation. Just as we were about to collapse, our guardian angel appeared in the form of the chief test pilot of

Supermarine, Jeffrey Quill. He then drove us, in two groups, to a hotel he knew and had enough vacancies.

Back to the serious design activities. Immediately we arrived at Weybridge Sir George took a serious interest in my proposed configuration. He was not a strong supporter of designs where the engines were mounted in the fuselage. He instructed me to produce a number of configurations with engines mounted outside the fuselage. He would arrive at my drawing board every morning at 8.30am and expected a new design each day for at least a week. After that, he conceded that the original configuration was the best for a supersonic aircraft in this particular role.

We also discussed possible power plants and because a developed Olympus engine, plus reheat appeared to cost less than a new design, we chose the Olympus.

Although we did not know this at the time, English Electric at Warton had produced a similar configuration called the P.17A.

Then during a period in 1958, after I had carried out a series of optimisation studies, Sir George came to me and said 'if I could say to the ministry officials, that the aircraft could operate from soft runways, like a Dakota, I think I could sell it'. I will be back tomorrow at 8.30am when I want to see an undercarriage with low pressure tyres.

A few days later he came back and said 'Mr Bond, we have the contract'. I later discovered it was to be shared with English Electric with the overall responsibility remaining with Sir George Edwards or GRE as he was known. Subsequently, English Electric and Vickers merged to become the British Aircraft Corporation.

The requirement at that stage was to produce an agreed configuration, which could be presented to the design organisations at Warton and Weybridge, the order that detail design could commence.

Sir George came to me and asked if we had considered a delta wing among our optimisations. As this was something we were about to consider, he proposed a unique solution, such as incorporating the English Electric P.17 wing which would utilise the existing knowledge at Warton. I incorporated it and this proved to be an excellent aerodynamic combination.

I then asked the chief weights engineer what percentage of weight growth was likely to occur from conception to certification, because the specification stated that the basic sortie must be achieved on internal fuel. He gave me a figure which I used to calculate the amount of extra fuel space required, which I then incorporated.

Another problem which I had to solve was when the army support role was considered, the aerodynamics department stated that the aircraft would not be rotated at take-off speed. So I proposed that the nose undercarriage should extend to provide the necessary rotation. I believe during flight testing, this proved to be unnecessary.

Then at last, the ultimate moment. I stood near the side of the runway at Boscombe Down on 27 September 1964 to witness the initial take-off. I had my fingers and legs crossed, hoping that the undercarriage was tall enough, the wing was correctly positioned on the fuselage and the overall stability was acceptable.

I have read Bea's book and listened to his comments on a DVD and I must say he appeared to be appreciably happier with the aircraft than the politicians who cancelled it.

The combination of a Supermarine fuselage, English Electric wing and all the other expertise at Warton, Weybridge and various electronic companies, appeared to have produced one of the finest weapon systems that the RAF never had.

After the finalisation of the basic configuration, I was involved with future developments such as installation of various weapons, a barrier at the end of the runway developed by people of Bedford, specifically for TSR2, a study at Cranwell where they chose TSR2 for their project, and a management system.

To sum up, it was a case of going from high expectation to total depression in 7.5 years.