Mini Case Study
Roy Chadwick and the Vulcan

Configuration evolution as shown through the progression of drawings

Originally collected
By
Nathan Kirschbaum
The Requirement

• British issue RFP for a strategic nuclear jet bomber: 1947
  – 10,000 lb bomb, 3,350 miles, final cruise at 50k ft.
  – Mach = 0.875
• This starts the V-series bombers
• First flight of Vulcan prototype: Aug. 1952
• Operational in RAF: May 1956 - the B.1
• First flight of Vulcan B.2: Aug. 1958
Chadwick’s initial concept

Chadwick had been known as the father of the Lancaster
The concept gets defined in detail
The first model: the B.1A
The final configuration: Model B.2

Vulcan B.2 general arrangement.

*TOTALLY REVISED WING*

It is no longer a delta wing configuration; it is now a swept flying wing — far different from designer's initial sketch.

Spec's forgotten to make this thing perform
A true classic!

By Andy Leitch, www.avrovulcan.org.uk
The lessons?

• The concept needs to be continually revised as more understanding is gained: iteration
• Understanding of the issues in terms of basic physics is key

PS - Roy Chadwick died in an AVRO Tudor crash in 1947

In the cockpit of this very plane, Nov. 1999
Note Scott Bland in back

Note: This plane flew again in 2007!
Hoping to get one flying again

Andy Leitch, www.avrovulcan.org.uk