

I am too young to have worked on the TSR2 but I can offer a few items from a different perspective. I worked at BAE Systems Rochester, which was Elliott Bros, and since my retirement I have established a small collection and document archive known as Rochester Avionic Archives. This is maintained within the company at Rochester so is not open to the public. However I have just been funded to set up a Web site.

In my collection is one of the only two TSR2 Head Up Displays. The other is in the Science Museum annexe at Olympia. The HUD was made by Rank Cintel and that company was acquired by Elliotts in 1964 where it became the basis of the Airborne Display Division.

Herewith an extract from the book I am writing about Elliott's HUD's:-

'The operational requirement included an 11 degree overnose line from the pilots eye reference. The windscreen was set at 35 degrees to the horizontal to optimise the field of view which in turn compromised the HUD position. The TSR.2 HUD was designed by Cintel in 1963 and was fitted to the aircraft which first flew in September 1964. The HUD used a 6.5 inch refractive optic and the HUD projected onto the inside of the windshield; there was no separate Combiner Glass in order to avoid the heavy support structure. However the windshield glass was extremely thick to give adequate birdstrike protection and this gave multiple reflections off inner and outer surfaces and still distorted too much at high speed. This solution was also very expensive, required a large and

very heavy optical system (because the HUD was located so far away from the windshield) The PDU alone weighed about 65 pounds. Achieving all the alignments and accuracy's proved difficult and it was known that the windscreen deflection would give rise to boresighting problems.

The Electronics Unit was still analogue with a novel concept of 1" cube circuit blocks for the various functions and of course germanium transistors. The system generated a wide range of weapon aiming and flight guidance symbology. It was felt at the time that the equipment might never meet the temperature performance coupled with the extreme accuracy. To compound the problems the Cintel senior engineer who was the driving force behind the development, Jack Bentley, died at a crucial stage in the development. The TSR2 would have been retrofitted with electronic displays but in the mid 60's these were just emerging and the demand on the avionics were very challenging for the available technology.'

Peter Lowry who was a Chief Engineer at Cintel suggests that the chances of achieving the specified terrain following performance with the germanium transistors prone to drift was 'challenging'.

The pictures here show the EU, the PDU and a Control Panel.

Chris Bartlett



Electronics Unit



