



## The RAF Tristar

The RAF required a new fuel quantity test set to replace the ageing and increasingly unsupported variety of fuel sets that were widely used on various RAF platforms.

Ultra Electronics BCF won the contract to design and put into production a microprocessor test set, capable of performing, at a minimum, all of the functions of the previous test equipments.

Tristar was one of the first platforms to become integrated. Initially the DE8490 fuel system test set was trialled along with the existing leads and switchboxes to overcome the problems of a system that uses both ac and dc and also to achieve accurate measurement figures which are vital when fault finding.

### Greater confidence

At this stage, the DE8490 test set entered service in a limited capacity, being used only in manual mode, but providing the user with greater confidence and accuracy within their readings.

In order to negate the need for servicing books and papers, as well as improving task times, user engineer support software was written showing maintenance procedures on screen in recognisable RAF "speak".

Once accurate measurement of the probes and individual tanks were achieved, new cables were designed and manufactured to replace the existing ones.

The development of a simulation program, a feature that would assist in fault diagnosis of the Fuel Indicating system, followed as a result of the successful integration. It was the first time that a feature of this kind had been made available to the Tristar engineers. Also with final adjustments to the operating software, Tristar now had the ability to carry out testing in automatic mode.

#### Successfully integrated

A new switchbox had to be designed and built to replace the existing, ageing capacitance switchbox. The switchbox produced was not only successfully integrated to replace the existing box, but also the breakout box previously used for fuselage tanks on the Tanker variant.

Engineers from both the RAF and BCF conducted a complete system test and simulation of the DE8490 FSTS, universal capacitance switchbox and cable sets.

The fuel quantity test solution designed by BCF has provided the Tristar the ability to:

1. Accurately record individual and group probe capacitances
2. Simulate a measured amount of fuel on the flight decks instruments
3. Carry out tests swiftly and easily in automatic mode or more in depth in manual mode
4. Record all results achieved from testing to create a database or log of historical data for each aircraft for future trend analysis

#### UK MoD

##### – aircraft intergration programmes

- |                         |                        |
|-------------------------|------------------------|
| ■ Apache                | ■ Tucano               |
| ■ Lynx MK 3/7/8/9       | ■ VC10                 |
| ■ Tornado GR/F3         | ■ Sentry E3D           |
| ■ Tristar/L-1011        | ■ Nimrod               |
| ■ Chinook 2/2A          | ■ Sea King 2/3/4/5/6/7 |
| ■ Harrier GR/T10        | ■ Hawk                 |
| ■ Hercules C-130J, K, H | ■ Jaguar GR/T4         |

#### US Navy

##### – aircraft intergration programmes

- Cobra H-1, AH-1W, HH-N, UH-1N
- Goshawk T-45
- Greyhound C-2
- Hawkeye E-2C
- Hercules C-130J, K, H
- Hornet FA-18A, B, C
- Orion P-3A, B, C
- Prowler EA-6B
- Sea Hawk H-60, SH-60B F, R, HH60H, F, MH60Rs
- Sea Stallion H-53D, CH-53D/E, MH-53E, RH-53D
- Sea Knight H-46, CH-46D/E, HH-46D, UH-46D, UH-46D

#### Civil aerospace

##### – aircraft intergration programmes

- |              |                               |
|--------------|-------------------------------|
| ■ Agusta 109 | ■ Jetstream                   |
| ■ BAe 146    | ■ Puma                        |
| ■ Hawker 125 | ■ Airbus A380<br>(Production) |
| ■ Dominie    |                               |



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