



**The Aerospace Testing Solutions Company**



## Background

**BCF Designs Ltd. specialises in the design and supply of operational level Ground Support Equipment for both the military and civil aerospace markets.**

**Innovative solutions for testing:**

**Aerospace Military Wiring**

**Fuel Systems**

**EMC Compliance**

**Digital Avionics**

**are available as commercial of the shelf test equipment.**



## **At Hamburg 2003**

**BCF Designs presented a new microprocessor controlled Fuel System Test Set, the DE8490, designed to:**

**Facilitate commonality of testing**

**Reduce time to test**

**Reduce complexity of testing**

**Improve traceability**

**Enhance fault diagnosis and location**



## **At Hamburg 2004**

**BCF Designs presented a paper entitled  
“Fuel System Testing – One Year On”**

**This covered:**

**Aircraft integration**

**Lessons learnt**

**Ongoing possibilities**



## Aircraft Integration – MOD UK Fleet

The BCF test set has since been successfully integrated onto the following aircraft platforms:

**Tornado**

**Jaguar**

**Harrier**

**Sentry**

**Hawk**

**Nimrod**

**C130**

**VC10**

**Chinook**

**Puma**

**Lynx**

**Jetstream**

**Tucano**

**Apache**

**Tristar**

**Sea King**

**BAE 125**

**BAE 146**

**Dominie**

**Canberra**

**Agusta 109**



## **DoD US Navy Aircraft Fleet**

**In 2004, building on from the successful integration of the UK aircraft fleet, BCF Designs was awarded the contract to supply the US Navy with a new common fuel quantity test set across all of their aircraft platforms.**

**The new DE8491 test capability incorporates many of the features and benefits learnt during the development and integration of the original DE8490 test set.**

## DE8491





## Aircraft Integration – DoD US Navy

The BCF DE8491 test set will be required to interface with and interrogate the fuel quantity systems of the following aircraft platforms:

- **Hornet**  
F/A-18 A/B/C/D
- **Cobra**  
H-1 AH-1W      HH-N  
UH-1N
- **C130**  
H/J/K
- **EA-6B**
- **Orion**  
P-3 A/B/C
- **Hawkeye**  
E-2C
- **Sea Stallion**  
H53                      CH53D/E  
RH-53D                MH-53E
- **Seahawk**  
H60                      SH-60B/F/R  
HH-60H/F              MH-60R/S
- **Sea Knight**  
HCMK1H-46            CH-46D/E  
HH-46D                UH-46D

## **Extended Functionality of the DE8491**

**Distance to fault measurement**

**Fuel flow measurement**

**Ultrasonic based fuel quantity systems**

**Software diagnostic routines**

**Thermistor testing – pump and level sensors**

**Measurement through transient suppression units**

## **ATEX Requirements**

**Test equipment must be safe to use in hazardous environments**

**An aircraft can be considered to be a hazardous environment particularly the fuel tanks**

**What are the implications?**



**One of our major customers has only one piece of test equipment out of hundreds that meets ATEX requirements –**

**Will all existing Test Sets be replaced by June 06?**

**Discuss!!**



**Quote from HSE website:**

**“Carry out risk assessment before commencing any new work activity involving dangerous substances”**

**Implications?**



**How many incidences of test equipment induced explosions have occurred?**

**Are our Test Sets inherently safe?**



**Are we undertaking new practices?**

**Have the substances involved changed?**



**We must do everything possible to provide safe working environment for aircraft engineers-**

**Does the new legislation improve safety?**



**To achieve certification we would need to:**

**redesign Test Sets**

**paying particular attention to:**

**Power supplies**

**Energy utilised to make measurements**



**BCF have design options to  
achieve compliance, and are liaising  
with customers to define the final  
requirements**



**In conclusion:**

**Do we know as an industry how best to respond?**