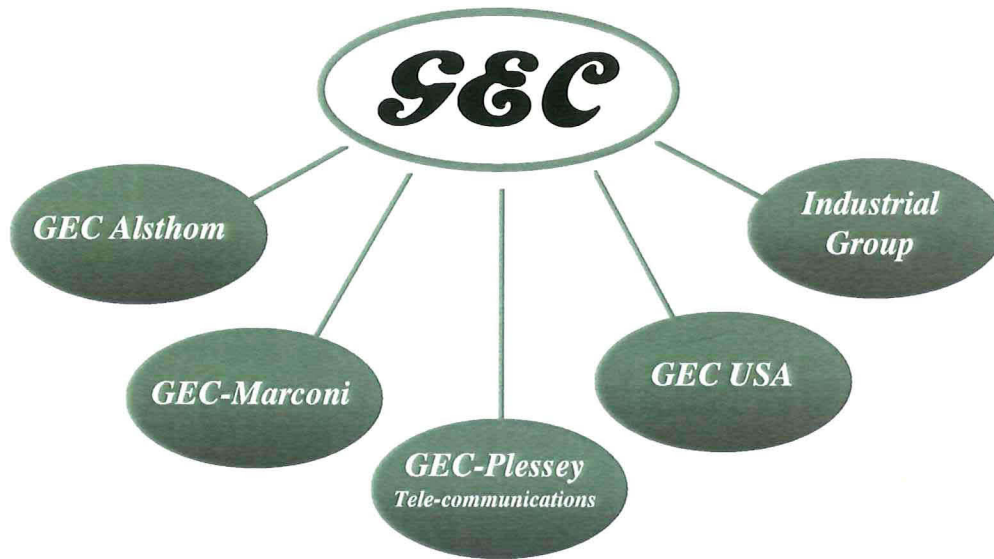




*Mission Avionics Division*

*Corporate/Divisional  
Structure*

**GEC-Marconi**



- 3 Key Businesses : GEC Alsthom, GEC-Marconi, GEC Marine & GPT
- Together deliver over 75% of GEC's operating Profit

## *The General Electric Company plc*

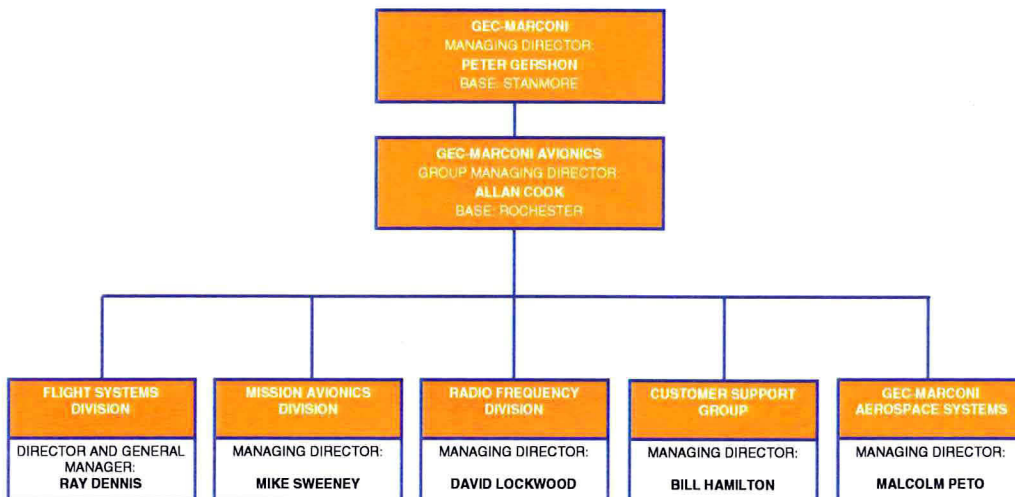
Year ending March 1997

- Sales / Turnover                    £11,147 million (\$17,734m)
- Operating Profit                    £660 million (\$1,050m)
- Outstanding Order Book        £15,387 million (\$24,,479m)
- Employees Worldwide            127,000

## GEC-Marconi Group of Companies

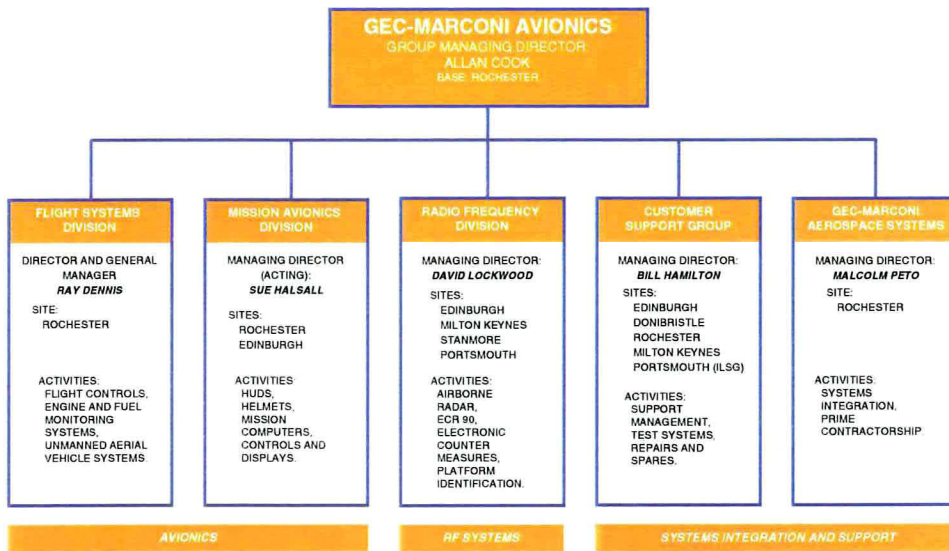


## GEC-Marconi Avionics Structure





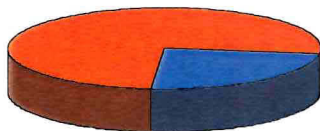
## GEC-Marconi Avionics Structure



## GEC Sales / Turnover

Year ending March 1997

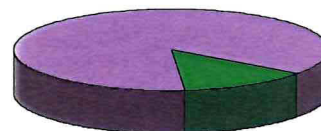
**GEC**  
£11.147M  
\$17,723M



**GEC-Marconi**  
£3.567M  
\$5,672M



**GEC-Marconi Avionics**  
£725M  
\$1,153M

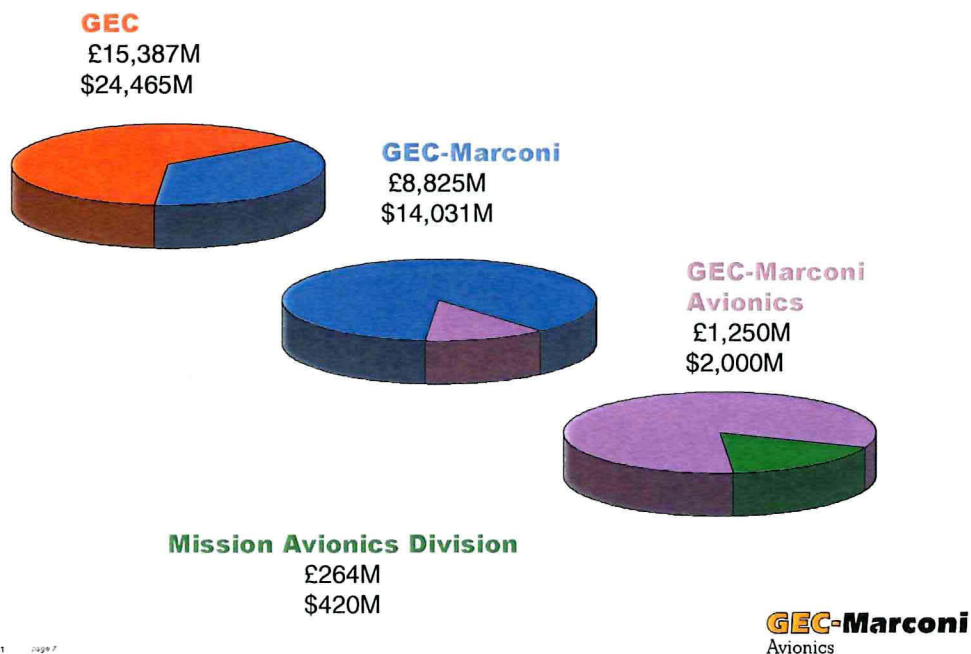


**Mission Avionics Division**  
£112M  
\$178M



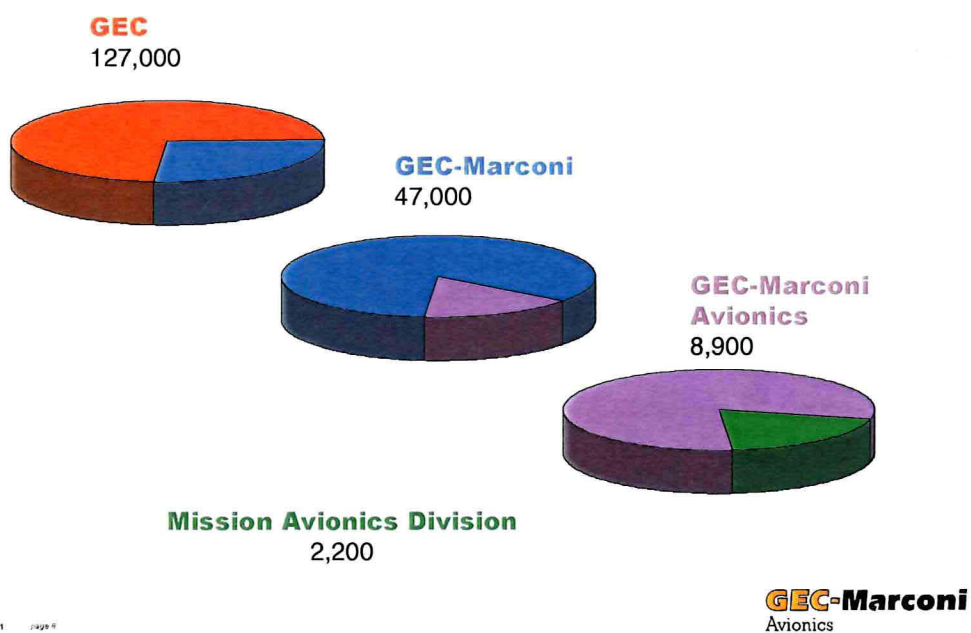
## GEC Order Book

Year ending March 1997



## GEC Employees

Year ending March 1997



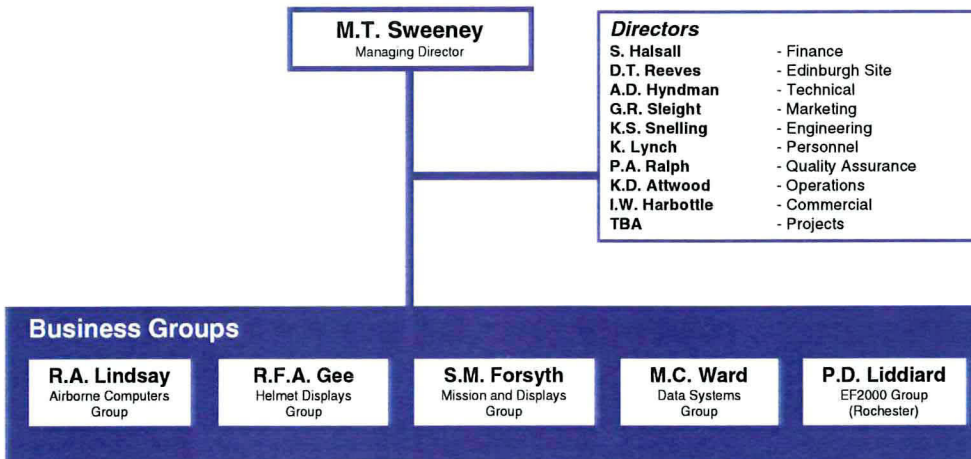
## Europe's Largest Avionics Manufacturer



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**GEC-Marconi**  
Avionics

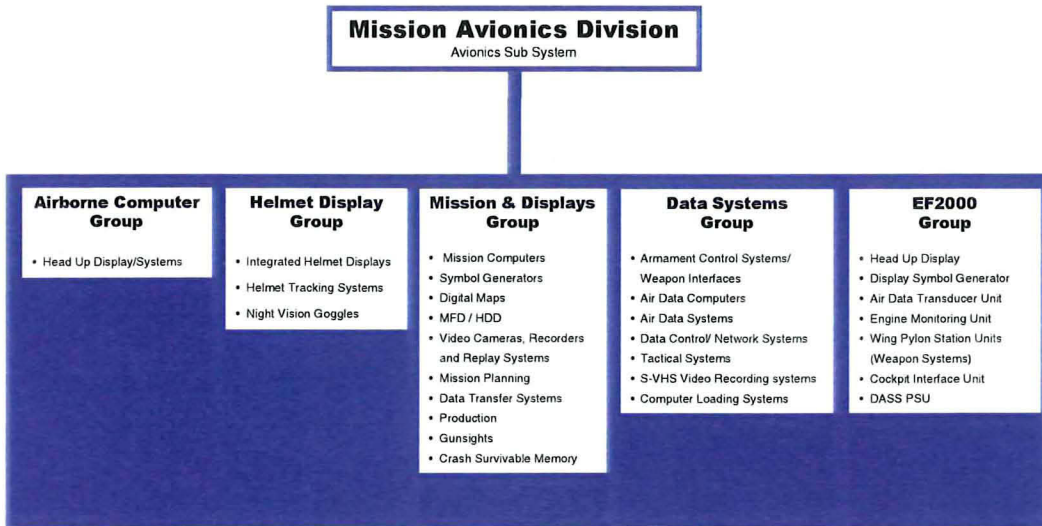
## Mission Avionics Division Organisation



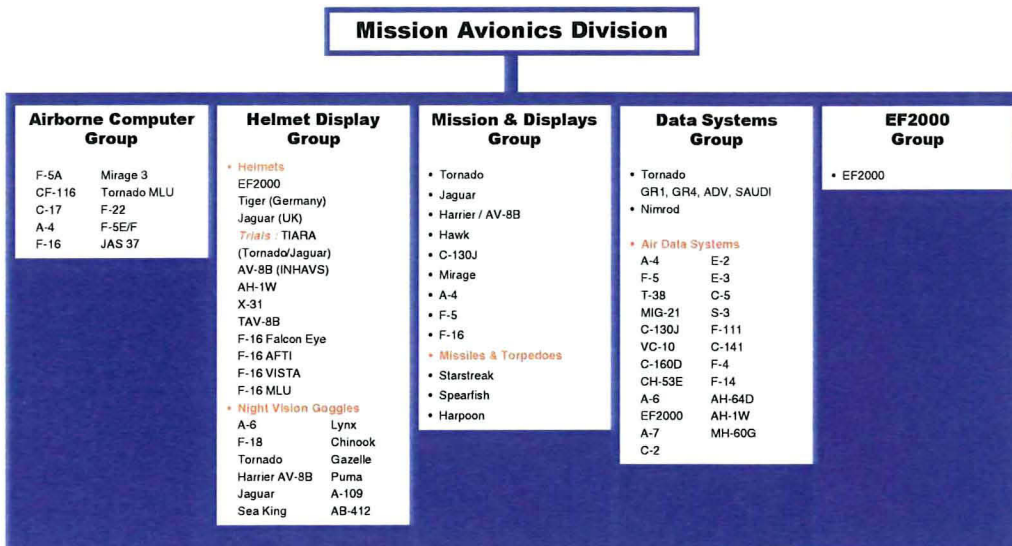
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June '98

**GEC-Marconi**  
Avionics

# Mission Avionics Division Products



# Mission Avionics Division Platforms







*Mission Avionics Division*

*Product  
Applications*

**GEC-Marconi**

# GEC-Marconi Avionics Expertise

## Mission Avionics Division Products



Tornado

- MAD**
- Stores Management
  - Head Up Displays
  - Video Camera
  - Night Vision Goggles
  - Weapon Interface Unit
  - Digital Map Generator
  - TV TAB
  - E-SCOPE
  - Computer Symbol Generator
  - Wave Form Generator
  - Combined Radar & Pilot's Map Display
  - Video Recording System
  - Mission Planning System
  - Triplex Transducer Unit
  - Fuel Flow Meter
  - TIALD Camera

- GM**
- Radar
  - Flight Controls
  - Fuel Pumps
  - Coolant Pumps
  - Pressure Reducing & Shut-off Valves
  - Pressure Sensor & Switches
  - Temperature Sensor & Switches
  - FLIR
  - TIALD
  - Defensive Aids

# GEC-Marconi Avionics Expertise

## Mission Avionics Division Products



Sea Harrier



Harrier GR7 (UK)



Harrier AV-8B (USA)

- MAD**
- HDD
  - Video Recording System

- GM**
- Navhars
  - Flight Controls
  - TACAN
  - Blue Vixen Radar
  - Fuel & Coolant Pumps
  - Single Air Motor Servo Unit
  - Water Injection Pumps

- MAD**
- Digital Map
  - Video Map Generator
  - Nightbird NVGs

- GM**
- Defensive Aids
  - Single Air Motor Servo Unit
  - Communications
  - Fuel Pumps
  - Water Injection Pumps
  - Inertial Navigation

- MAD**
- Cats Eyes NVGs

- GM**
- Single Air Motor Servo Units
  - Fuel Pumps
  - Fuel Flow Meters
  - Water Injection Pumps
  - FLIR

## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products



Hawk

- MAD**
- Head Up Display Monitor
  - Video Cameras
  - Video Recorders
  - ISIS Gunsight
  - Data Transfer Systems
  - CNI/Control & Display
  - Engine Monitor Panel Display

- GM**
- T45 - Yaw Damper

## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products



Jaguar

- MAD**
- Head Up Display
  - Head Down Display (AMLCD)
  - Helmet Mounted Display
  - Air Data System
  - Mission Computer
  - Digital Map Generator
  - Night Vision Goggles



## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products



Photograph by courtesy of BAe

EF 2000

- MAD**
- Head Up Displays
  - Helmet Mounted Display
  - Display Symbol Generator
  - Crash Survivable Memory Unit
  - Air Data Transducer Unit
  - Engine Monitoring System
  - Wing Pylon Station Units  
(Weapon Systems)
  - Cockpit Interface Unit
  - DASS PSU

- GM**
- Radar
  - Flight Controls
  - Fuel Pumps
  - Coolant Pumps

## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products



A-4

- MAD**
- Head Up Displays
  - Head Down Display
  - Air Data Systems
  - Mission Computer
  - Display Processor
  - Weapons Management
  - Video Camera
  - Video Recorder

## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products



F-5

- MAD**
- Head Up Displays
  - Head Down Display
  - Air Data Systems
  - Mission Computer
  - Display Processor
  - Video Camera
  - Video Recorder

## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products

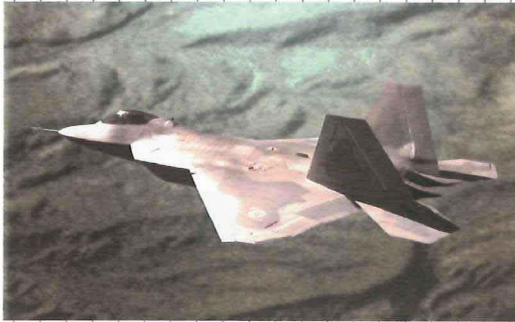


F-16

- MAD**
- Head Up Displays
  - Video Camera
  - Trials
    - Helmet Mounted Displays
    - Digital Mapping
- GM**
- Side Stick Controller
  - Flight Controls

## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products



F-22

- MAD**
- Head Up Displays
  - HUD Camera

- GM**
- Pilot's Sidestick Controller
  - Vehicle Management System

## GEC-Marconi Avionics Expertise

### Mission Avionics Division Products



C-17

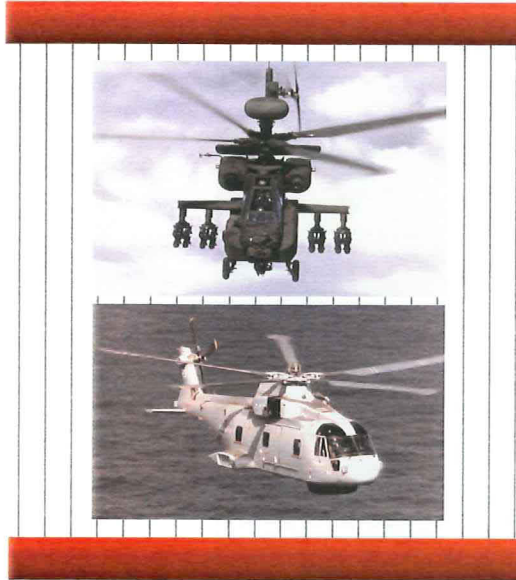
- MAD**
- Head Up Displays
  - Symbol Generator  
(Embedded within HUD)

- GM**
- Fuel Boost Pump
  - Control Valves
  - Cargo Ramp Floor
  - Vertical Stabiliser Spars  
and Stringers



# **GEC-Marconi Avionics**

## *Expertise*



### **Attack Helicopters**

- **Integrated Avionics Suites**
- **Mission Computers**
- **Displays**
- **Helmet Mounted Displays**
- **Head Tracking Systems**
- **Night Vision Systems**
- **Air Data Computers**

### **ASW Helicopters - Merlin**

- **Air Data Computers**
- **Flight Controls**
- **Radar**
- **Comms**
- **Sonobuoy Processing**
- **Fuel Boost Pumps**
- **Jettison Pumps**



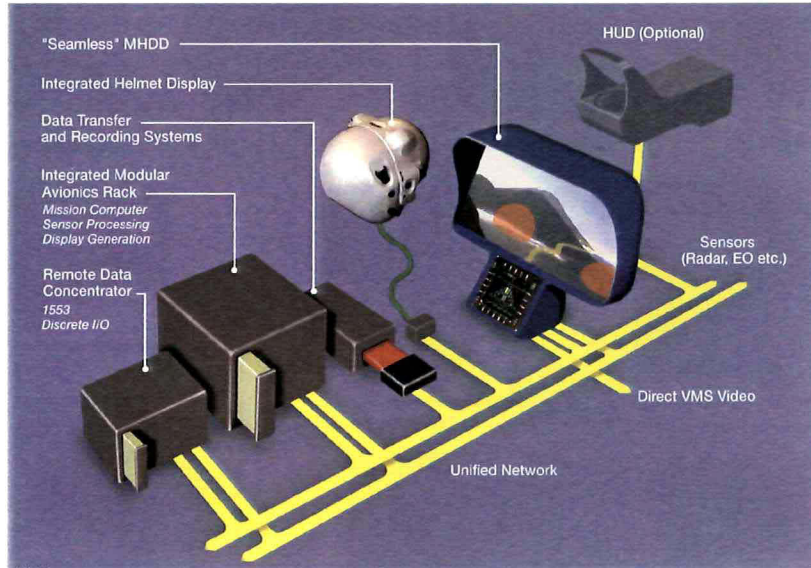
*Mission Avionics Division*

*Products*

**GEC-Marconi**

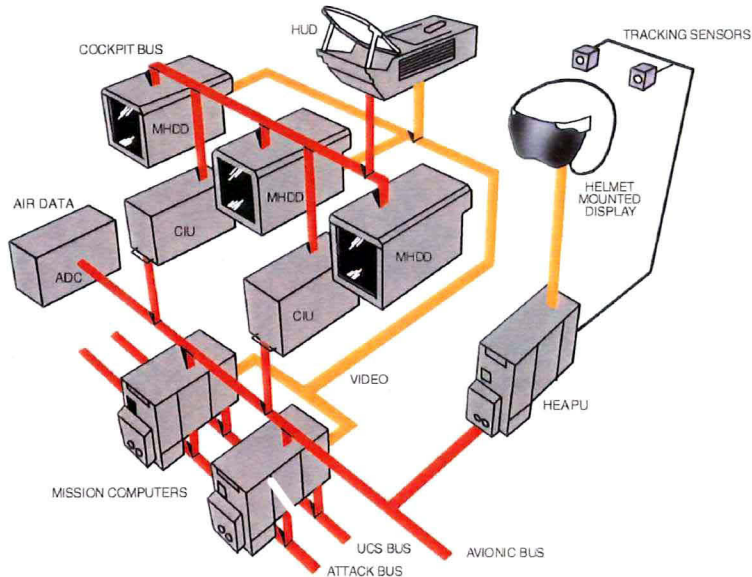
# Mission Avionics Division

## Future Business Scope - Display and Control Subsystem



# Mission Avionics Division

## Current Business Scope - Display and Control Subsystem





## Head Up Displays Current Range



■ F-5A / CF-116 / Jaguar\*



■ F-22



■ A-4 / Mirage / CASA 101\*



■ Tornado MLU\*



■ F-5 EF



■ EF 2000\*



■ F-16 C/D Diffractive\*



■ Mirage 3



■ F-16 C/D\*



■ C-17

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\* Raster Capable

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Avionics

## Air Transport and Business Jet HUD



- **Cursive /Cursive on Raster**
- **Pupil Relayed Optics**
  - 30° Az x 25° El TFoV
  - Single Combiner - Meniscus Coating, Synthetic Hologram
  - Folds upwards when not in use
  - Break forward for safety
- **Weight**
  - Overhead Unit and Combiner 34.2 lbs
  - Mount 4 lbs
- **Aircraft Power**
  - 28V dc
- **Status**
  - In production for Gulfstream IV / V
  - Ordered by American Airlines

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**GEC-Marconi**  
Avionics

# Head Up Display

## Key Features

- Range of >10 configurations
- Uncooled and cooled
- Stroke/Stroke on Raster
- Stroke only
- Raster
- Conventional Optics
- Diffractive Optics
- Single & Dual Combiner
- Collapsible Combiners
- Weapon Aiming Symbolology/NAV
- Integrated UFCP's

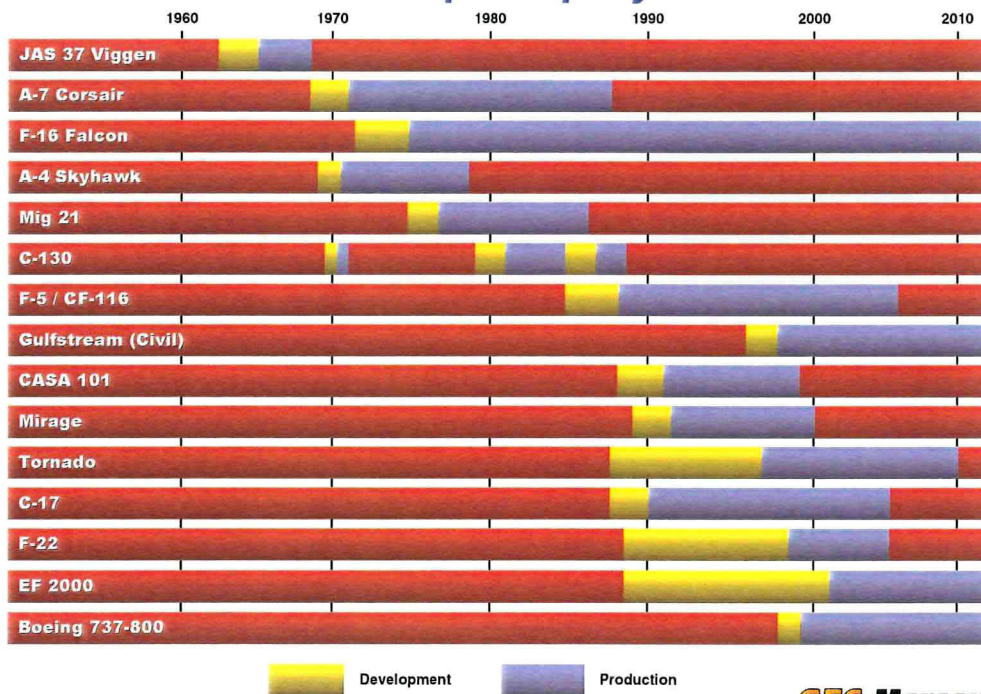
## Applications

- Fast Jet
- Military Air Transport
- Gunship
- Business Jet
- Civil Air Transport
- Helicopter

## Outline Specification

- Up to 30°Az.IFOVx25°ER.IFOV
- Weight 26lb to 70lb (PDU only)
- Power 10VA to 86W (PDU only)
- MTBF - Up to 7000 hours
- 1750 processor available
- 1553 BUS available
- RS 422
- ARINC 429

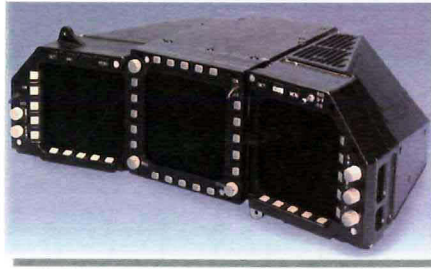
# Head Up Displays



## Multi Function Displays - CRT



■ TV TAB



- A-4
- Hawk
- S61
- CASA 101

- Mirage
- AMX
- Sea Harrier

## Multi Function Displays - CRT

### Product

- Monochrome CRT
- High Brightness
- 115mm x 115mm Active Area
- Compatible with  
1:1 Aspect Ratio and  
4:3 Aspect Ratio
- Brightness and  
Contrast Controls
- Soft Keys
- NVG Compatible

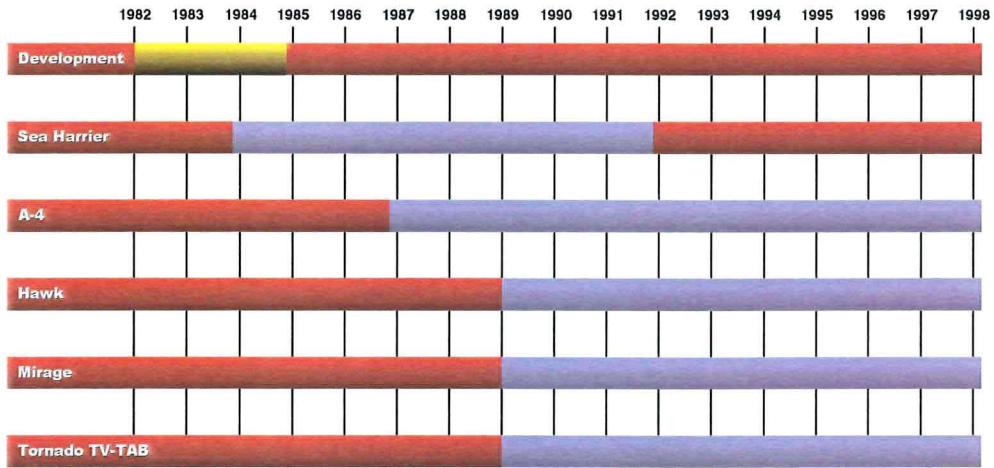
### Applications

- Fast Jet
- Helicopter
- Radar Display
- FLIR Display
- HUD Monitor
- System Management

### Outline Specification

- 500ft Lamberts
- 5.6:1 Contrast Ratio
- 65 Watts
- 625/525 Line Input
- 8kg
- -40°C to +55°C Operating

## Multi Function Displays - CRT



## Multi Function Displays - AMLCD



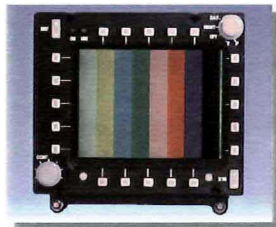
■ Tornado TV - TABS



■ Jaguar



■ Hawk HUD Monitor



■ Light Attack Aircraft



■ Seaspray



## Multi Function Displays - AMLCD

### Key Features

- High Brightness
- Sunlight Readable
- Full Colour
- NVG Compatible
- Low Life Cycle Cost

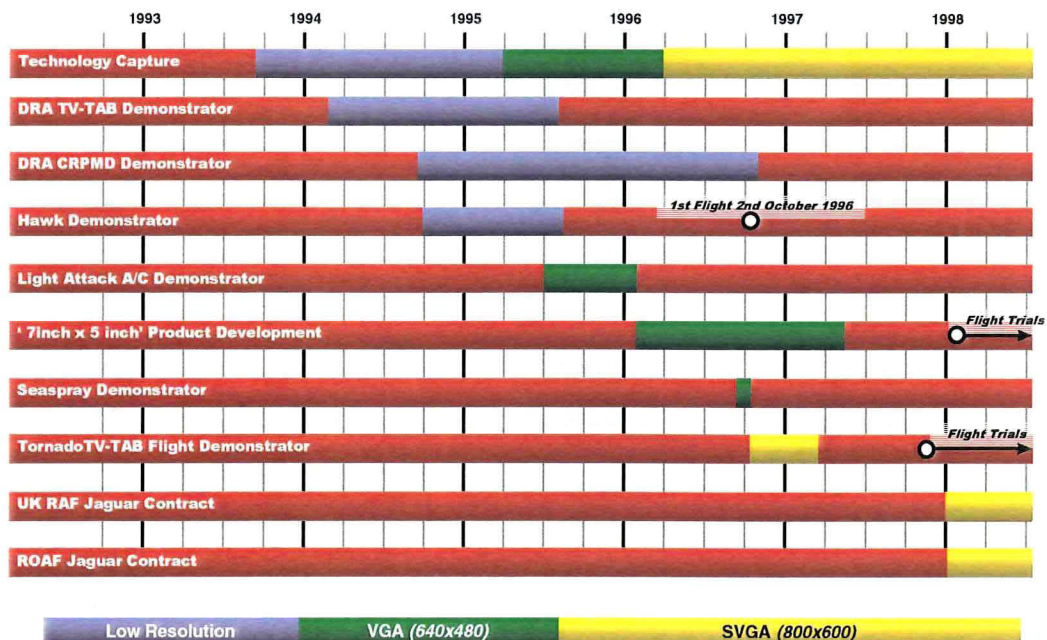
### Applications

- Fast Jet
- Helicopter
- Radar Display
- FLIR
- HUD Monitor
- System Management

### Outline Specification

- 800ft Lamberts
- 800 x 600 Full Colour Pixels
- 64 Greyscale
- 10:1 Contrast Ratio
- Full Military Environment

## Multi Function Displays - AMLCD



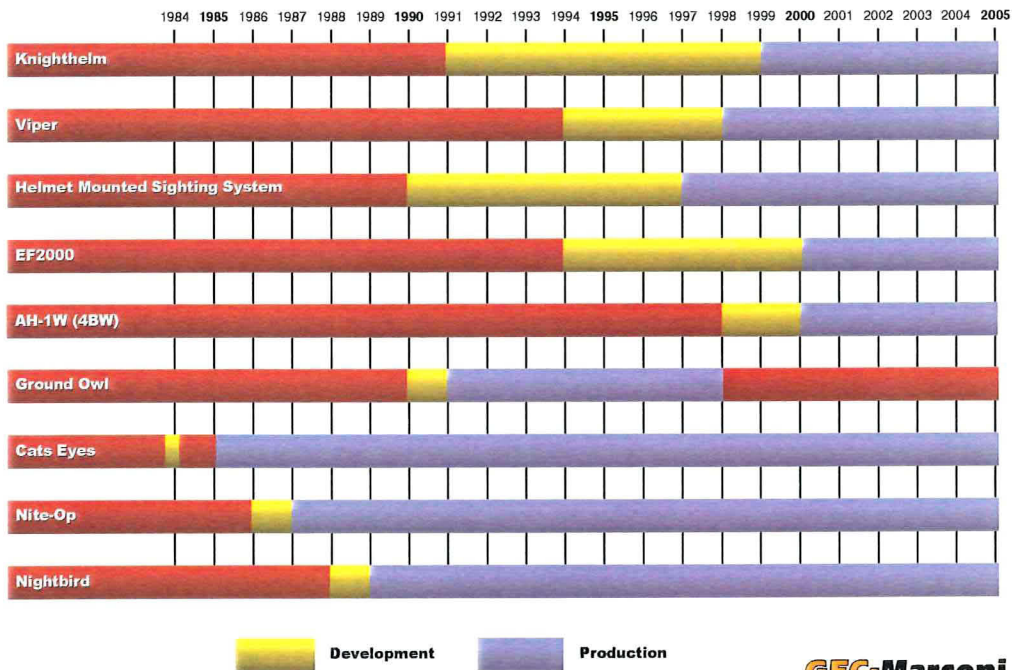
# Helmet Displays



# Helmet Displays

Product	Key Features	Applications	Outline Specification
Helmets	<ul style="list-style-type: none"> <li>High Performance 24 hr Display</li> <li>Monocular &amp; Binocular Combiner or Visor Projected Display</li> <li>L.E.D. Sighting System</li> <li>Head Tracking</li> <li>Rotary &amp; Fixed Wing Mission Adaptable</li> <li>Night Vision Camera</li> </ul>	<ul style="list-style-type: none"> <li>Fast Jet</li> <li>Rotary Wing</li> <li>Research</li> </ul>	<ul style="list-style-type: none"> <li>20° and 40° F.O.V.</li> <li>Low Weight</li> <li>Modular System</li> <li>NVG capable of independent operation from aircraft power supply</li> </ul>
Night Vision Goggles/Sights	<ul style="list-style-type: none"> <li>Multi Applications Night Vision System (Ground Owl)</li> <li>Unique Combiner N.V.G.(Cats Eyes)</li> <li>High Performance Large F.O.V. Night Vision Goggle (Nightbird)</li> <li>Raster Head Up Display (HUD) Compatible N.V.G.(Cats Eyes)</li> <li>Automatic Detachment on Ejection(Night Op)</li> </ul>	<ul style="list-style-type: none"> <li>Fast Jet</li> <li>Rotary Wing</li> <li>Ground Forces</li> </ul>	<ul style="list-style-type: none"> <li>30°, 40° and 45° F.O.V.</li> <li>Independent power source for each binocular assembly.</li> </ul>

## Helmet Display Options



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**GEC-Marconi**  
Avionics

## Digital Maps



■ **Digital Map Imagery**



■ **Tornado GR-4**



■ **Harrier GR7  
Video Map Generator**



■ **RAF/USAF C-130J Jaguar MSG**

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**GEC-Marconi**  
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# Digital Maps

## Key Features

- Flexible Data Storage Medium
  - Optical Disk
  - Solid State
  - Hard Disk
  - PC card (PCMCIA)
- ASRP/CADRG Data Standards
- Vector map Capable
- Analogue/Digital output

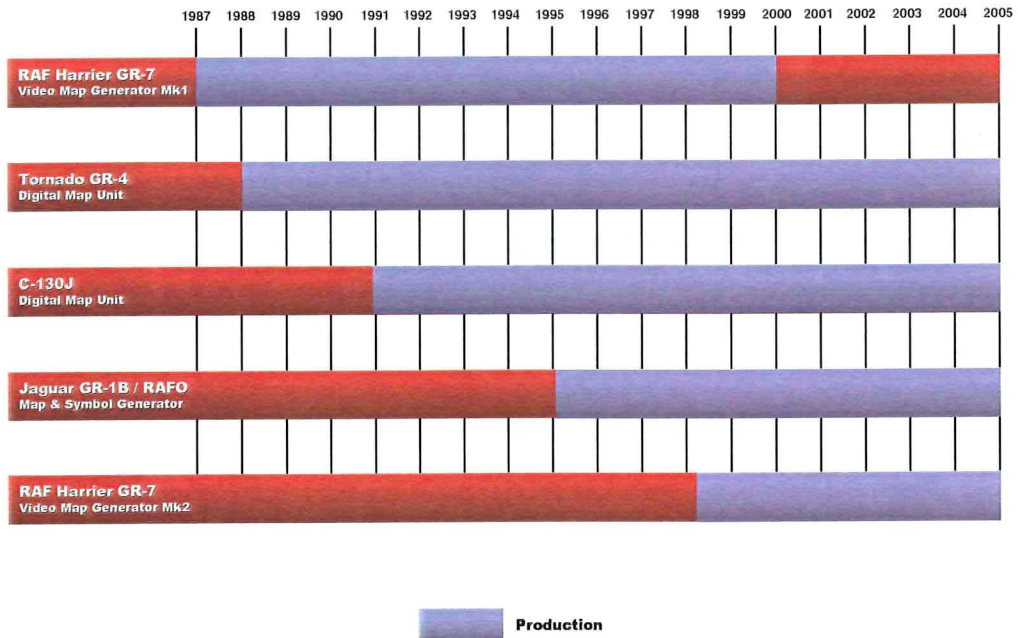
## Applications

- Fast Jet
  - Tornado GR-4
  - Jaguar GR1-B
  - Harrier GR-7/T-10
- Transport
  - C-130J

## Outline Specification

- 8 Map Scales
- 16 colours moving map
  - Smooth rotation
  - Zoom capability
- Additional 16 colours for overlays
  - Route
  - Tactical Information
- 1553B Interface
- Overlay De-clutter

# Digital Maps





## Video Systems

### Video Cameras



■ Tornado



■ F-16

### Video Recorders



■ Tornado, Harrier GR7, Skyhawk, T-45

### Video Multiplexers



■ Tornado

### Video Replay



■ Tornado



■ Harrier GR7

## Video System Options

### Product

#### Cameras

- COTS Single and two-piece
- Latest technology solid state sensor with high resolution, sensitivity and accurate colour
- Field of view matched to HUD

### Applications

- Head Up Displays
- Cockpit
- Pod

### Outline Specification

- 1/2" CCD colour image sensor
- 450 lines/picture height resolution
- Full performance 3-3500Cd/m<sup>2</sup>
- Available in 525 line NTSC or 625 PAL standard

#### Video Recorders and Multiplexers

- COTS (Commercial off the Shelf)
- Complete colour multiplexing capability up to six channels
- Four colour video recording
- Cockpit voice continuously recorded

#### Video Systems

- Video bandwidth >400TVL
- Uses International 8mm format video cassettes
- Recording duration up to 120min.
- Hi 8 format

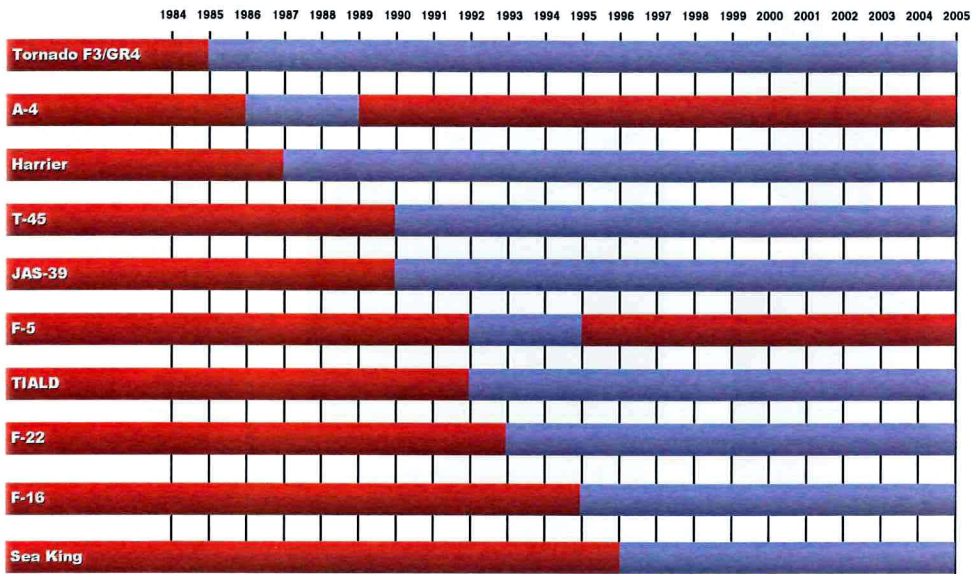
#### Video Replay Facilities

- Video tape demultiplexing
- Simultaneous repeat of up to six cameras
- Complete flexibility of display configuration

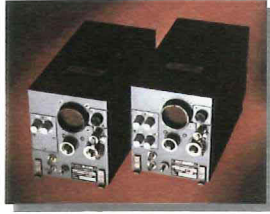
#### Mission Debrief Mission Analysis

- Zoom and enhancement feature
- On screen measurement
- Automatic event search

# Video Systems



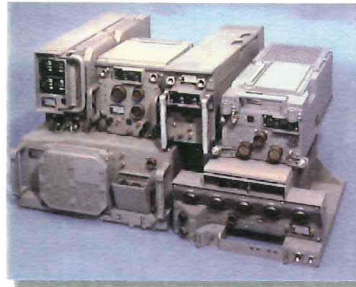
# Air Data Systems



■ **MSCADC**  
A-4 • F-5 • T-38



■ **HIADC**  
MIG-21 • C-130J • KC-130T  
VC-10 • C-160D • CH-53E  
H-46 • USN GPWS



■ **The SCADC Family**  
A-4 • A6 • A-7 • C-2 • E-2 • E-3 • C-5  
S-3 • F-111 • F-4 • C-141 • F-14



■ **EF 2000**



■ **HADS**  
AH-64D • AH-1W • MH-60G • PUMA

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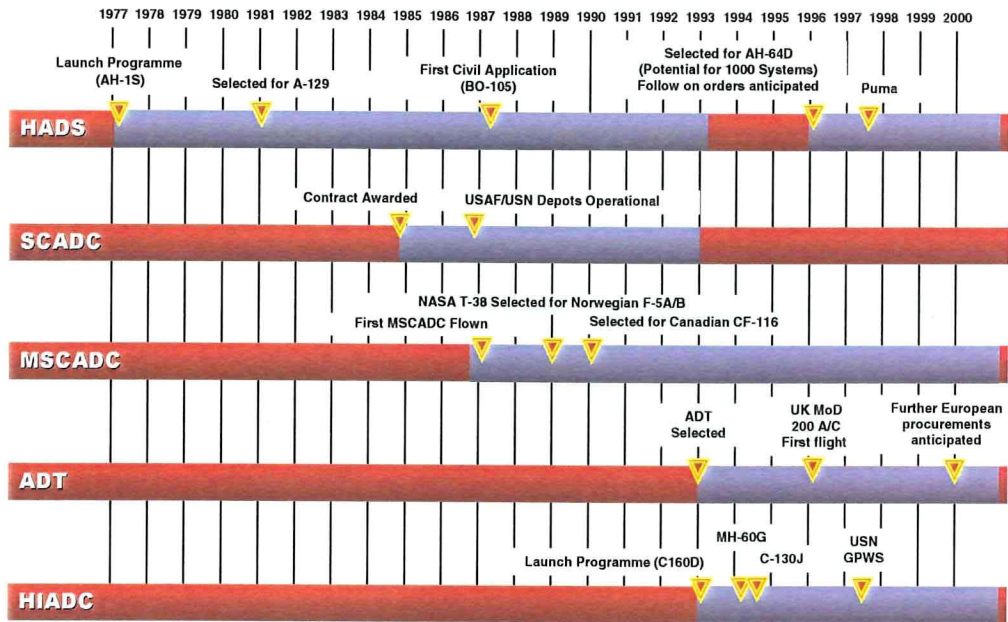
# Air Data Systems

Product	Key Features	Applications	Outline Specification
<b>HADS</b> Helicopter Air Data System	<ul style="list-style-type: none"> <li>True 3 axis air data</li> <li>High accuracy air data down to the hover</li> <li>Enhanced weapon delivery accuracy</li> <li>Built in Test</li> </ul>	<ul style="list-style-type: none"> <li>Military Helicopters</li> </ul>	<ul style="list-style-type: none"> <li>&gt;10,000 hrs MTBF</li> <li>MIL-STD-1553B</li> <li>Anti-icing probe</li> <li>Easy to retrofit to existing aircraft</li> </ul>
<b>SCADC</b> Standard Central Air Data Computer	<ul style="list-style-type: none"> <li>Low cost of ownership</li> <li>6 configurations retrofit 46 aircraft variants with 80% parts commonality</li> <li>Over 5,500 delivered</li> <li>Exceeds guaranteed MTBF</li> <li>Comprehensive Built in Test</li> <li>Non-volatile memory</li> </ul>	<ul style="list-style-type: none"> <li>Fast Jet</li> <li>Military Transport</li> <li>Combat</li> <li>Training</li> </ul>	<ul style="list-style-type: none"> <li>Form, fit, functional replacement</li> <li>Synchros .....up to 18</li> <li>Potentiometers...up to 12</li> <li>Discrete I/F.....28V validity, relay IFF etc</li> <li>Serial.....MIL-STD-1553B</li> <li>Power .....115v 400Hz 100 VA</li> </ul>
<b>MSCADC</b> Miniature Standard Central Air Data Computer	<ul style="list-style-type: none"> <li>Low Life Cycle Cost</li> <li>Prime accuracy with excellent long term stability</li> <li>Extensive Built in Test</li> <li>Non-volatile memory</li> </ul>	<ul style="list-style-type: none"> <li>Fast Jet</li> <li>Attack</li> <li>Training</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 9000 hrs MTBF</li> <li>Synchros.....typically 3</li> <li>Potentiometers...4 to 8</li> <li>Serial.....MIL-STD-1553B, ARINC-429</li> <li>Power .....115v 400Hz 30 VA</li> </ul>
<b>ADT</b> Air Data Transducer	<ul style="list-style-type: none"> <li>Meets requirements of high performance agile aircraft</li> <li>MIL-STD-1553B Mux Bus interfaced directly with Flight Control Computer</li> </ul>	<ul style="list-style-type: none"> <li>EF2000</li> </ul>	<ul style="list-style-type: none"> <li>5000 hrs MTBF</li> <li>Mobile multifunction vane enables complete air data function in one unit</li> <li>115v Anti/de-icing heater</li> <li>MIL-STD-1553B output only</li> </ul>
<b>HIADC</b> High Integration Air Data Computer	<ul style="list-style-type: none"> <li>Low cost of ownership - fit and forget</li> <li>High reliability with no scheduled maintenance</li> <li>Prime accuracy with excellent long term stability</li> <li>Low weight, volume and power consumption</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for fixed &amp; rotary wing aircraft</li> <li>Fast Jet</li> <li>Transport</li> <li>Helicopters</li> </ul>	<ul style="list-style-type: none"> <li>&gt;20,000 hrs MTBF</li> <li>Serial.....MIL-STD-1553B, ARINC-429, RS-485</li> <li>Power ...28v DC 6W</li> <li>Weight ...1.2kg (2.5lbs) max</li> </ul>

**GEC-Marconi**  
Avionics



# Air Data Systems



# Data Transfer / Data Recording Systems

## Data Transfer Units



■ C-130J



■ Hawk

## Data Recorders and Crash Survivable Memory Units



■ EF2000

## Data Transfer / Data Recording Systems

Product	Key Features	Applications	Outline Specification
<b>Data Transfer Unit</b>	<ul style="list-style-type: none"> <li>■ Non volatile memory</li> <li>■ High data integrity</li> <li>■ Fast data transfer</li> <li>■ Low cost of ownership</li> <li>■ Solid state memory</li> </ul>	<ul style="list-style-type: none"> <li>■ Fast jets</li> <li>■ Helicopters</li> <li>■ MPA</li> <li>■ Trainers</li> <li>■ Mission Planning</li> </ul>	<ul style="list-style-type: none"> <li>■ Up to 4Mb E<sup>2</sup> PROM</li> <li>■ Solid state memory</li> <li>■ No battery back-up required</li> <li>■ High write/read/erase capability</li> <li>■ Full military environmental specification</li> </ul>
<b>Data Recorder</b>	<ul style="list-style-type: none"> <li>■ Unsurpassed crash survivability</li> <li>■ Memory expansion</li> <li>■ Extensive BIT</li> <li>■ Full military specification</li> <li>■ 1553 B interface</li> </ul>	<ul style="list-style-type: none"> <li>■ EF 2000</li> <li>■ Future Aircraft</li> </ul>	<ul style="list-style-type: none"> <li>■ Crash protection exceeds requirements of TSO-C 51a</li> <li>■ Weight &lt; 6kg</li> <li>■ Environmental test conditions MIL-STD-810 D</li> <li>■ Memory capability 6 Mb</li> <li>■ Error rate &lt; 1 bit in 10<sup>7</sup></li> </ul>

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**GEC-Marconi**  
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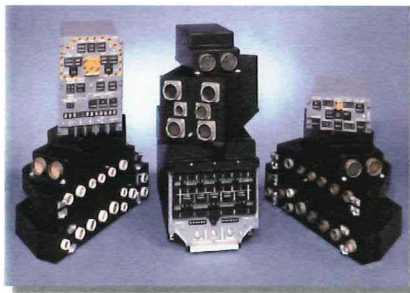
## Stores Management



■ **Armament Control System**



■ **STORMS**  
Standard Stores Management System



■ **Tornado SMS**



■ **WIFU**



■ **HACLCS-II**

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**GEC-Marconi**  
Avionics

## Stores Management Options

### Key Features

- Over 20 years of Stores Management experience
- Proven software reconfigurable, distributed system (FWE)
- ADA modular software experience
- High bandwidth switching units
- MIL-STD -1760 experience

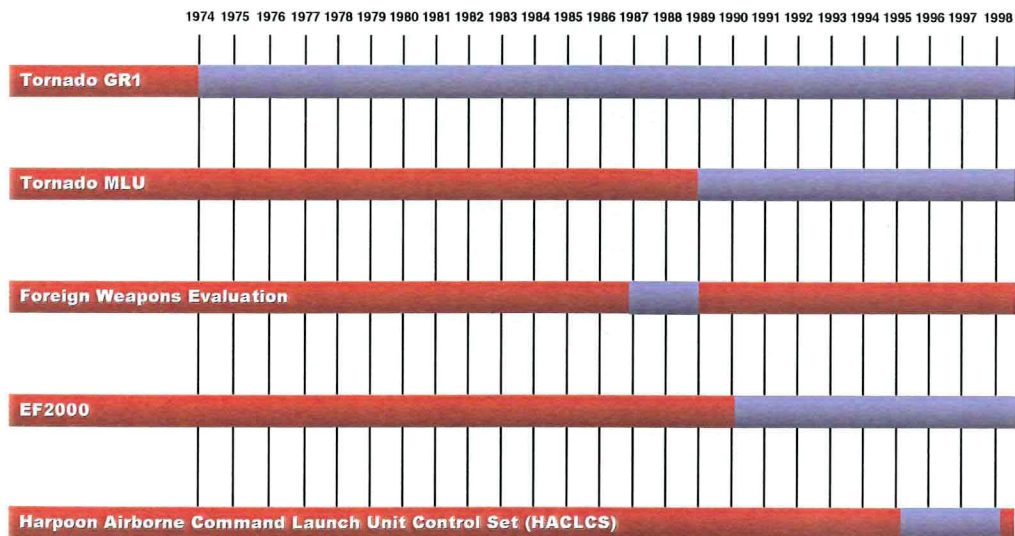
### Applications

- Fast Jet
- Trainer
- Helicopter
- Maritime Patrol Aircraft

### Outline Specification

- Modular Construction
- Dual Redundant MIL-STD-1553 Data Bus
- MIL-STD-1760
- Full Military Environmental Specification

## Stores Management Systems





# Engine Management Displays



■ Engine Speed/  
Temperature  
Indicator



■ Engine  
Monitor Panel



■ CNI/ Control and Display  
Panel



■ Command and  
Control Unit



■ Get-U-Home  
Panel



■ Reversionary  
Instruments



■ Up Front  
Control Panel



■ Display Avionics  
Management System

# Mission Avionics Division Business Scope / Products vs Platforms

	Head Up Displays	Air Data Systems	Helmet Mounted Displays	Night Vision Goggles	CRT/ MFD Head Down Displays	AMLCD/ MFD Head Down Displays	Mission Computer Display Processor	Digital Map Generator	Stores/ Weapon Systems	Video Cameras	Video Recorders	Data Transfer Systems	Mission Planning
EF 2000	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Tornado	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Jaguar	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Hawk / T-46	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
A-4	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
F-5	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
F-16	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
F-22	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
C-130	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Harrier / AV8B	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
F-7M	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Mirage	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Mig-21	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
JAS-37	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
JAS-39	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Su-30	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
C-17	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Gulfstream	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Apache	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Cobra	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
Tiger	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted
AH-1W (4BW)	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted	Contracted

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