GEC AVIONICS

NATE

AN/GSM-333
Support Equipment System

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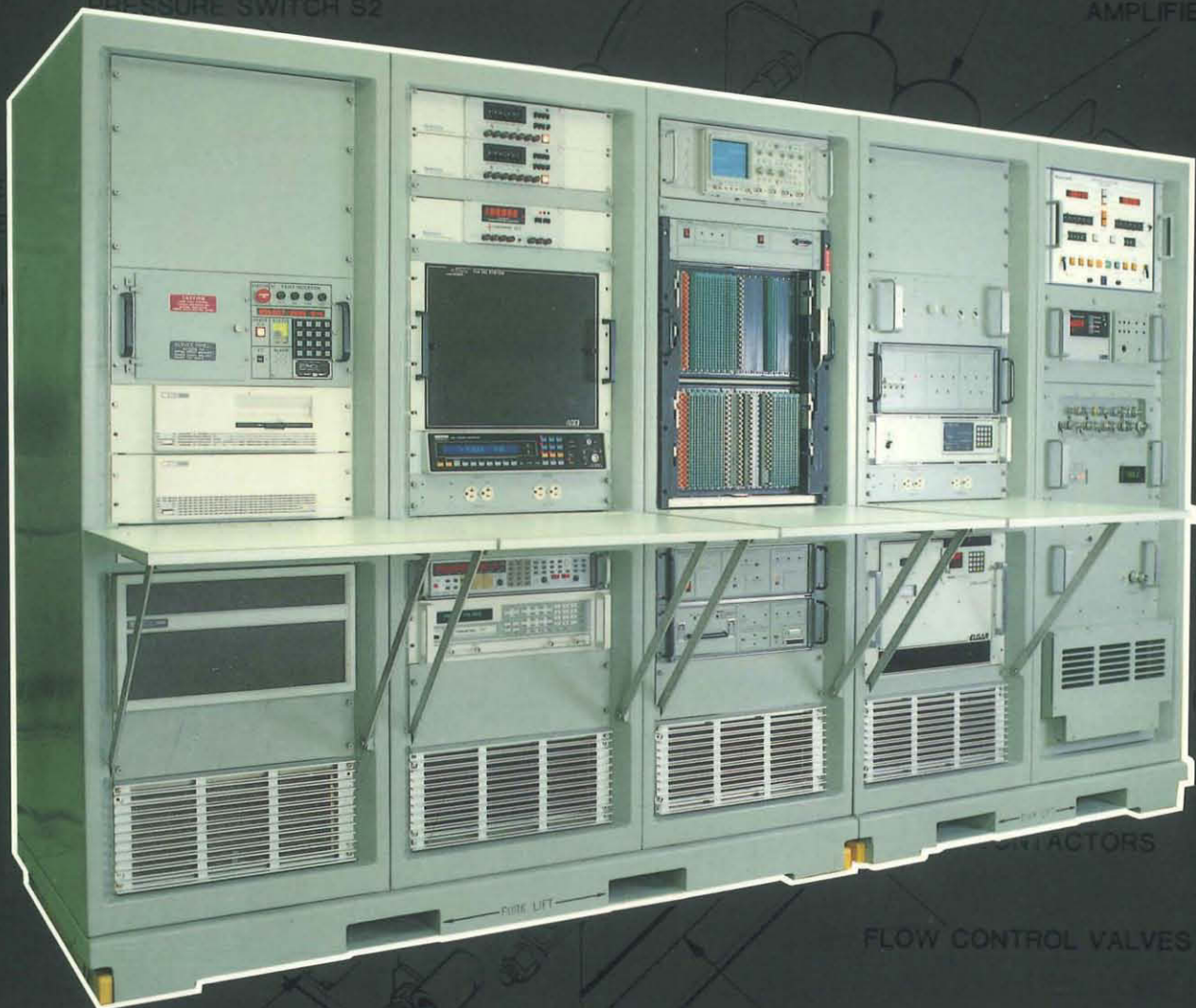
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Support Equipment Systems Division (SESD)

The Support Equipment Systems Division (SESD), is an autonomous trading unit of GEC Avionics Ltd., engaged in the design, development, and production of support equipment systems and associated engineering activities. The division, location at Rochester, Kent, England, occupies 71,000 square feet and employs over 320 people, developing automatic test equipment (ATE) systems and test program sets (TPS).

The division has been involved in a number of major support equipment programs during its 30-plus years in existence, including the design and development of the AN/GSM-333 USAF MATE standard D-level support equipment system associated with the Standard Central Air Data Computer (SCADC) Program. This MATE program, the only MATE program awarded to an offshore supplier, resulted in the development and delivery of the only fully MATE-qualified support equipment system in the U.S. Air Force (USAF) inventory.

AN/GSM-333 Support Equipment System

The AN/GSM-333 MATE Support Equipment System, was developed in response to USAF and U.S. Navy (USN) requirements for a D-level support system for the SCADC program. This program provides a standard air data computer system for 26 different types of USAF and USN weapon systems.

The system, ordered in June, 1987, was developed to fully comply with the requirements for USAF MATE standard equipment. The first test system was installed at an Air Force depot facility in December, 1990. Further systems are due for installation during the first half of 1991.

USAF MATE Standard

The USAF MATE standards define an acquisition process used by the Air Force to procure support equipment systems. These standards enable the Air Force to procure support equipment systems at optimum life cycle cost, and define various standards and capabilities that must be observed during the system design and development process.

Test Station Software

One of the major elements defined within the USAF MATE standards is the use of Air Force controlled support system software. This software, the MATE Command and Control Software System (MCSS), is strictly controlled by the Air Force and provides a common software core to be used throughout the Air Force system. The AN/GSM-333 system uses MCSS Version 5.02, the latest version of this Air Force provided software.

Test Station Hardware

The AN/GSM-333 system includes the following test instrumentation:-

Digital Multimeter (DMM)   Frequency Time Interval Meter (FTIM)
Oscilloscope   Pneumatic Test Facility
AC Power Supplies   DC Power Supplies
Function Generator   Programmable Load
Angle Position Indicator   Synchro Resolver (Two Off)
VXI Instrument Rack (Containing):-
    MIL-STD-1553 Interface
    Programmable Resistance Stimulus
    Precision DC Sources (Eight Off)
MATE Standard Interface Connection Assembly (ICA)
Digital Word Generator (DWG)

All of the instrumentation used within the AN/GSM-333 system has been tested and approved for use on USAF MATE programs, including the Pneumatic Test Facility, developed by GEC Avionics Ltd. to meet the highly-complex pneumatic testing requirements of the SCADC system. All elements of the test system were developed in accordance with MIL-STD-28800 as required by the USAF MATE standards.

Test Station Maintenance

The AN/GSM-333 system has been designed to allow the Air Force to be completely organic in its D-level testing requirements. The system comes complete with all necessary self test, alignment and calibration facilities to allow the user to maintain and calibrate the entire system. Full supporting data was delivered as part of the SCADC program. Calibration of the test system is conducted using the standard USAF PATE calibration package.

Test Program Sets (TPS's)

Twenty-Seven USAF MATE standard test program sets (TPS's) were developed to provide full LRU and SRU diagnostic testing for the SCADC system. These TPS's were developed in accordance with the Air Force MATE guides and follow the TPS development requirements of MIL-STD-2077. The diagnostic capabilities of these TPS's are:-

100% Fault Detection Capability
  95% of faults diagnosed to one faulty component
  97% of faults diagnosed to two components
  99% of faults diagnosed to three components
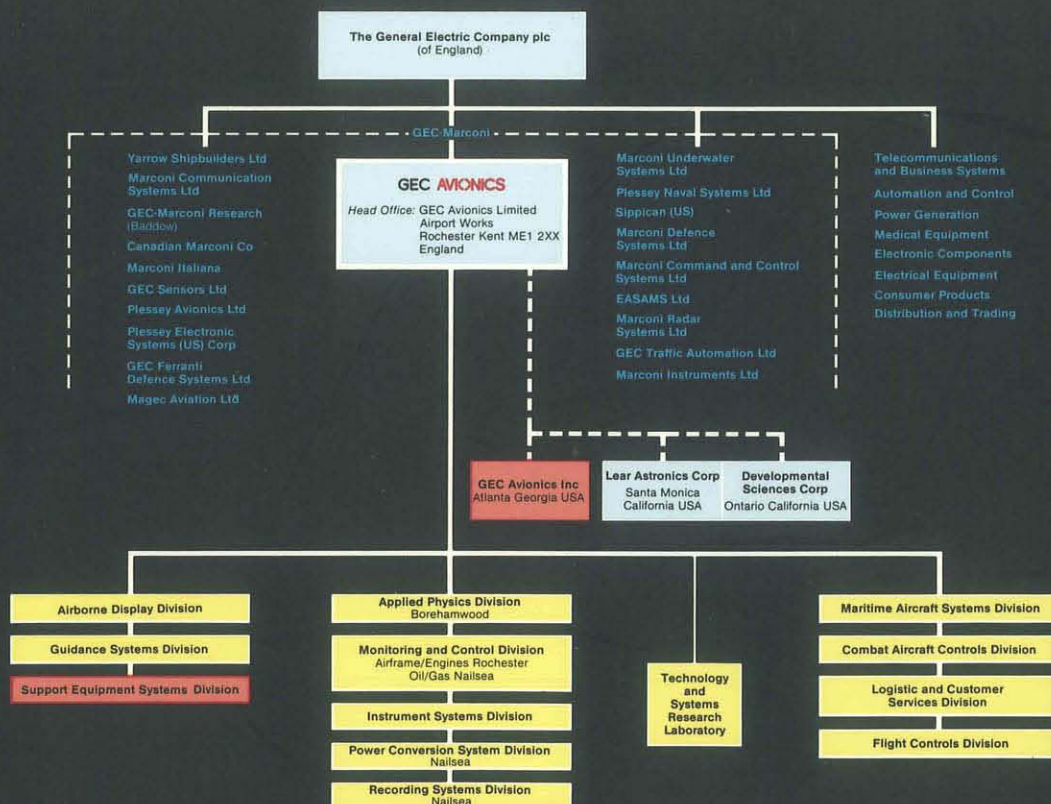
Program Quality Assurance

GEC Avionics Ltd. is a qualified MIL-Q-9858A supplier to the U.S. Department of Defense.

GEC Avionics Ltd

GEC Avionics is a member of the GEC-Marconi group, which is Europe's most capable electronic systems and defense company, with the resources and experience to tackle major programs internationally.

GEC Avionics' business is conducted by a number of long established divisions, each specializing in its own field and responsible to its own customers. This enables resources and expert attention to be dedicated to programs large and small.

GEC Avionics is the United Kingdom's leading exporter of electronic systems for aviation with more than two thirds of its output to customers outside the United Kingdom.

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The Company's highly efficient UK team of 7,500 men and women is comprised of many professional highly qualified scientists and engineers, supported by skilled technicians and crafts professionals.

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