

UPDATE

SCADC

● Marconi Avionics has created a major new generation of Air Data Computers designed for the combined USAF/USN Standard Central Air Data Computer (SCADC) program.

This well co-ordinated avionics update program, for a wide range of aircraft, enhances airborne performance and creates substantial cost savings. Obsolete avionics

inherently cause degraded reliability and require high cost spares and continual maintenance activity. This results in totally unacceptable life cycle costs and poor aircraft availability.

● Marconi Avionics is manufacturing the SCADC to provide high performance, low cost maintainability and outstanding

reliability in a simple plug-in retrofit package.

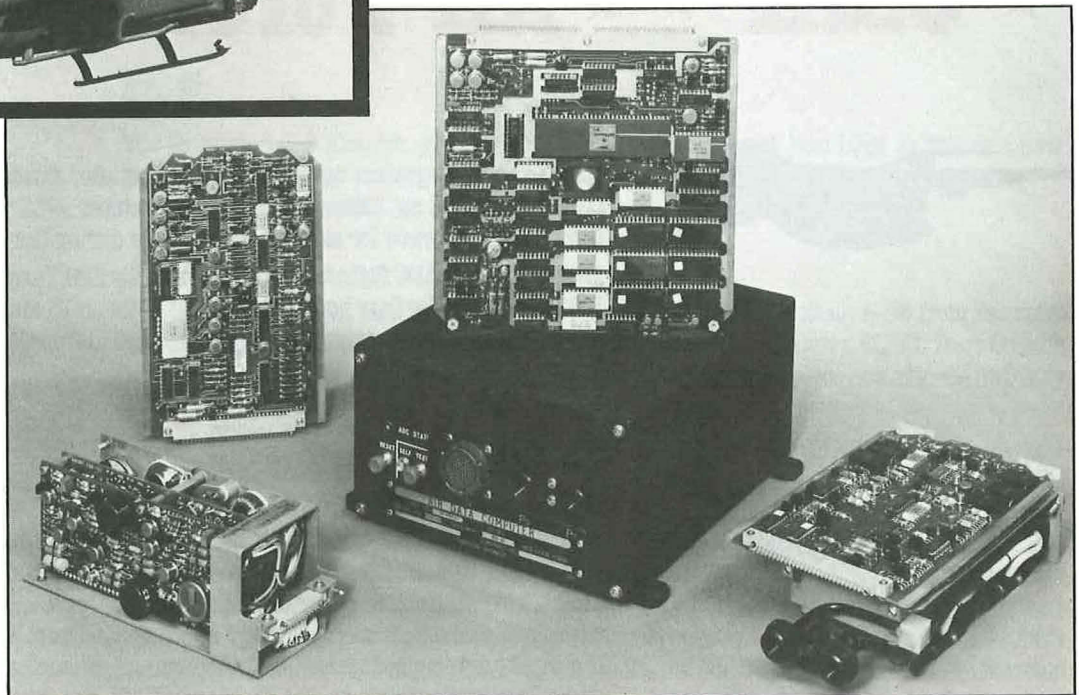
In addition to solving the problems of obsolete equipment on more than 30 aircraft variants, SCADC provides an ideal basis for standardization on new aircraft. It is a unique combination of advanced technology, design standardization and logistic science.

STOP PRESS



The first Marconi Avionics, and probably the world's first, 16 bit microprocessor Air Data Computer is achieving an operational Mean Time Between Failures (MTBF) of more than 11,000 hours against a predicted MTBF of 5600 hours.

This computer, of which 620 have been delivered to the US Army for the AH-1S Enhanced Cobra, established the design philosophy of SCADC and illustrates the inherent reliability of this type of hardware.



Program History

From a USAF/USN Development Contract Award made in September 1981, Marconi Avionics are nearing completion of the Flight Test Program required to qualify SCADC for the entire range of candidate aircraft types in the USAF and USN inventories. This considerable achievement is due to the close liaison and co-operation with the USAF and USN program teams and to the "design to production" techniques employed by Marconi Avionics. In parallel with the Engineering activities are the considerable support functions: documentation, technical and logistics meetings and the production of 25 high quality test stations to support the development phase of the program.

Major Milestones

The Major Milestones for the SCADC program indicate how rapidly the program has moved and continues to move.

Contract Award	29 September 1981
PDR	January 1982
CDR	April 1982
Compatibility Testing	October 1982 thru April 1983
Development T and E	January thru May 1983
Initial Operational T and E	June 1983 Onwards
Techeval	February thru July 1983
Opeval	July 1983 Onwards
FCA/PCA	July/August 1983
Production Lead Time	9 months

Testing SCADC

The SCADC has four different configurations to suit the various candidate aircraft. Their deployment is as follows:

Configuration	Quantity	Applicable Aircraft
CPU 140/A	14	C-2, A-4, A-6, A-7 E-2C, KC-135
CPU 141/A	18	C-5, C-141
CPU 142/A	2	F-111
CPU 143/A	2	F-4
All Configurations	20	Environmental and Reliability Testing

CPU-140/A



CPU-141/A



CPU-142/A



CPU-143/A



Ground and Flight Test Status

The first SCADC flight took place on Friday 4 February 1983 at 1339 hours EST on a USAF C-141 transport aircraft of the 4950th Test Wing at Wright-Patterson AFB, Ohio.

★ **USAF** ★ ★ **Air Force** ★ ★ **USAF** ★

C-5A

First ground integration test (only six months after fitting metal mock-ups) started on the Lockheed ground rig, Atlanta, Georgia on 25 October 1982. From here the units were taken to Dover AFB, Delaware for aircraft ground tests during the following week.

The first C-5A SCADC flight trial took place at Kelly AFB, Texas at 02.19 p.m. on Tuesday 8 March 1983 and lasted for four hours. The second flight on 10 March was as successful as the first. Development flying was completed on 5 April 1983 and operational flight test by USAF started at Travis AFB.

C-141

Units were taken to McGuire AFB, New Jersey for aircraft ground testing during the first week of November 1982. The first SCADC CPU 141/A was formally delivered to Wright-Patterson AFB on Monday 10 January 1983, just one week behind the original schedule. The aircraft was unable to fly at that time due to unrelated technical problems. However, by 26 February 1983, a total of five development flights had been completed from WPAFB on a C-141A. This enabled us to clear the development phase and proceed to operational testing at McChord AFB, Washington State. During the week ending 11 March 1983, the first USAF operational test flight was achieved on a C-141B. By early April 1983 over 70 flying hours had been achieved.

F-4

SCADC was interfaced with an F-4C Phantom at Hill AFB, Utah between 2 and 4 March 1983, and aircraft ground testing started at Edwards AFB, California during the week ending 14 April 1983. On Friday 10 June 1983 at 1457 hours an F-4C carried out the first F-4 SCADC flight. The flight lasted for 44 minutes and included a Mach 2 dash at 45,000 feet. The success of this trial was most significant as the design of the F-4 SCADC has involved the solution of a number of difficult mechanical, electronic and software problems.

A second successful flight took place at 0933 PST and finished at 1036 hrs PST, and the aircraft has now begun Initial Operation Testing and Evaluation (IOT and E).

KC-135

Initial ground testing of SCADC on a re-engined KC-135R Tanker was carried out at McConnell AFB, Wichita, Kansas between 18 and 20 April 1983. The first flight took place on Tuesday 3 May 1983 at the same AFB. The aircraft was fully instrumented over the 4½ hour flight, testing was carried out at various altitudes and included a simulated engine failure.

F-111

Ground integration testing has been carried out at McClellan AFB, California and the first flight for SCADC is scheduled for July 1983.

★ **USN** ★ ★ **Navy** ★ ★ ★ **USN** ★

A-7

The first Navy flight trial took place on an A-7E Corsair operating out of NATC, Patuxent River, Maryland on 24 March 1983 for a flight duration of one and a half hours. This followed the mandatory ground testing.

E-2C

Following extensive ground testing an E-2C from NATC, Patuxent River, Maryland successfully flight tested SCADC for two flights on 4 April 1983. The final E-2C flight for SCADC took place during the week ending 15 April 1983.

C-2

The Grumman C-2 aircraft will not be ready for use until well into 1984 as this is a new procurement activity.

A-6

The first SCADC flight trial for an A-6 occurred on 11 April 1983 on an A-6E from Patuxent River, Maryland. On 28 April 1983 a USN KA-6D Tanker aircraft flew a SCADC from Oceana Naval Base, Virginia for three hours. A similar duration flight took place on an EA-6A on 5 May 1983 from Norfolk, Virginia.

A-4

On Wednesday 18 May 1983, USN test pilot Tom Massicotte flew an A-4M from Pensacola Naval Base, Florida to NATC, Patuxent River, Maryland, in readiness for the formal A-4 development flying. This aircraft delivery flight was carried out with Marconi Avionics' SCADC fitted and a pacer aircraft alongside for safety reasons. This flight typified the efforts being made at NATC to gain flying hours and expedite the SCADC program. It further indicated their confidence in our product at this stage of the flight test program. The A-4 is the smallest aircraft being fitted with SCADC.



STANDARD CENTRAL AIR DATA COMPUTER

SCADC

UPDATE

Deliverable Data Status

The amount of deliverable data required by the program can be summarised thus:

- Program Requirements 450 Data Items
- Delivered so far 425 Data Items

Computerized Data Status

- Network Repair Level Analysis - Complete
- Logistic Support Analysis Record - Complete
- Life Cycle Cost/Design to Cost - Complete
- Level of Repair Analysis - Complete

Training

System Orientation Courses are being held so Marconi Avionics can train USAF/USN personnel and so far the following have taken place:

- Patuxent River NAS 1,2 December 1982
- Wright Patterson AFB 6 December 1982
- Kelly AFB 9 December 1982
- Travis AFB 22 February 1983
- McChord AFB 24, 25 February 1983
- Edwards AFB 5 May 1983
- McClellan AFB 7 May 1983

Summary ★ ★ ★ ★ ★ ★ ★

Together USAF, USN, and Marconi Avionics are completing this challenging program and are now able to offer with confidence a well engineered and thoroughly proven product to the Department of Defense.

Marconi Avionics Limited

Airport Works, Rochester,
Kent ME1 2XX, England
Telephone: England,
Medway (0634) 44400
Telex: 96333/4

Marconi Avionics Inc.

4500 North Shallowford Road,
Atlanta,
Georgia 30338
Telephone: (404)-394-7800

Marconi Avionics Inc.

Suite 1375,
Wintersbank Tower,
Dayton,
Ohio 45423
Telephone: (513)-224-1110

