AN/AYK-14(V)

NAVY STANDARD AIRBORNE COMPUTER

OVERVIEW INCLUDING P³I

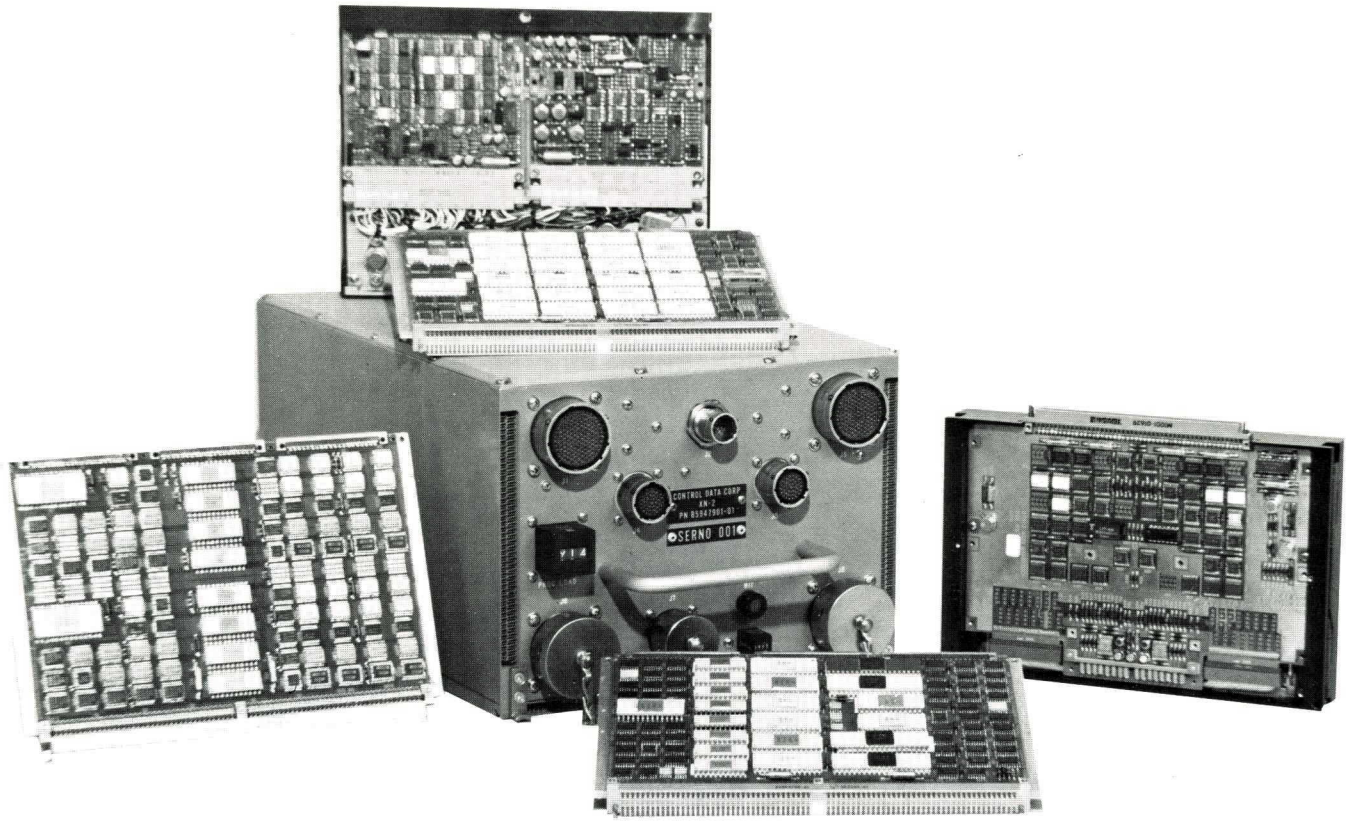
SATISFYING THE NAVY'S EVOLVING REQUIREMENTS

CONTROL DATA CORPORATION

NAVY STANDARD AIRBORNE COMPUTER AN/AYK-14(V)

The AN/AYK-14(V) Computer is a modern airborne processor designed to meet the various processing requirements of military weapons systems. The AN/AYK-14(V) flexibility permits each application to acquire only the features required to meet individual program needs. This flexibility extends into all computer areas including processor thruput, memory capacity, and input/output (I/O).

High reliability has been built into the AN/AYK-14(V) through the use of large-scale integration (LSI) components that reduce the total parts count and circuit space. Each computer also undergoes extensive environmental testing before delivery to ensure trouble-free system operation.



Software — The AN/AYK-14(V) instruction set provides for both executive and user modes of operation and is upward compatible with the AN/UYK-20 Shipboard Computer System. Compiler and software development programs are available for new user program development. On-line diagnostic programs are provided for computer error detection and fault isolation.

Environment — The AN/AYK-14(V) Computer has been designed and qualified to MIL-E-5400, Class 2, with a temperature range of -54° C to +71° C.

Logistics Support — All AN/AYK-14(V) Computers are backed up with a comprehensive logistics support package. Training courses and spare and repair services are in place at all levels of support for the AN/AYK-14(V) computer.

Support Equipment — A computer control unit (CCU) is a laboratory quality computer console used to assist in computer program development. A military loader/verifier (L/V) is available for program load/verification and diagnostic functions when the computer is installed in the weapons system.

AN/AYK-14(V) MODULE FAMILY

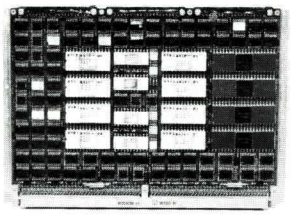
To configure an AN/AYK-14(V) Computer, the appropriate functional modules are selected from the following groups:

- Processor
- Memory
- Input/Output

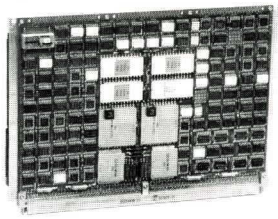
Each module is a 6- by 9-inch printed wiring board assembly.

Five processor module types are available to provide central processor functions as well as I/O processing and a variety of arithmetic functions. AN/AYK-14(V) thruput varies between 300 KOPS (thousands of operations per second) and 800 KOPS depending on the processor modules selected. Core and semiconductor memory modules can be ordered in various capacities. Total computer memory can vary up to 512K words. A variety of I/O modules are available; including all types of NTDS, MIL-STD-1553, discrete, RS-232-C, and PROTEUS channels.

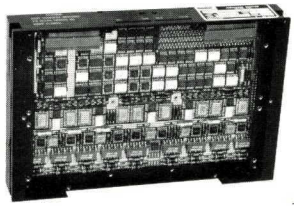
A chassis/power supply combination is selected to house the chosen modules. Three chassis with different lengths are available, depending on the number of modules selected for the computer.



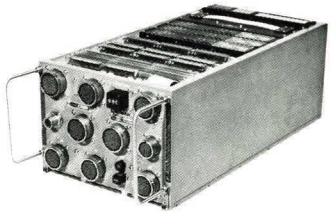
PROCESSOR MODULES



INPUT/OUTPUT MODULES



MEMORY MODULES



CHASSIS/POWER SUPPLY

AN/AYK-14(V) APPLICATIONS

The AN/AYK-14(V) flexibility has permitted adaptation to a variety of multiservice weapons systems. The AN/AYK-14(V) hardware configurations vary widely from small embedded applications with minimum memory and I/O, to large multichassis computer systems with extensive memory and I/O capability. The listing below is a summary of various military programs that use AN/AYK-14(V) Computers.

AN/AYK-14(V) AIRCRAFT APPLICATIONS

- F-18 — Central Mission Computers
- LAMPS MKIII — Central Mission and ESM Processor
- EA-6B — Electronic Warfare Computer
- E-2C — Passive Detection System Computer
- AV-8B — Central Mission Computer
- EP-3 — Electronic Data Processor
- P-3C — ESM Processor
- F-14 — Avionics Improvement Program

AN/AYK-14(V) SPECIAL APPLICATIONS

- ALWT — Torpedo Guidance Computer
- ACLS — Landing System Processor
- DASS — ASW Training Computer
- Firebrand — Drone Guidance Computer

PREPLANNED PRODUCT IMPROVEMENT (P^3I)

The AN/AYK-14(V) is participating in the DOD program to improve the performance of existing military products. This is occurring through a Preplanned Product Improvement Program (P^3I) which is bringing a variety of new modules into the AN/AYK-14(V) module family. All new modules are completely compatible with existing logistics and software. The AN/AYK-14(V) was designed to be easily upgraded. As part of P^3I, a variety of new modules have already been added to the AN/AYK-14(V) family. These include a 64K Core Memory Module, a MIL-STD-1553B I/O Module, an Extended I/O Processor and Memory Subsystem Module. Additional P^3I activities include the following:

- New processor and I/O modules which will double the computer thruput
- Memory addressing to 4-million word and ½-million word memory modules
- Utilization of VHSIC technology
- Extended instruction set to support Ada

RESTRICTIVE NOTICE

This manual is intended to inform the reader regarding the general construction, operational characteristics, and capabilities of the AN/AYK-14(V) computer. It should not, however, be considered as an equipment specification, and Control Data in no way warrants the accuracy or completeness of the manual for procurement purposes. Products and services described herein are available for sale only to the federal government of the United States of America or its designees.

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