Real-Time Data Acquisition and Processing System

Fairchild Weston Systems Presents

RDAPS

Tomorrow's Telemetry System Today

FAIRCHILD WESTON SYSTEMS INC.

FAIRCHILD WESTON
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Excellence in Defense Systems Technology...Worldwide

REAL-TIME DATA ACQUISITION AND PROCESSING SYSTEM

When the United States Army Aviation Engineering Flight Activity needed a new concept in telemetry systems, Fairchild-Weston was chosen to turn need into reality.

Fairchild Weston provided the Army flight test community with a system that decreased time and cost of the total test cycle from aircraft preparation to report generation. This is a multifaceted flight test tool, with operations focused on obtaining analytical results during the test mission, thus enabling real-time mission control and report generation.

Data bases of test results and other mission support data are generated for common use by a number of activity elements. The system, through these data bases, compiles valuable information needed for tasks ranging from test report generation to personnel bookkeeping functions. By developing a system design with such broad scope, Fairchild-Weston provided the Army with the necessary tools for automating the entire workplace in a logical and productive manner.

# RDAPS DELIVERS RESULTS

(NOT INTERMEDIATE DATA)

RDAPS IS DESIGNED FOR

The mission capabilities of RDAPS are so vast that, for typical Army flight test missions, the pilot finds over eighty percent of all final analytical data from his flight awaiting him when he lands. Hardcopies of these results are immediately available. Data bases are created concurrently with real-time analytical processing, and are used by numerous elements of the Army organization for additional mission-related use.

FLEXIBILITY

These kinds of goals presented a genuine challenge to the telemetry industry, but Fairchild-Weston proved up to the challenge. In taking the challenge one step further, the RDAPS architecture was developed by Fairchild-Weston to meet not only the Army's needs, but also the needs of the vast majority of telemetry users. In fact, during the normal course of Army testing, various airframe manufacturers will be required to use RDAPS for all data analysis and report generation of test flights concerning aircraft produced by themselves, and tested in concert with the Army. This requires RDAPS to be extremely flexible and have a wide capability while maintaining its easy-to-use status.
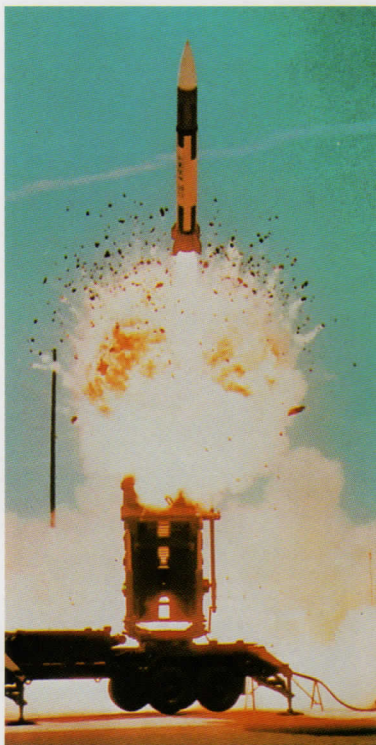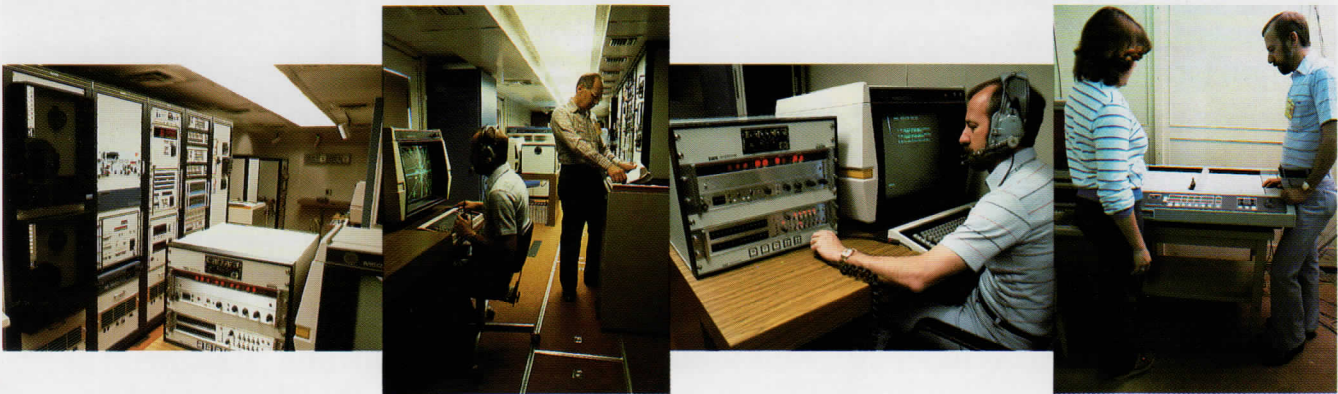
RDAPS PROVIDES FOR

OF TASKS: Fairchild Weston delivered two RDAPS to the United States Army Aviation Engineering Flight Activity in early 1982. These systems made reality of the industry-wide need to extend to all aspects of the work place the productivity gains possible with a new telemetry system. RDAPS is not just a small collection of data acquisition and analysis tasks, but stretches its umbrella of support beyond flight test engineering needs to embrace a major portion of all efforts involved in the Army mission. By focusing on the functional needs of the entire work place, the RDAPS architecture serves as a backbone of capability that can be augmented with ease to meet new or changing requirements. An enormously capable DEC® VAX 11/780 computer is the heart of this architecture. It supports real-time telemetry requirments, normal time-share telemetry needs, and multiple terminal users concurrently. Engineering users as well as administrative and management users can share common information data bases, with the result being a comprehensive system of support.
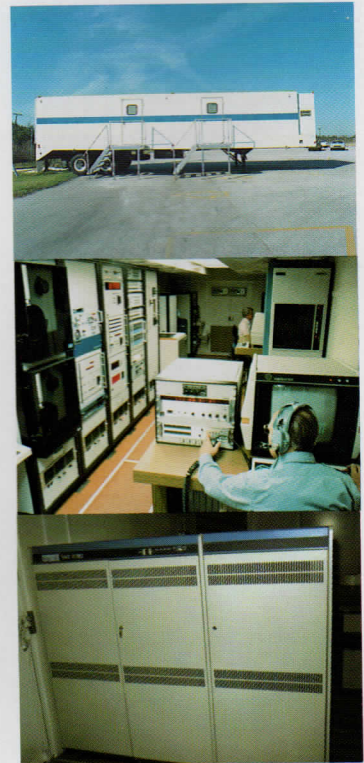
UNIFICATION

OF MAN AND MACHINE: Understanding the workplace in which an RDAPS must operate is paramount to realizing a system that will be considered successful by the user community. Through this understanding, man and machine may become integrated in a manner that extends the user's capabilities and productivity in a natural and non-restrictive way. At Fairchild Weston, we are developing systems centered on the concept that innovations in technology must be made easy to use to achieve their full potential. RDAPS represents a new milestone in telemetry system design due to the strict adherence to this concept. Fairchild Weston has produced a successful system for the Army and gained valuable insights into expanding system user utility by understanding the role of RDAPS in the Army mission and molding the elements necessary to meet this mission into a user-friendly system.

RDAPS PROVIDES

For Telemetry Data Handling: RDAPS uses the very latest in telemetry receiving, decommutation, formatting, data routing and preprocessing equipment. All major types of encoded data can be assimilated, decoded and made available for a multitude of analyses. Routing of input data is under user control through simple menu selection. The integrity of the input data is monitored continuously with results provided to the user. Our EMR® 715 Multiplex Processor, the industry's most powerful data preprocessor, multiplies the capabilities of RDAPS by performing complex user-specified data analysis functions independent of the host computer. In combination, this array of telemetry equipment facilitates data handling which ranges from limit checking to conversion of raw data to engineering units at speeds up to 100 times those for equivalent tasks in the general-purpose host computer itself.
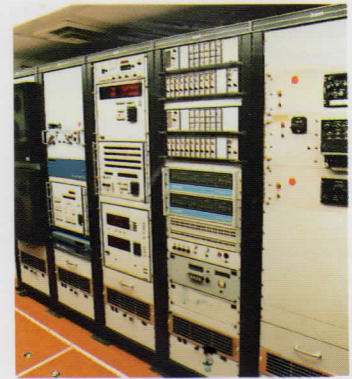
For User Interface: RDAPS provides direct and simple user interfaces for system control and reporting of results. The hub of this interface is a pair of flexible graphics terminals; one for the flight test user and one for system configuration. Communications through these terminals are in the user's language and menu-prompted. Computer expertise is not required for operation. A special keyboard augments the flight test user terminal to provide single keystroke activation of complex system functions such as vibration analysis and display, time history displays, strip chart generation, cross plotting of averaged data, limit or slope checking of data, hardcopy of terminal displays, data file development, and tabular data display.

CAPABILITY

For Analysis: An extremely powerful Digital Equipment Corporation VAX 11/780 multi-programming computer provides RDAPS with vast computing capability. The Vax combines a 32-bit architecture, efficient memory management, and a virtual memory operating system to provide essentially unlimited program address space. Add to this attribute features such as 1.256 megabytes of MOS memory, 8 kilobytes of cache memory, a powerful set of 243 instructions, sixteen 32-bit general registers, 32 priority level interrupts, and a Floating Point Accelerator, and the result is a host computer that will fit various user requirements without a single change to the industry's standard for user-friendly operating systems.

For Total Mission Support: By augmenting the basic RDAPS architecture with peripherals such as disks (with over 600 million bytes of storage), digital tape drives, and a high quality electro-static printer/plotter, the capability of the system for the user takes on new meaning. RDAPS was conceived and designed to support the broad spectrum of the Army Aviation Engineering Flight Activity needs, and thus an easily implemented expansion capability was a major design consideration. Time share terminals that can be used simultaneously with RDAPS real time flight test peripherals are added by simply connecting cables. Through use of a variety of these terminals, additional mission support can range from program development to word processing for report generation.

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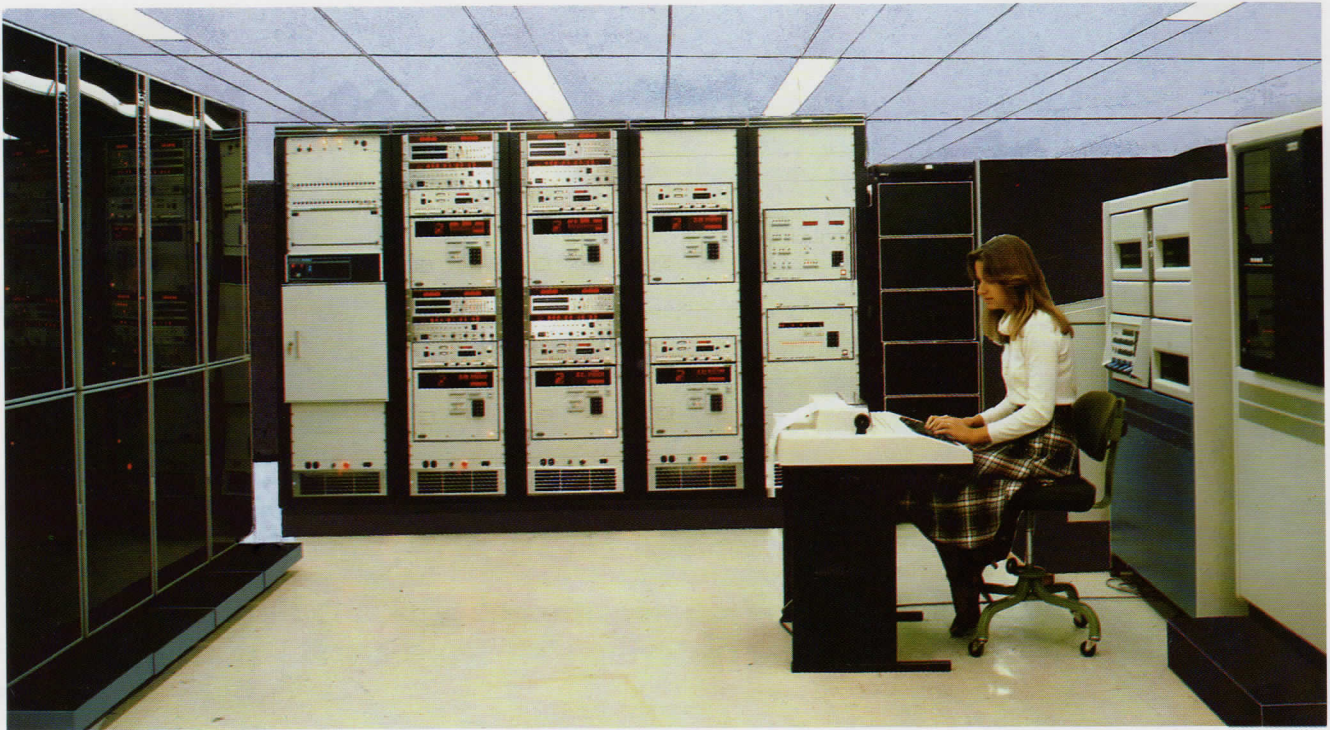
A VETERAN WINNER

Fairchild Weston offers a full range of standard software modules and special applications software to complete the "turnkey" offering of computer controlled measurement systems.

Testing of a Data Reduction system package at the Fairchild Weston Systems Inc., Sarasota facility.


A worker calibrates sophisticated Data Acquisition components at the Fairchild Weston, Sarasota facility.

Fairchild Weston offers all the equipment and services required to recover, process, summarize and display measured data. This is a highly technical, multistep procedure that involves sophisticated components and expertise.
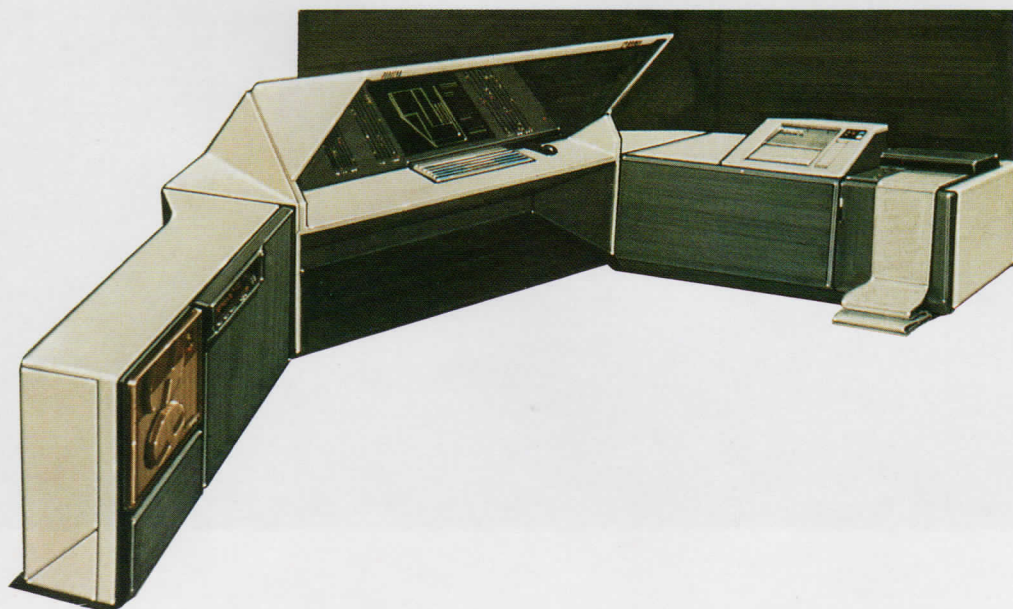
WESTON

New Systems Development:
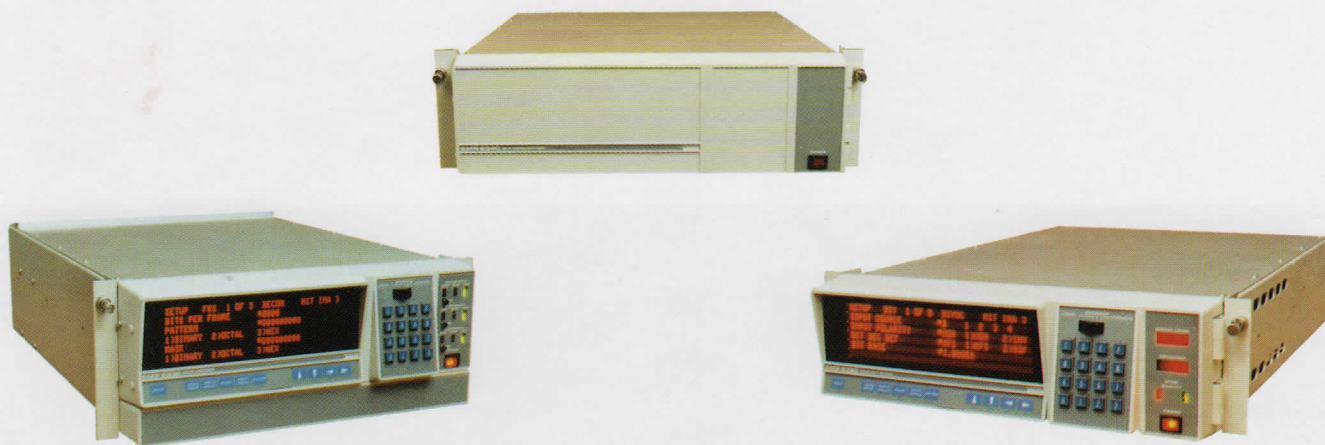

A PROVEN LEADER

Technology Advancement:

FAIRCHILD WESTON BLENDS

Marine/Bell AH-1T-Plus Supercobra

TECHNOLOGY & INNOVATION

At Fairchild-Weston, the distinction of being number one in the telemetry industry is truly cherished. This came from understanding the needs of the user community and developing innovative ways of harnessing technology to meet those user needs. It has always been evident to our staff that the user prefers not to deal with technology itself, but rather to extend his capabilities and productivity through application of this technology. Stated differently, Fairchild Weston is dedicated to understanding the spectrum of a user's needs and providing a total solution to those needs in the most easy to use and productive manner.
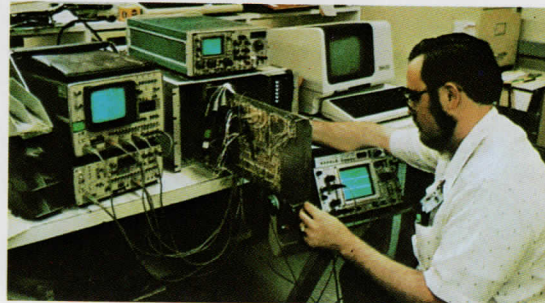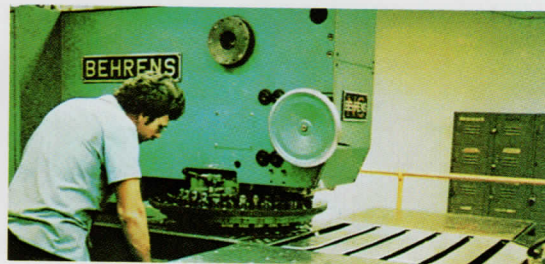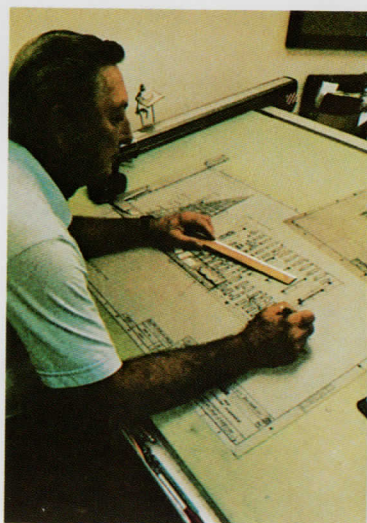
USER SATISFACTION IS A HERI

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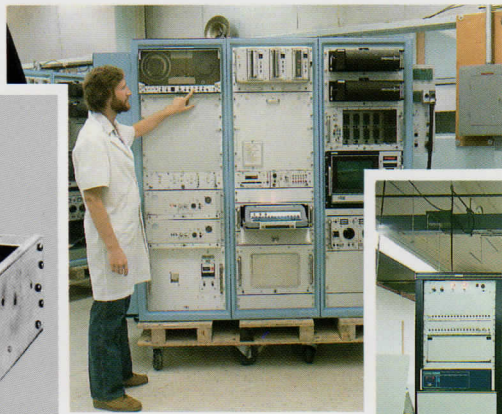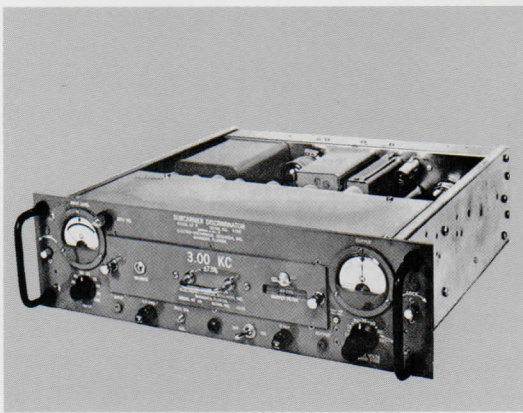
The Fairchild-Weston name may be unfamiliar to many. However, since our inception as Electro-Mechanical Research (EMR) during World War II, we have been successfully providing our user community with equipment to make their jobs easier and more productive. We are a member of the Schlumberger family, the world leader in oil exploration equipment, and just as their customers can be satisfied only by the best data analysis possible, we too count on total customer satisfaction to maintain our number one position in the telemetry world. In support of this attitude Fairchild-Weston offers training, field service and spares provisioning for all technical areas. Training can be provided in-plant or on-site. Field service is available under contract in various forms such as on-site, on-call or emergency service.

Contact Fairchild-Weston to see how we can use our experience to apply technology and innovation for you.

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DATA SYSTEMS DIVISION
P.O. Box 3041, Sarasota, Florida 33578
(813) 371-0811 • Telex 052-890 • TWX 810-864-0406