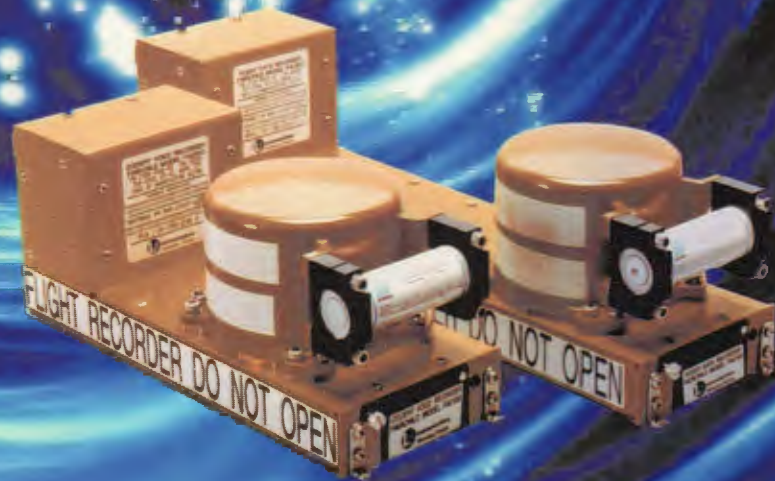


2000

MILLENNIUM



"We will satisfy our customer's needs and expectations through continuous improvement"



communications

Aviation Recorders

6000 Fruitville Road
Sarasota, FL 34232

Ph: 941-371-0811

Fax: 941-377-5591

www.l-3com.com

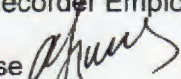


communications

Aviation Recorders
P.O. Box 3041
Sarasota, FL 34230-3041
941-377-5593 Fax: 941-377-5598

Charles J. Grouse
President

December, 1999

To: All Aviation Recorder Employees:
From: Charlie Grouse 

In 1964 Fairchild was preparing to enter the newly mandated U.S. market for CVRs. An internal market analysis reported that the mandate would affect 27 U.S. carriers operating 867 turbine engine aircraft. Five airlines; American, Eastern, Pan Am, TWA, and United Airlines; held 582 aircraft or 67% of the overall market. The analysis concluded:

- There would be a total requirement of 1,000 units.
- A 25% share would yield only 250 units or roughly \$500,000.00 and hardly worth the effort.
- Four companies in the business would demand a greater than normal market share.
- United, with 182 aircraft, was a must win in the effort to exceed a 25% share.

The closing paragraph of that report stated: "...the market is not big enough for us to figure on breaking even on the initial one hundred and making money later. These CVRs must be recognized as a fast saturation item where pay-out has to come from a very limited market."

Fairchild went on to win American, Eastern, Pan Am, TWA and many others. United was lost to a competitor.

I found this document about 25 years ago and have used it as a constant reminder of how difficult it is to predict the future, and more so, how important it is not to let negative assumptions stop you from pressing forward. As we enter into the year 2000 we are also headed towards 45 years of continuously producing quality flight-recording products. We have had many exciting years as Fairchild, Schlumberger, Loral, Lockheed Martin, and now L-3. I believe there are many more to come.

While I will not attempt to predict our future, I know one thing; there are no limits to what we can accomplish. If we continue to satisfy our customers, in the words of our Quality Policy "...by continuous improvement", we can look forward to a very healthy and very successful new millennium.



communications

Aviation Recorders
P.O. Box 3041
Sarasota, FL 34230-3041
941-371-0811 Fax: 941-377-5591

The Past is Prologue

A thousand years ago saw the development of . . . wait. We don't really have to go back that far! Most of our current aviation recorder technology has evolved over the last 100 or so years. The key elements were, and still are, electronics, powered flight, and communications. The late 19th and early 20th centuries saw the parallel development of several profound technologies: the telephone, the vacuum tube, radio, and the airplane. The first flight recorder may well have been Wilbur Wright himself as he watched his brother Orville and recorded the events of that first successful flight on December 17, 1903. As electronics have evolved, the goals have been simple: smaller, faster, and lower power. The development of the transistor over 50 years ago ushered in the solid state age which has since led to many innovative integrated circuits, including microprocessors, all within our lifetimes. Likewise, the modern era of aviation recorders has progressed from the simple foil based data recorders, through magnetic tape, to our current solid state models. Within just the last 10 years, Flash memory devices have progressed from 1 Mbyte to 128 Mbytes. As a result of these technology improvements, our latest recorders are significantly smaller, lighter, more sophisticated and use less power than ever before. The global thirst for improved communications has been the 'primordial soup' from which many of these key technologies have emerged, including the first transistor, DSPs, and even the C programming language. With no end in sight, the future looks exciting. So, how about the next thousand years...?

Well, would you settle for the next 50? No vision of what's ahead can ignore the tremendous impact of telecommunications within our industry. The keyword for the near future is 'bandwidth' or, to be more precise, wireless bandwidth. Aircraft will become just additional nodes on a global network, facilitating easy transfer of information between the air and the ground. Critical safety related data will be available in real time to storage and analysis systems on the ground. The data transmission will include multiple video, audio, and flight parameter streams that are compressed, packetized, encrypted, and routed to multiple destinations. The miles of copper cable flying on aircraft will be replaced by lighter, higher capacity fiber optic busses. And don't forget ships. The emerging market for Voyage Data Recorders is already heading in this direction. For those contemplating retirement more than 15 years out, don't despair! Until the global network infrastructure can positively, absolutely guarantee reliable delivery and storage of transmitted flight data, there will be recorders on board. As memory densities and processor capacities continue to improve, the increasing bandwidth of safety critical data will be recorded on network nodes know as Combination Recorders (sound familiar?). The purpose of these recorders will remain the same: to successfully determine the cause of aviation or other mass transportation accidents.

Finally, there is one thing that will not change with the new millennium but is, nonetheless, the most important aspect of any technology evolution past, present, or future. It is, simply put, the human spirit and it is responsible for all of the innovation, creativity, wonder, and awe that drives us to push the state of the art. The human spirit in all of us at L-3 Communications, Aviation Recorders, is behind the design, production, test, and marketing of every recorder product we offer to the world. Y2K? I think we're ready!

Frank J. Doran
Director of Engineering

President's Staff



Front row: Michael Smith, Vice President Business Development; Charles Grouse, President; Julie Soderquist, Executive Assistant; Chuck Warren, Vice President Planning & Major Programs.

Back row: Frank Doran, Director Engineering; Bruce Coffey, Vice President Finance/HR/Administration; John Kerwin, Director of Operations.

Celebrating the Millenium



Finance/Human Resources/MIS: Front row: Tina Buss, Bob Heaton, Bruce Coffey, Frank Koelling, Dave Taylor, Larry Wells. 2nd row: Liz Peters, Debora Bowen, Erin Allen, Nancy Du Plantier. Back row: Brian Carr, Kenneth Jones, Peggy Long, Debbie Ungaro, Jeanne Loughran-Pirkel, Alma Sanger, Carolyn Kleist. Missing: Cinda Whaley, Nita Pineas, Chuck Arterton.



Sales/Marketing/Product Support: Front row: Sandy Roberts, Debbie Berry, Michael Smith, Cathy Wilson, Mike Phillips. 2nd row: Dave Dowding, Dave Harnas, Mart Dismukes, Anthony Casale, Peggy Huestis, Glenn Wilson. Back row: Keith Brocker, Kenneth King, Gary Webb, Fred Wheeler, Frank Black. Also pictured: Mary Gayle Wright, Carlo Mammelli, William Brankin, Gerald Goddbee, Lori Yoder, Mike Kizziah.



Quality Assurance: Front row: Sally Samie, Janice Templeton, Joan Brothers, Monica Laskowsky, Patty Wetjen, Frank Levanti, Peggy Browning. 2nd row: Jim Casteel, Terry Honeycutt, Francis Wozniak, Jerry Lavelle, Vivian Owen, Bill Miles, Sandra Bacon, Beverly Gill, Jacquelyn Fulmele. Back row: Ron Basham, Terry Romine, Robin Speidel, Steve Nevin, Chuck Warren, Alex Labanino, Michelle Crawford, Alan Davis. Also pictured: Todd White. Missing: Bob Boyer, Stephen Frayer.



Aviation Recorders Engineering: Front row: Endre Berecz, Mike Russell, Stephen Schultz, Pete Richardson, Gary Seaboyer, Bill Hertz. 2nd row: Kemp Mednick, Toby Kaminsky, Karl Hahn, Dan Cunningham, Frank Doran, Kathy Bossert. Back row: Mike Hutchinson, Andy Zarling. Also pictured: Tom Meloche. Missing: Chuck Jones, Greg Purdom, Scott Zeiner.



Instrumentation Recorders: Front row: John Kerwin, Beth Suttie, Rick Phillips.
Back row: Mike Reilly, Jim Ratcliffe



Aviation Recorders Depot: Front row: Dave Harmas, Angie Bontrager, John La Brecque, Joe Yourkoski. Back row: Brian Levanti, Terry Hurst. Missing: Theresa Hughes.



Purchasing, Production Control and Manufacturing Engineering: Front row: Mary Montano, Clarence Logaugh, Ted Kwarcinski, Maria Ochoa, Joyce Cole. 2nd row: Shirley Smith, Susan Tower, Paula Baker, Ellis Speicher. Back row: Jeanne Ruth, Valerie Fordham, Mike Lockwood, John Kerwin, Michael Wright, Glenn Wood. Missing: Robert Carlson, Jim Fulmele, Phil Ingram, Joel Perez, Gail Salter, Patricia Woolums, Drew Zimmerman.



Production and Test: Front row: Sydney Eaton, Joanna Nguyen, Elizabeth Parks, Willie Fisher, Kim Jaskolka, John Kerwin, Aida Arce, Loretta Dunn, Rose Routsong, Teresa Smith. 2nd row: Welma Bohon, Patricia Moore, Anne Stockton, Joyce Willis, Mellonee Beal, Elbert Gray, Cynthia Buckles, Ronald Young, Ronnie Sumner. 3rd row: Shirley Huckaby, Hans Kaiser, Pam Griggs, Evelyn White, Deborah Beyerlein, Simon Ford, Steve Creech. Back row: Ken Lamers, Paul Guck, Joseph Aksamit, Alice Wright, Victor Powell, James White, Juanita Rose. Missing: Glen Cain, Nancy Hale.



Stockroom/Shipping/Receiving: Front row: Marc Kolchakian, John Kerwin, Becky Ellard. Back row: Cheryl Tyburczy, Kim Lowry, Jeff Norris. Also pictured: Bob Wallace, Henry Lamb, Jessica Cain, Karen Lewis. Missing: Wayne Stankovitch.



Facilities: Front row: David Moore, Clarence Gill, Joseph Leach. Back row: Jon Thompson, Bill Wheeler, Kevin McGreevy. Missing: Paul Dean, Nancy Weston, Walt McDonald.



NATIONAL AIR AND SPACE MUSEUM
SMITHSONIAN INSTITUTION
WASHINGTON, D.C. 20560

Dept. of Space History
MRC 311
(202) 357-2828

March 27, 1996

Charles J. Grouse
Vice President, Aviation Recorders
Loral Data Systems
6000 Fruitville Road
Sarasota, FL 34232

The booth in our lobby is a replica of a booth in the Smithsonian Institution in Washington displaying our flight recorders.

Dear Mr. Grouse:

On behalf of everyone here at the National Air and Space Museum, I want to thank you for arranging to have Loral donate the Flight Data Recorder and Cockpit Voice Recorder to our collection. They are now on display in our "Beyond the Limits" gallery, and already they have attracted quite a bit of public interest. If you or anyone from Loral should have the occasion to visit Washington and have a few moments of free time, please feel free to call on us for a tour.

Once again, thank you for your support of the National Air and Space Museum.

Sincerely,

Paul Ceruzzi

Paul Ceruzzi
Curator



I remember when ...



"After 30+ years," Charles Grouse remembers, "I believe that the biggest change we went through was going from a Product Line to a Self-sustaining Division. It's very different when you stand alone and must survive. We can all be proud of the accomplishments we made in the past few years and in our successful transition to "Division" status."

"I remember starting to work here in 1973," says John Kerwin, "and thinking that the people here spoke a different language. Even today I find it almost comical to listen to some of the conversations around here... Do you understand any of these actual conversations?"



Operations: The defect PPM on this PWA W/O exceeds our UCL. Use your LUI to update QMS, then ESD bag and DDR the PWAs from WIP to MRA before the next MRP. The IC leads were dewetted so sweep 051 OH and FS then DDR & RTV as required.

???

???

Engineering: R&D will apply our CSMU know-how and have a VDR before the IMO mandate. We'll cert the COMBI to ED55, ED56a, and DO160C curve C Prime and apply for TSO C-124a and C-123a. Have Engineering provide the EQF and ENV along with the SCID and ACCSUM and PSAC so MGW can apply to the FAA for the TSO in advance of the NPRM. Then MGW can apply to the CAA with a DDP.

Quality: In a few short years we've gone from MIL-I to MIL-Q and AS9000 while maintaining our TSO, RAC5, CAA and JAA certs. RGRs have also declined while MTBFs steadily increased.

Customer Support: Can we use the RAU, PI, and ROC5 to readout the MADRAS?.

Accounting: Before you do the JE for PPV, review the PQDNs with the buyer.

Human Resources: Cut me a PAF so I can make this guy a "T".

???

Through the Years...

Opening of the Sarasota Facilities.



1957



1958



1959



1962

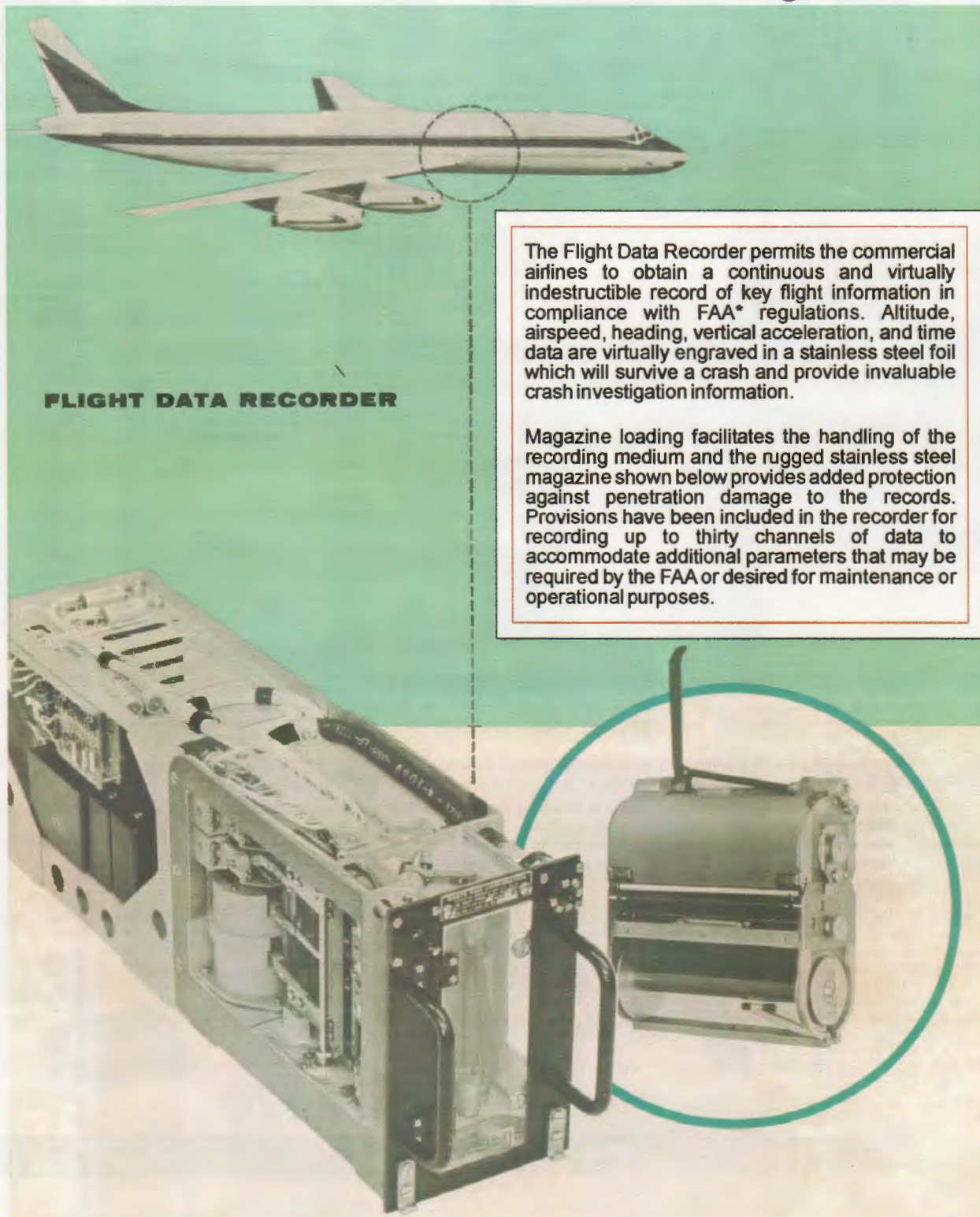


1978



1981

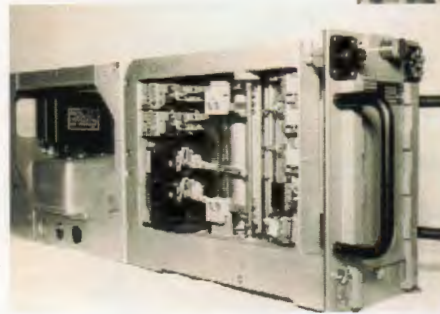
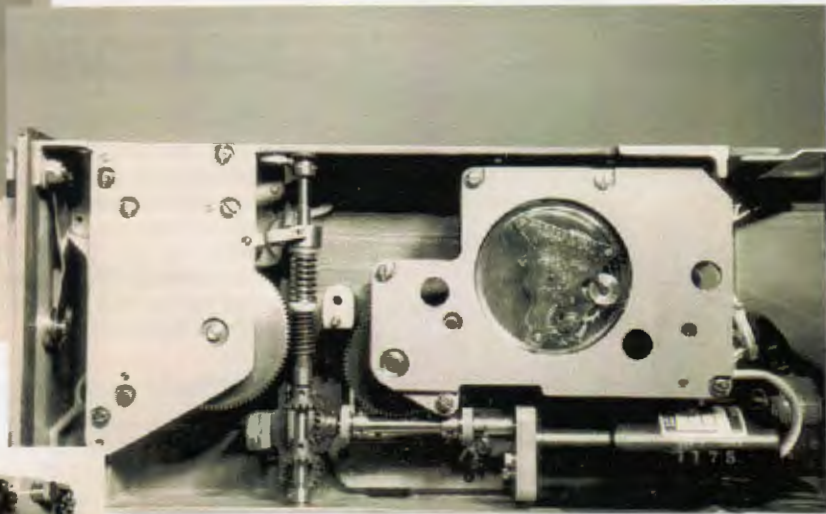
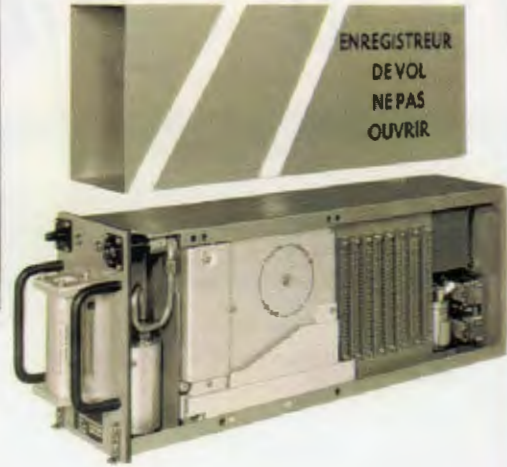
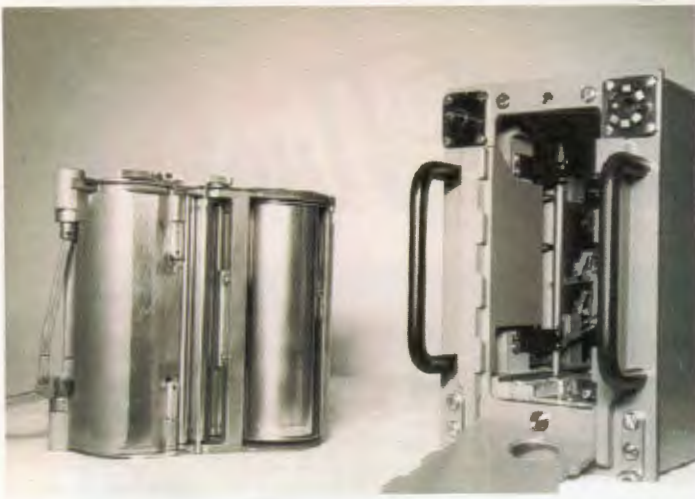
1958 Sales Flyer



FLIGHT DATA RECORDER

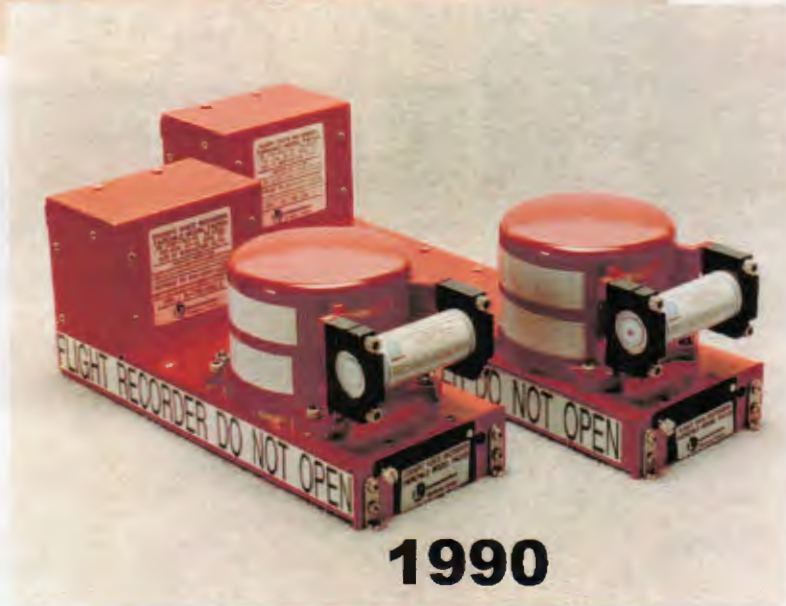
The Flight Data Recorder permits the commercial airlines to obtain a continuous and virtually indestructible record of key flight information in compliance with FAA* regulations. Altitude, airspeed, heading, vertical acceleration, and time data are virtually engraved in a stainless steel foil which will survive a crash and provide invaluable crash investigation information.

Magazine loading facilitates the handling of the recording medium and the rugged stainless steel magazine shown below provides added protection against penetration damage to the records. Provisions have been included in the recorder for recording up to thirty channels of data to accommodate additional parameters that may be required by the FAA or desired for maintenance or operational purposes.



1957

1970



2000

1980

1990

Anniversaries



15,000th Recorder



20,000th Recorder



30,000th Recorder



45,000th Recorder

Then and Now!



50's

Aviation
Recorders



1999



Planting the First Pine Tree

60's

Our Pine
Forest



1999



80's

The Lobby



1999

International Organization for Standardization (ISO) Certificate

REGISTRATION

Perry Johnson Registrars, Inc., has assessed the Quality System of:

L3 Communications Aviation Recorders
6000 Fruitville Rd.
Sarasota, FL 34232

(hereinafter called the Supplier) and hereby declares that Supplier is in compliance with:

ISO 9001 : 1994

The Registration is in respect to the following scope of supply:

Design, Development, Production and Servicing of Aviation Recorder Products

Such products shall be manufactured by the Supplier at, or such processes or services shall be offered at or from, only the address given above. The Registration is granted subject to the system rules governing the Registration referred to above, and the Supplier hereby covenants with the Assessment body duly to observe and comply with the said rules.

For P.J.R.:

Perry Johnson Registrars, Inc. (PJR)
3000 Fruit Center, Suite 450
Aurora, Michigan 48075
(567) 356-7799



Issue date: December 12, 1996

Expiration Date: December 11, 1999

Cert. No. 96-04E

ISO 9001 is a quality system model and level of certification under the ISO 9000 Standard. It is intended as a standard for products traded worldwide. Unified standards, it is believed, minimize the need for on site vendor audits. L-3 Communications Aviation Recorders achieved this certification on December 12, 1996. Maintaining this level of excellence enhances our economic and competitive advantage. Our quality policy evolved from this standard, "L-3 Communications Aviation Recorders will satisfy our customer's needs and expectations through continuous improvement."


Y2K

Thanks to the efforts of numerous dedicated individuals
L-3 Communications Aviation Recorders is Y2K compliant.

Peggy Long
Y2K Program Manager
September 1999



"It was time to move out of the mainframe world to a more cost effective solution. A major conversion effort completed within one year launched us into the realm of new technologies. After 18 years of loyal service, on July 22, 1996, *Big Iron* was put to rest. I remember the silence in the room."
 Peggy Long



FAIRCHILD WESTON SYSTEMS INC.
 VOLUME X, NO. 6

FAIRCHILD WESTON SYSTEMS INC.
 DATA SYSTEMS DIVISION
 P.O. BOX 3041
 SARASOTA, FL 34230

CELEBRATING OUR 31st YEAR
 OF PROGRESS IN SARASOTA
 JUNE, 1988



- "There was a carrousel in the cafeteria - and
- Salad by the ounce
- Fish in the fish pond
- An alligator in the front pond
- Trevinos on Friday
- A technical library
- Camperland
- Lions across the street
- Separate buildings
- A weather satellite
- Showing your badge at the guard shack
- A nurse on site
- Water fountains in the hall
- Pay phones
- Domestic communication by TWX - International communication by Telex
- Smoking in the building."

Thoughts from Alma Sanger



"Lunch," as Mike Russell remembers, "consisted of excellent cuban sandwiches made and stacked all morning by a man named Warren in an alcove between the men and women rooms. In fab, pinochle was played during lunch hour and when Jean-Pierre Magnin was GM, he played ping-pong with some of the technicians."

Did you know?

- ✈ Between January and October 1999, Aviation Recorders booked \$36.7M in orders. This figure represents 4,855 orders for 128,931 parts (both finished goods units and piece parts). Orders for CY99 are projected to total \$44.4M. This compares to \$10.8M orders in CY82, Aviation Recorders' first full year in Sarasota.
- ✈ Between January and October 1999, Aviation Recorders received 2,852 pieces of material worth \$10.8M. That's an average of 285,216 pieces per month or \$1.1M of material!
- ✈ Between January and October 1999, Aviation Recorders issued 6,762 invoices, for an average of 676 invoices per month.
- ✈ As of YTD October 1999, Accounting had issued 8,747 checks. That's an average of 875 checks per month.
- ✈ Aviation Recorders projected revenue for CY99 is \$45.2M, compared to our CY82 revenue of \$9.8M and CY81 revenue of \$1.6M.
- ✈ Today, Aviation Recorders receives a monthly average 1,509 packages and ships an average of 1,161 packages, totaling an average of 25,332 pounds per month.
- ✈ The current item master contains 9,533 part numbers with an on-hand balance of approximately 8M pieces!

Liz Peters

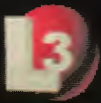
Do you recognize them?



Insight to our Website....

Corporate Website: www.l-3com.com

Aviation Recorders Website: www.l-3ar.com



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L-3 AVIATION RECORDERS DIVISION

L-3 Communications, Aviation Recorders designs and manufactures Fairchild Aviation Recorders. The Fairchild Recorder product line dates back to the early 1960's and has been in continuous production since then. More than 45,000 recorders have been manufactured and most are still in service. Fairchild recorders are recognized worldwide for their excellent crash survivability, state-of-the-art performance and low cost of ownership.

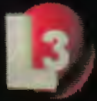
Over the years, ownership of the product line has passed from Fairchild Camera Corporation to a number of companies including Schlumberger, Loral Lockheed Martin and L-3 Communications. Through these changes, our high level of product quality and support has been maintained by our dedicated Aviation Recorders employees.



L-3 was formed in April 1997. It brings together 11 operating divisions formerly owned by Loran and Lockheed Martin, with approximately 6,000 employees and \$1 billion in sales.

Aviation Recorders has been in Sarasota for 16 years and is a registered **ISO 9001** Operation. We are always looking for highly qualified individuals to help meet the challenges of tomorrow.

Voyage Data Recorder



[L-3 Corporate Site](#)

[Y2K Compliance](#)

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Voyage Recorder Products

Voyage Data Recorder (VDR)

Aviation Recorders has taken its leadership technology in flight voice and data recorder for commercial and military aircraft and applied it to the development of a Voyage Data Recorder for maritime use.

The Model HVR 720 Solid State Voyage Data Recorder uses proven aircraft technology to provide storage capacity exceeding 12 hours of radar, sensor and audio data. It can record a range of information, including time, date, position, heading, speed, audio and radar. The information is stored in a protected memory capsule within the Hardened Recorder Unit (HRU). The HRU is fitted with a Underwater Locator Beacon (ULB) to aid in locating the recorder in the event of a catastrophic incident.

The HRU interfaces with various data acquisition units to meet International Maritime Organization (IMO) requirements for Voyage Data Recording.

Regulator Specifications

IMO A 86: (20)

RTCA/DO-178B Level C

IEC 61996

IEC 60945

IEC 60068-2-27 Part 2



Working Hard



..... At The Job



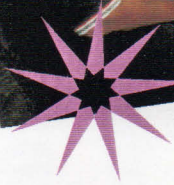
Annual Luncheon



Why can't we have these annual picnics more often?



What's for dessert?



Now that we've changed all the Ys to Ks, we're ready to party!



Who's answering the phone?



Take as many pictures as you like - it beats going back to work!



The food was great - Bring on the entertainment!

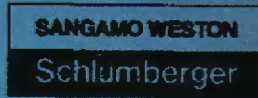




ELECTRO-MECHANICAL RESEARCH, INC.
BROOKFIELD, CONN.



Electro-Mechanical Research, inc.



**FAIRCHILD WESTON
SYSTEMS INC.**
TRACED TO
SCHLUMBERGER
Excellence in Defense Systems Technology... Worldwide



LOCKHEED MARTIN



**communications
Aviation Recorders**



Communications

Aviation Recorders