



Smithsonian  
*National Museum of American History*  
*Kenneth E. Behring Center*

## Guide to the Magellan Systems Corporation GPS Records

NMAH.AC.1214

Alison Oswald.

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## Collection Overview

<b>Repository:</b>	Archives Center, National Museum of American History
<b>Title:</b>	Magellan Systems Corporation GPS Records
<b>Identifier:</b>	NMAH.AC.1214
<b>Date:</b>	1978-2005 (bulk 1986-1998)
<b>Extent:</b>	12 Cubic feet (14 boxes)
<b>Creator:</b>	Magellan GPS
<b>Language:</b>	Collection is in English. Some materials in Arabic, French, German, Japanese, and Swedish.
<b>Summary:</b>	The Magellan Systems Corporation Records document various aspects of the development of several different Magellan GPS devices through engineering, research, design, manufacturing, and marketing records. Magellan Systems Corporation introduced the first hand-held differential GPS product and the company's focus was on research, product engineering, and design activities for GPS receivers. The collection includes correspondence and internal company reports and memoranda; design drawings; research notes; engineering notebooks, technical notes, schematics; photographs, slides and negatives; video and audiocassettes; advertisements; product literature, magazine articles and newspaper clippings; press releases; and user guides and manuals.

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## Administrative Information

### Acquisition Information

Donated to the Archives Center in 2010, by MiTAC Digital Corporation through Michael Williams, Director of Marketing and Gary Barta, Janice Itnyre, Jean Tuck McGregor, Donald Rea, Edward F. Tuck, Lawrence R. Weill, and James P. White.

### Provenance

The materials in this collection were acquired in conjunction with the development of the Time and Navigation Exhibition by Smithsonian staff at the National Air and Space Museum and the National Museum of American History.

### Related Materials

The Division of Work and Industry holds related artifacts (GPS receivers, computer electronics boards, computer chips, antennas, packaging, components, circuit boards, keyboards, a Swiss Army Chip (SAC), and receiver brackets). See Accession numbers 2010.0117; 2010.0118; 2010.0151; 2010.0152; 2010.0153; 2010.0154 and 2010.0155.

## Processing Information

Processed by Lindsay Osmun (intern) and Alison Oswald, archivist, 2011. Finding aid authored by Alison Oswald, October 2011.

## Preferred Citation

Magellan Systems Corporation GPS Records, Archives Center, National Museum of American History, Smithsonian Institution.

## Restrictions

Collection is open for research.

## Conditions Governing Use

Collection items available for reproduction, but the Archives Center makes no guarantees concerning intellectual property rights. Archives Center cost-recovery and use fees may apply when requesting reproductions.

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## Biographical / Historical

Ed Tuck of the Boundary Fund, a venture capital firm specializing in technologies founded the Magellan Systems Corporation in 1986 and served as its director from 1986 to 1993. Tuck assembled the initial team of Norm Hunt, Larry Weill, Val Wong, and Sab Ifune to conduct a feasibility study in early 1986 to pursue commercial markets for products based on global positioning system (GPS) technology. Magellan introduced the first handheld commercial GPS receiver in 1989 and was the first company to make GPS devices affordable to consumers. Magellan introduced the first handheld commercial GPS receiver in 1989 and was the first company to make GPS devices affordable to consumers. The company successfully introduced GPS products into the marine, professional, military and automotive and general aviation markets.

The Global Positioning System (GPS) began as a United States Department of Defense Program in the 1960s with a navy system known as Transit (first satellite navigation system). Two other projects soon followed, Timation (satellite to broadcast accurate time reference) and Air Force Project 612B, which began in the 1970s. In 1973, the development of the Navigation Signal Timing and Ranging Global Positioning System (NAVSTAR) began under the management of the Air Force. Designed by the military, the system provided twenty-four positioning satellites under all- weather conditions using passive (non-transmitting) receivers. This kept a user's presence from being detected as a result of the receiver. Although primarily for military use, the system also offered a less-precise coded signal for civilian use.

GPS uses a group of twenty-four earth-orbiting satellites which broadcast continuously. The data being broadcast can be processed by a portable receiver to determine a user's position, velocity and time. GPS has three parts: 1) space part with twenty-four satellites; 2) ground part with monitor and 3) user part with receivers that process the signals and calculate position.

In the spring of 1986, the Magellan team published a specification for a custom mixed signal RF (radio frequency) integrated circuit and by fall 1986, had a breadboard (used in prototyping of electronics) and began software development and testing. Magellan focused its research, product engineering, and design activities on the development of GPS receivers that were application-specific, software-intensive, reliable, lower power, easy to use, and affordable.

From 1986 to 1988, the Boundary Fund provided the venture capital for feasibility studies and the initial product design. By 1988, the company occupied its first stand-alone facility in Monrovia, California with thirty-five employees. In May 1989, the company's first product, the NAV 1000, shipped, and in that same year, the company entered the military market with the NAV 1000M. The company entered the professional market in January 1990 with the NAV 1000 PRO, the world's first hand-held GPS product. By 1991, Magellan moved to a new facility in Dimas, California and introduced advanced five-channel technology. It also incorporated in the United Kingdom (UK) as Magellan Systems to handle product distribution in the rest of the UK and Europe.

The SkyNAV 5000 was introduced in 1992 for the general aviation market, and in the same year, hand-held differential GPS technology for the marine market appeared. Magellan was purchased by Orbital Sciences Corporation in 1994. In 2001, Thales Group purchased the Magellan division of Orbital Sciences, and the company became known as Thales Navigation. In 2006, a private equity firm, Shah Capital Partners, and other investors purchased Thales Navigation, and the company was officially renamed Magellan Navigation. Magellan (also known as MiTAC Digital Corporation) is a wholly-owned subsidiary of MiTAC International Corporation and promotes and sells products and services under the Magellan brand name. Magellan is headquartered in Santa Clara, California.

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## Scope and Contents

The Magellan Systems Corporation Records document various aspects of the development of Magellan GPS devices, including the engineering, research, design, manufacturing, and marketing of the devices. The collection includes correspondence and internal company reports and memoranda; design drawings; research notes; engineering notebooks, technical notes, schematics; photographs, slides and negatives; video and audiocassettes; advertisements; product literature, magazine articles and newspaper clippings; press releases; and user guides and manuals. In Series 1, Operational Materials, Subseries 3, Weekly Reports, 1988-1996, provides an excellent overview of the issues facing the company and what actions/decisions were made and in Series 3, Engineering and Product Development Materials, Subseries 8, Technical Product Development Seminars provide a good foundation for understanding what the product development staff accomplished.

The core team of players who developed, tested and brought to market the GPS devices included: Janice Jones Blankenhorn, Gary Barta, John Foukos, Randy Hoffman, Norm Hunt, Sab Ifune, Don Rea, Dennis Rich, Ed Tuck, Jon Vavrus, Larry Weill, Val Fife Wong, and James Yuan. The majority of the core team were software and hardware engineers as well as mechanical designers. Their energy, enthusiasm, vision, and unwillingness to fail produced the first handheld commercial GPS receiver in 1989 and Magellan was the first company to make GPS devices affordable to consumers.

**Series 1, Operational Materials, 1988-1993**, is divided into four subseries: Subseries 1, Organizational Materials, 1988-1994; Subseries 2, Strategic and Operating Plans, 1989-1995; Subseries 3, Weekly Reports, 1988-1996; and Subseries 4, Company Newsletters, 1991-1992.

**Subseries 1, Organizational Materials, 1988-1994**, consists of an organizational chart detailing Magellan's corporate structure, a document discussing the communication and functional objectives of the company, and a company Christmas card. The Orbital Sciences Corporation profile was prepared by Alex. Brown and Sons Incorporated and provides an overview of the ORBCOMM system technology, a two-way data-only personal communications service.

**Subseries 2, Strategic and Operating Plans, 1989-1995**, consists of a variety of strategic and operational plans for the company. The plans are arranged chronologically.

Subseries 3, Weekly Reports, 1988-1996, consists of handwritten and typescript reports primarily from Randy Hoffman, president and CEO of Magellan and Gary Barta, Senior Engineer and Vice President of engineering. The reports document issues that include, personnel issues, product development, technological developments, military orders, investments, marketing and sales, financial issues, orders, resource activities, and future activities. The subseries is arranged chronologically and provides an excellent overview of the issues facing the company and what actions/decisions were made.

**Subseries 4, Company Newsletters, 1991-1992**, consists of two external company newsletters, *The Global Navigator*, 1991 and *The Magellan Explorer*, 1992. The *Global Navigator* was created for the marine market and was sent to all NAV PLUS owners as well as dealers.

**Series 2, Correspondence, 1989-1994 and undated**, is divided into two subseries: Subseries 1, Customer Correspondence, 1989-1993 and Subseries 2, Business Correspondence, 1989-1994 and undated. The customer-related correspondence consists of letters from users of Magellan GPS units (primarily maritime-related) and their feedback about the product. Some color photographs are included. The business-related correspondence consists of records of conversations, invoices, suggestions for strategic planning, correspondence between Randy Hoffman and the Boundary Found, and the agreement and plan for the merger of Orbital Sciences Corporation and Magellan Corporation in 1994.

**Series 3, Engineering and Product Development Materials, 1978-1998**, consists of ten subseries: Subseries 1, Product Development, 1989-1994; Subseries 2, Engineering Notebooks, 1987-1996; Subseries 3, Technical Notes, 1978-1994; Subseries 4, Breadboard Design, 1986-1994; Subseries 5, First Generation (NAV 1000/NAV 1200), 1985-1994; Subseries 6, Second Generation, 1988-1996; Subseries 7, Third Generation, 1986-1994; Subseries 8, Swiss Army Chip (SAC) Development, 1987-1995; Subseries 9, Technical Products Development Seminars, 1997-1998; Subseries 10, Specifications, 1992-1994 and Subseries 11, TriQuint Semiconductor Materials, 1986-1992.

**Subseries 1, Product Development, 1989-1994**, consists of documentation related to product development at Magellan. There are sketches for the third generation of GPS products, descriptive materials for the Meridian Plus and third generation receiver, testing data from the Forest Service using GPS in the wilderness near Missoula, Montana, and position description for the director of product engineering at Magellan outlining the skills and responsibilities.

**Subseries 2, Engineering Notebooks, 1987-1996**, consists of bound, paginated and handwritten notebooks belonging to two Magellan engineers, Janice Jones Blankenhorn, senior software engineer and Don Rea, director of engineering. Each of Don Rea's notebooks contains a page of handwritten annotations made in 2010 describing the contents. Don Rea's 1987 notebook contains documentation on the original Magellan breadboard, custom digital chip (SAC 1), and the digital board design and test, all of which deal with the first generation of the NAV 1000. Rea's 1986 and 1988 notebook contains information about the first generation of software used, GaAS chips, radio frequency (RF) board, second generation (NAV 5000), design work for Swiss Army Chips (SACs), SAC2 digital chip, SAC2B, and the SAC3 chip. Don Rea's 1993-1995 notebook contains notes on the testing of the SAC5, SAC5M and SAC6 custom digital integrated circuit for the third generation.

**Subseries 3 Technical Notes, 1978-1994**, consists of handwritten and typescript notes of Gary Barta, Janice Jones Blankenhorn, John Foufos, Janice Intyre, Don Rea, Larry Weill, and James Yuan. Where possible, file level information about what the notes relate to and the Magellan staff member who wrote the notes is listed. Much of the documentation consists of equations, algorithms, sketches, block diagrams, and narrative describing processes and research. The subseries is loosely arranged chronologically.

**Subseries 4, Breadboard Design, 1986-1994**, consists of memoranda, technical notes, drawings, and sketches detailing the radio frequency breadboard design. Magellan's first-generation breadboard, circa 1987, was developed by the team of Janice Jones Blankenhorn, Val Fife Wong, Ed Tuck, Norm Hunt, Sab Ifune, Gary Barta, Larry Weill, Randy Hoffman, and Don Rea.

**Subseries 5, First Generation (NAV 1000/NAV 1200), 1985-1994**, consists of technical notes, design notes, memoranda, drawings, and blueprints documenting the development of the first generation (primarily the NAV 1000/NAV 1200), handheld GPS unit produced by Magellan. The first generation of GPS were single channel receivers and were quite simple. The NAV 1000 was 8.75" x 3.5" x 2.25" and weighed only 1.5 pounds. The NAV 1000 converted GPS satellite information into a satellite/navigation (sat/nav) positioning. It used Gallium arsenide (GaAs) a compound of the elements gallium and arsenic, and monolithic microwave integrated circuit (MMIC) technology to reduce its size and power consumption. GaAs is a semiconductor used in the manufacture of devices such as microwave frequency integrated circuits, monolithic microwave integrated circuits, infrared light-emitting diodes, laser diodes, solar cells, and optical windows. The device sold for approximately \$3,000 dollars.

**Subseries 6, Second Generation, 1988-1996**, consists of technical notes, design notes, memorandums, drawings, and blueprints documenting the development of the second generation (primarily the NAV 5000) handheld GPS unit produced by Magellan. The NAV 5000 used five channels working simultaneously to locate and collect data from GPS satellites. The units GaAs circuitry rapidly processed the data received from the satellites to compute current location, altitude, velocity and navigation in under one minute. The NAV 5000 was designed primarily for marine use. Other second generation products included: OEM Brain, OEM 1/2 Brain, Nav 500 Pro, NAV 100M5, Skaynav, Fieldpro, NAV 5200 PM, NAV 5000A, NAV 5000D, DX, DLX, Pro mark V, and the Map 7000.

**Subseries 7, Third Generation, 1986-1994**, consists of technical notes for the development of the third generation (primarily Meridian and Trailblazer models) of Magellan GPS devices. Third generation models were intended for the lower end of the GPS market and were compact hand-held (size, weight, battery life) and a retail price that was reasonable. Other third generation devices included: the meridian, Trailblazer, AIV10 OEM, Skatblazer, NAV 6500 PM, Meridian/TB/SB XL, NAV 1200 Pm, NAV 1200 XL PM, NAV DLX 10, Promark X, and the Pro Mark X-CM.

**Subseries 8, Swiss Army Chip (SAC) Development, 1987-1995**, consists of technical notes, diagrams and drawings, and specifications for the development of a digital chip used in Magellan GPS products. Don Rea and Norm Hunt of Magellan are credited with naming the chip. The chip combined several elements--GPS DPS channels, correlators, real time clock, alarm timer, interval timer, keyboard interface, display interface, precise timing, power sequencing, memory decoding, code generators, and beeper driver, to name a few--which allowed the development team reduce the overall power, size, and cost of the chip. Magellan outsourced the manufacture of the SAC.

**Subseries 9, Technical Products Development Seminars, 1997-1998**, consists of documentation for nine seminars in a series of technology seminars initiated by the product development group at Magellan. The seminars were created to keep all staff up to date on past, present, and future technology developments at Magellan. The nine seminars cover the history of Magellan GPS technology and address specific areas of development such as antennas, circuits, signal processing, software, navigation needs, and radio frequency. Other information includes tables providing comparisons for the first, second, and third generations, timelines, SAC chip characteristics, and product shipping dates. The seminars provide a good foundation for understanding what the product development staff accomplished. Researchers should consult Series 8 which documents some of the technical seminars.

**Subseries 10, Specifications, 1992-1994**, consists of preliminary, functional, and system requirements describing technical characteristics for several Magellan products.

**Subseries 11, TriQuint Semiconductor Materials, 1986-1992**, consists of materials documenting TriQuint Semiconductor, Inc.'s work. TriQuint was a division of Tektronix, Inc., a manufacturer of analog and mixed signal gallium arsenide (GaAs) integrated circuit products. TriQuint supplied custom radio frequency (RF) and Gallium arsenide (GaAs) chips for Magellan's hand-held GPS systems and tested its chips. Documentation includes trip summaries and observations to TriQuint by Don Rea, a Magellan engineer as well as technical drawings, memorandums, development schedules, invoices, purchase orders, and tests results, production quantity and costs, and specifications. In 1986, Don Rea

met Gary Barta, then principal engineer at TriQuint through his frequent visits to the company. Barta led the engineering development of the an integrated circuit which combined the GPS L-band low-noise pre-amplifier, UHF local oscillator, down converter and high speed digital dividers on a single gallium-arsenide chip. Nothing like this had been done before for a cost sensitive commerical application. Barta later joined Magellan in November 1988 as Vice President of Engineering and made the chip he had designed actually work in the environment of a hand-held product.

**Series 4, Marketing and Promotional Materials, 1985-1997**, is divided into six subseries: Subseries 1, Market Research, 1985-1993 and undated; Subseries 2, Product Literature, circa 1990s; Subseries 3, Advertisements, 1988-1995 and undated; Subseries 4, Press Releases, 1988-1996; Subseries 5, Presentation Materials, 1990-[1997?] and undated; and Subseries 6, Newspaper and Magazine Clippings, 1988-1996 and undated. The series consists of product literature, advertisements, press releases, presentation materials, and newspaper and magazine clippings about Magellan products as well as competitors.

**Subseries 1, Market Research, 1985-1993 and undated**, consists of market research data in the form of reports prepared by Merrill Lynch, Simmons Market Research Bureau, J & H Instruments, and others, directed interviews and focus group data. There are directed interviews and discussion documentation from 1986 with Coast Guard Rescue, survival trainers, surveyors, hunters, harbor patrols, expeditionists, and mountaineer trainers providing detailed feedback into experiences with the product. The focus group information consists of transcribed interviews, survey text, selection criteria, participant lists, invoices, and technical drawings and mock-ups for the marine, outdoor and hunting markets.

**Subseries 2, Product Literature, circa 1990s**, consists of one file folder of product information sheets detailing specifics about Magellan products such as the NAV 1000, NAV 5000DX, NAV 1000 PRO/ Geolink, NAV 5200, NAV 1000M, Meridian GPS, ProMARK V, GPS 2000, and the Global Satellite Communicator (GSC) 100.

**Subseries 3, Advertisements, 1988-1995 and undated**, consists of point of purchase ads, artwork and transfer designs for Magellan products. There are some oversize drawings (copies of blueprints) with the transfer design materials.

**Subseries 4, Press Releases, 1988-1996**, consists of press releases and one press kit containing biographies of staff members, black-and-white prints of Randy D. Hoffman, President and Chief Executive Officer, prints of the NAV 1000, and press releases introducing the NAV 1000. The marine outdoor press releases also contain 1993 dealer price lists for the Trailblazer, Meridian, NAV 5000DX, NAV 5200DX, and the mimimum advertised price policy for 1993.

**Subseries 5, Presentation Materials, 1990-[1997?]**, consists primarily of staff presentation materials used to promote Magellan products. There is one bound presentation, Magellan Systems Corporation Management Presentation, undated, prepared by Merrill Lynch, that provides documentation about the company (an overview), market segments, competition, sales and marketing, product development, technology, manufacturing, and a financial overview.

**Subseries 6, Newspaper and Magazine Clippings, 1988-1996 and undated**, consists primarily of magazine articles. The articles appeared in a variety of publications and included *Defense Electronics*, *Southern Boating*, *Maritime Reporter*, *Cruising World*, *Boating the Journal of the Sport*, *International Defense Review*, and *Navigation News*. The subseries is arranged chronologically.

**Series 5, User Guides and Manuals, 1989-2005 and undated**, consists of training, reference, and user guides for the consumer who purchased Magellan products. The guides are primarily spiral bound and some are annotated. Multiple copies of some years exist. The series is arranged chronologically.

**Series 6, Financial Materials, 1991-1995 and undated**, consists of stock information, a Securities and Exchange Commission registration statement, correspondence, registration rights agreements, preferred



stock purchase agreements, agreement and plan of merger documents between Magellan Corporation and Orbital Sciences Corporation (November 1994), and two floppy discs (3 1/2" and 5") containing information about the company and its staff.

**Series 7, Photographs and Slides, 1987-1995 and undated**, consists of slides, negatives, transparencies, and color and black-and-white prints of Magellan products. Many of the images document early product concepts, and there are some promotional and publicity materials. There is one folder of photographs with images of employees from 1989.

**Series 8, Audiovisual Materials, 1991-1998 and undated**, consists of 1/2" VHS, BETA Cam SP, and 8 mm video cassettes documenting technical seminars presented by Magellan Systems Corporation staff and instances of Magellan products featured in news segments. Researchers consult the technical seminar documentation in Series 3, Engineering and Product Development Materials. The series is arranged chronologically.

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## Arrangement

Collection arranged into eight series.

### **Series 1, Operational Materials, 1988-1993**

Subseries 1, Organizational Materials, 1988-1994

Subseries 2, Strategic and Operating Plans, 1989-1995

Subseries 3, Weekly Reports, 1988-1996

Subseries 4, Company Newsletters, 1991-1992

### **Series 2, Correspondence, 1989-1994 and undated**

### **Series 3, Engineering and Product Development Materials, 1978-1998**

Subseries 1, Product Development, 1989-1994

Subseries 2, Engineering Notebooks, 1987-1996

Subseries 3, Technical Notes, 1978-1994

Subseries 4, Breadboard Design, 1986-1994

Subseries 5, First Generation (NAV 1000/NAV 1200), 1985-1994

Subseries 6, Second Generation (NAV 5000), 1988-1996

Subseries 7, Third Generation, 1986-1994

Subseries 8, Swiss Army Chip (SAC) Development, 1987-1995

Subseries 9, Technical Product Development Seminars, 1997-1998

Subseries 10, Specifications, 1992-1994

Subseries 11, TriQuint Semiconductor, 1986-1992

**Series 4, Marketing and Promotional Materials, 1985-1997**

Subseries 1, Market Research, 1985-1993 and undated

Subseries 2, Product Literature, circa 1990s

Subseries 3, Advertisements, 1988-1995 and undated

Subseries 4, Press Releases, 1988-1996

Subseries 5, Presentation Materials, 1990-[1997?]

Subseries 6, Newspaper and Magazine Clippings, 1988-1996 and undated

**Series 5, User Guides and Manuals, 1989-2005 and undated**

**Series 6, Financial Materials, 1991-1995 and undated**

**Series 7, Photographs and Slides, 1987-1995 and undated**

**Series 8, Audiovisual Materials, 1991-1998 and undated**

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## Physical Characteristics and Technical Requirements

Gloves must be worn when handling unprotected photographs and negatives. The 3 1/2" and 5" floppy disks in the collection are inaccessible. The only exception is the 3 1/2" disk in box 4, folder 29. Files on this disk were printed.

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## Bibliography

<http://www.magellangps.com/About-Us> (last accessed September 13, 2011)

Sherod, Craig. "GPS Positioned to Change Our Lives and Boost Our Industry." *Microwave Systems News*, July, 1989.

Braun, Alexander E. "The GPS Promise Approaches Fulfillment." *Journal of Electronic Defense*. November, 1989.

Telephone conversation with Ed Tuck on January 1, 2012.

Telephone conversation with Gary Barta on January 9 and January 12, 2012.

Don Rea, letter to Carlene Stephens, December 29, 2010.

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## Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:

GPS receivers

Global Positioning System

Navigation  
Navigation equipment and supplies  
Satellites

Types of Materials:

Advertisements -- 1980-2000  
Advertisements -- 2000-2010  
Articles  
Audio cassettes -- 1980-1990  
Audio cassettes -- 1990-2000  
Audio cassettes -- 2000-2010  
Clippings -- 1950-2000  
Clippings -- 2000-2010  
Correspondence -- 1950-2000  
Correspondence -- 2000-2010  
Design drawings  
Instructional materials  
Manuals  
Memorandums -- 1950-2000  
Memorandums -- 2000-2010  
Notebooks  
Notes  
Photographs -- 1980-2000  
Photographs -- 2000-2010  
Photographs -- Black-and-white negatives -- 1950-2000  
Photographs -- Black-and-white negatives -- 2000-2010  
Photographs -- Color transparencies -- 1950-2000  
Photographs -- Color transparencies -- 2000-2010  
Press releases  
Reports  
Reports -- 1950-2000  
Reports -- 2000-2010  
Videocassettes

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## Container Listing

### Series 1: Operational Materials, 1988-1993

Series 1 is divided into four subseries: Subseries 1, Organizational Materials, 1988-1994; Subseries 2, Strategic and Operating Plans, 1989-1995; Subseries 3, Weekly Reports, 1988-1996; and Subseries 4, Company Newsletters, 1991-1992.

#### Subseries 1.1: Organizational Materials , 1988-1994

Subseries 1 consists of an organizational chart detailing Magellan's corporate structure, a document discussing the communication and functional objectives of the company, and a company Christmas card. The Orbital Sciences Corporation profile was prepared by Alex. Brown and Sons Incorporated and provides an overview of the ORBCOMM system technology, a two-way data-only personal communications service.

Box 1, Folder 1	Magellan's organizational chart, 1994
Box 1, Folder 2	Communication/functional objectives, 1990-1991
Box 1, Folder 3	Orbital Sciences Corporation (ORBCOM) profile, 1994  Christmas card (from Magellan crew), [1988?]

#### Subseries 1.2: Strategic and Operating Plans, 1989-1995

Subseries 2 consists of a variety of strategic and operational plans for the company. The plans are arranged chronologically.

Box 1, Folder 4	Strategic planning meeting, 1991 March
Box 1, Folder 5	Strategic planning meeting, 1995
Box 1, Folder 6	Strategic plan (product development), 1989-1991
Box 1, Folder 7	Operating plan, 1990
Box 1, Folder 8	Planning meeting, 1991
Box 1, Folder 9	Space planning (for the company), 1991
Box 1, Folder 10	Offsite meeting, 1994 April

#### Subseries 1.3: Weekly Reports, 1988-1996

Subseries 3 consists of handwritten and typescript reports primarily from Randy Hoffman, president and CEO of Magellan and Gary Barta, Senior Engineer and Vice President of engineering. The reports document issues that include, personnel issues, product development, technological developments, military orders, investments, marketing and sales, financial issues, orders, resource activities, and future activities. The subseries is arranged chronologically and provides an excellent overview of the issues facing the company and what actions/decisions were made.

Box 1, Folder 11	Weekly reports to the Board of Directors (Group I), 1991
Box 1, Folder 12	Weekly reports to the Board of Directors (Group I), 1992
Box 1, Folder 13	Weekly reports to the Board of Directors (Group I), 1993
Box 1, Folder 14	Weekly reports to the Board of Directors (Group II), 1988-1989
Box 1, Folder 15	Weekly reports to the Board of Directors (Group II), 1990 January-1990 June
Box 1, Folder 16	Weekly reports to the Board of Directors (Group II), 1990 July-1990 December
Box 1, Folder 17	Weekly reports to the Board of Directors (Group II), 1991
Box 1, Folder 18	Weekly reports, 1993
Box 1, Folder 19	Weekly reports, 1994
Box 1, Folder 20	Weekly reports, 1995
Box 1, Folder 21	Weekly reports, 1996

#### Subseries 1.4: Company Newsletters, 1991-1992

Subseries 4, consists of two external company newsletters, *The Global Navigator*, 1991 and *The Magellan Explorer*, 1992. The *Global Navigator* was created for the marine market and was sent to all NAV PLUS owners as well as dealers.

Box 1, Folder 22	<i>The Global Navigator</i> , 1991
Box 1, Folder 23	<i>The Magellan Explorer</i> , 1992

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## Series 2: Correspondence, 1989-1993

Series 2 is divided into two subseries: Subseries 1, Customer Correspondence, 1989-1993 and Subseries 2, Business Correspondence, 1989-1994 and undated. The customer-related correspondence consists of letters from users of Magellan GPS units (primarily maritime-related) and their feedback about the product. Some color photographs are included. The business-related correspondence consists of records of conversations, invoices, suggestions for strategic planning, correspondence between Randy Hoffman and the Boundary Found, and the agreement and plan for the merger of Orbital Sciences Corporation and Magellan Corporation in 1994.

### Subseries 2.1: Customer Correspondence, 1989-1993

*Box 1, Folder 24*

### Subseries 2.2: Business Correspondence, 1989-1994 and undated

*Box 1, Folder 25-27*

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## Series 3: Engineering and Product Development Materials, 1978-1998

Series 3, consists of ten subseries: Subseries 1, Product Development, 1989-1994; Subseries 2, Engineering Notebooks, 1987-1996; Subseries 3, Technical Notes, 1978-1994; Subseries 4, Breadboard Design, 1986-1994; Subseries 5, First Generation (NAV 1000/NAV 1200), 1985-1994; Subseries 6, Second Generation, 1988-1996; Subseries 7, Third Generation, 1986-1994; Subseries 8, Swiss Army Chip (SAC) Development, 1987-1995; Subseries 9, Technical Products Development Seminars, 1997-1998; Subseries 10, Specifications, 1992-1994 and Subseries 11, TriQuint Semiconductor Materials, 1986-1992.

### Subseries 3.1: Product Development, 1989 - 1994

Subseries 1 consists of documentation related to product development at Magellan. There are sketches for the third generation of GPS products, descriptive materials for the Meridian Plus and third generation receiver, testing data from the Forest Service using GPS in the wilderness near Missoula, Montana, and position description for the director of product engineering at Magellan outlining the skills and responsibilities.

Box 1, Folder 29	Director of product engineering (position description), 1989
Box 1, Folder 30	Product tests (Forest Service tests and software test plan) , 1989-1990
Box 1, Folder 31	New product development status and deliverables, 1994
Box 1, Folder 31A	Sketches of products, 1993
Box 1, Folder 31B	Product descriptions (Meridian Plus and third generation receiver), 1992-1994

### Subseries 3.2: Engineering Notebooks, 1987-1996

Subseries 2, consists of bound, paginated and handwritten notebooks belonging to two Magellan engineers, Janice Jones Blankenhorn, senior software engineer and Don Rea, director of engineering. Each of Don Rea's notebooks contains a page of handwritten annotations made in 2010 describing the contents. Don Rea's 1987 notebook contains documentation on the original Magellan breadboard, custom digital chip (SAC 1), and the digital board design and test, all of which deal with the first generation of the NAV 1000. Rea's 1986 and 1988 notebook contains information about the first generation of software used, GaAS chips, radio frequency (RF) board, second generation (NAV 5000), design work for Swiss Army Chips (SACs), SAC2 digital chip, SAC2B, and the SAC3 chip. Don Rea's 1993-1995 notebook contains notes on the testing of the SAC5, SAC5M and SAC6 custom digital integrated circuit for the third generation.

Box 1, Folder 28	Engineering meetings (development and hardware schedules, parts change, SAC2 design review), 1990-1991
Box 1, Folder 32	Janice Jones, 1987 July-1988 March
Box 1, Folder 33	Janice Jones, 1988 March-1988 September
Box 1, Folder 34	Janice Blankenhorn, 1988 September-1989 September

Box 1, Folder 35            Janice Blankenhorn, 1989 September-1990 September

Binder 1, Folder 36        Janice Blankenhorn, 1990 September-1991 April

Box 1, Folder 37            Janice Blankenhorn, 1991 April-1993 January

Box 1, Folder 38            Janice Blankenhorn, 1993 February-1995 February

Box 1, Folder 39            Janice Blankenhorn, 1995 February

Box 1, Folder 40            Janice Blankenhorn, 1995 June-1996 August

                                  Don Rea, 1987

Box 1, Folder 42            Don Rea, 1986 and 1988

Box 1, Folder 43            Don Rea, 1993-1995

### Subseries 3.3: Technical Notes, 1978-1994

Subseries 3 consists of handwritten and typescript notes of Gary Barta, Janice Jones Blankenhorn, John Foufos, Janice Intyre, Don Rea, Larry Weill, and James Yuan. Where possible, file level information about what the notes relate to and the Magellan staff member who wrote the notes is listed. Much of the documentation consists of equations, algorithms, sketches, block diagrams, and narrative describing processes and research. The subseries is loosely arranged chronologically.

Box 2, Folder 1A            Don Rea (block diagram, parts costs and power), 1987 March

Box 2, Folder 1            Gary Barta, 1987 April-1987 June

                                  Gary Barta, 1987 July-1987 December

Box 2, Folder 3            Larry Weill (data bit detection algorithm/bit sync algorithm), 1988 January

Box 2, Folder 4            Larry Weill (power meter readings/birdie guard) , 1988 February

Box 2, Folder 5            Janice Blankenhorn (messages to receivers), 1988 March

Box 2, Folder 6            John Fousos (noise sources/receiver task/time of transmission), 1988 April

Box 2, Folder 7            Larry Weill (NAV filter), 1988 May

Box 2, Folder 8            James Yuan (ROM memories), 1988 June



Box 2, Folder 9	Larry Weill (compass calculations/algorithm), 1988 July 13
Box 2, Folder 10	Larry Weill (statistical definition of fix error), 1988 August
Box 2, Folder 1	Larry Weill (The North American Datum of 1983, reprint from January 1987 issue of <i>Geophysics</i> ), 1988 November
Box 2, Folder 12	Larry Weill (acquisition parameter tuning), 1988 December 20
Box 2, Folder 13	Don Rea (roof antenna tests), 1989 January 10
Box 2, Folder 14	Gary Barta (bulletproofing algorithm), 1988 March
Box 2, Folder 15	Gary Barta (short data collection), 1989 October
Box 2, Folder 16	Gary Barta (course NAV test data), 1990 January
Box 2, Folder 17	Gary Barta (technical notes 002), 1987 April-1987 August
Box 2, Folder 18	Gary Barta (technical notes 003, index) , undated
Box 2, Folder 19	Gary Barta (technical notes 003), 1986 May-1986 August
Box 2, Folder 20	Gary Barta (technical notes 003), 1986 September-1986 December
Box 2, Folder 21	Gary Barta (technical notes 003), 1987 January-1987 March
Box 2, Folder 22	Gary Barta (technical notes 005/operating system, measurement collection, statistical definitions, fast processor, TCXO test results, second generation, positioning study and signals), 1978-1991
Box 2, Folder 23	Gary Barta (technical notes 006), 1978-1988
Box 2, Folder 24	Gary Barta (technical notes 007) , 1992-1993
Box 2, Folder 25	Gary Barta (technical notes 008), 1993
Box 2, Folder 26	Gary Barta (technical notes 009/velocity filtering, frequency positioning, algorithms, phaselock loop, noise values, bit sync routine), 1981-1993
Box 1, Folder 27	Janice Itnyre, (acquisition of software, pseudorange measurements), 1987
Box 1, Folder 28	Janice Itnyre, 1988-1989

- Box 2, Folder 29            Janice Itnyre, 1990, 1992-1994
- Box 2, Folder 30            Janice Itnyre, undated
- Box 2, Folder 31            Technical briefing schedule, 1992
- Box 2, Folder 32            Terrapin PINS Overview (Terrapin Navigation System), 1993

#### Subseries 3.4: Breadboard Design Breadboard Design, 1986-1994

Subseries 4 consists of memoranda, technical notes, drawings, and sketches detailing the radio frequency breadboard design. Magellan's first-generation breadboard, circa 1987, was developed by the team of Janice Jones Blankenhorn, Val Fife Wong, Ed Tuck, Norm Hunt, Sab Ifune, Gary Barta, Larry Weill, Randy Hoffman, and Don Rea.

- Box 2, Folder 33            Breadboard design, 1986
- Box 2, Folder 34            Breadboard design, 1989-1994

#### Subseries 3.5: First Generation (NAV 1000 and NAV 1200), 1985-1994

Subseries 5 consists of technical notes, design notes, memoranda, drawings, and blueprints documenting the development of the first generation (primarily the NAV 1000/NAV 1200), handheld GPS unit produced by Magellan. The first generation of GPS were single channel receivers and were quite simple. The NAV 1000 was 8.75" x 3.5" x 2.25" and weighed only 1.5 pounds. The NAV 1000 converted GPS satellite information into a satellite/navigation (sat/nav) positioning. It used Gallium arsenide (GaAs) a compound of the elements gallium and arsenic, and monolithic microwave integrated circuit (MMIC) technology to reduce its size and power consumption. GaAs is a semiconductor used in the manufacture of devices such as microwave frequency integrated circuits, monolithic microwave integrated circuits, infrared light-emitting diodes, laser diodes, solar cells, and optical windows. The device sold for approximately \$3,000 dollars.

- Box 2, Folder 35            Breadboard design , 1985-1990
- Box 2, Folder 36            Breadboard design, 1986-1989
- Box 2, Folder 37            NAV1200 (design drawings, blueprints, and proposed notebook antenna),  
1988-1994

#### Subseries 3.6: Second Generation (NAV 5000), 1988-1996

Subseries 6 consists of technical notes, design notes, memorandums, drawings, and blueprints documenting the development of the second generation (primarily the NAV 5000) handheld GPS unit produced by Magellan. The NAV 5000 used five channels working simultaneously to locate and collect data from GPS satellites. The units GaAs circuitry rapidly processed the data received from the satellites to compute current location, altitude, velocity and navigation in under one minute. The NAV 5000 was designed primarily for marine use. Other second generation products included: OEM Brain, OEM 1/2

Brain, Nav 500 Pro, NAV 100M5, Skaynav, Fieldpro, NAV 5200 PM, NAV 5000A, NAV 5000D, DX, DLX, Pro mark V, and the Map 7000.

- Box 3, Folder 1            Second generation product description, 1990
- Box 3, Folder 2            Technical notes, second generation , 1989-1991
- Box 3, Folder 3            Technical notes, second generation (design notes and drawings), 1992-1994
- Box 3, Folder 4            Technical notes, second generation (algorithm, code measurement, virtual ten channel, real time velocity filtering, DOS Equis code movement), 1993-1994
- Box 3, Folder 5            Technical notes, second generation, pseudo ranging (Larry Weill), 1988-1989, 1993
- Box 3, Folder 6            Technical notes, second generation, short data collection (Larry Weill), 1989 October
- Box 3, Folder 7            Technical notes, second generation, sync routine (Larry Weill), 1987-1990
- Box 3, Folder 8            Technical notes, second generation, cycle counting (Larry Weill), 1989
- Box 3, Folder 9            Technical notes, second generation, IQ processor (Larry Weill), 1990 August
- Box 3, Folder 10            Technical notes, second generation, phaselock loop (Larry Weill), 1990 August
- Box 3, Folder 11            Technical notes, second generation, nervous delta transistors (Larry Weill) , 1990 November
- Box 3, Folder 12            Technical notes, second generation, cycle counting algorithm (Larry Weill), 1991 June
- Box 3, Folder 13            Technical notes, second generation, loss of lock detector (Larry Weill), 1991 July
- Box 3, Folder 14            Technical notes, second generation, arithmetic function (Larry Weill), 1991
- Box 3, Folder 15            Technical notes, second generation, precision lightweight GPS receiver (PLGR) algorithms (Larry Weill), 1992
- Box 3, Folder 16            Technical notes, second generation, lock loop design (Larry Weill), 1994 July
- Box 3, Folder 17-19        Technical notes, second generation, 1990-1996

### Subseries 3.7: Third Generation, 1986 - 1994

Subseries 7 consists of technical notes for the development of the third generation (primarily Meridian and Trailblazer models) of Magellan GPS devices. Third generation models were intended for the lower end of the GPS market and were compact hand-held (size, weight, battery life) and a retail price that was reasonable. Other third generation devices included: the meridian, Trailblazer, AIV10 OEM, Skatblazer, NAV 6500 PM, Meridian/TB/SB XL, NAV 1200 Pm, NAV 1200 XL PM, NAV DLX 10, Promark X, and the Pro Mark X-CM.

Box 3, Folder 20-21	Technical notes, third generation, 1990-1993
Box 3, Folder 22	Technical notes, third generation (VLC Project), 1989-1992
Box 3, Folder 23	Technical notes, third generation (VLC Project), undated
Box 3, Folder 23-24	Technical notes, third generation (development notes), 1991-1994
Box 3, Folder 25	Technical notes, third generation (technical considerations), 1991 March
Box 3, Folder 26	Technical notes, third generation (notes), 1992 October 26
Box 3, Folder 27	Technical notes, third generation (latency problems), 1993
Box 3, Folder 28	Technical notes, third generation (dual correlator work), 1994

### Subseries 3.8: Swiss Army Chip (SAC) Development, 1987-1995

Subseries 8 consists of technical notes, diagrams and drawings, and specifications for the development of a digital chip used in Magellan GPS products. Don Rea and Norm Hunt of Magellan are credited with naming the chip. The chip combined several elements--GPS DPS channels, correlators, real time clock, alarm timer, interval timer, keyboard interface, display interface, precise timing, power sequencing, memory decoding, code generators, and beeper driver, to name a few--which allowed the development team reduce the overall power, size, and cost of the chip. Magellan outsourced the manufacture of the SAC.

Box 3, Folder 29	SAC2, development notes, 1991
Box 3, Folder 30	SAC1, first generation top level diagrams, , 1992-1995
Box 3, Folder 31	SAC1, hardware and software interface specifications, 1987
Box 14, Folder 1	SAC1, breadboard schematics, undated
Box 3, Folder 32	SAC2, second generation (hardware and software specifications), 1992
Box 3, Folder 33	SAC3, third generation (hardware and software specifications) , 1993

- Box 3, Folder 34            SAC4, ten channel hardware and software interface specifications), 1993
- Box 3, Folder 35            SAC5, two channel super integration hardware and software interface specifications, 1993
- Box 3, Folder 36            SAC6, ten channel super integration features, hardware and software interface specifications, 1995

### Subseries 3.9: Technical Product Development Seminars , 1997-1998

Subseries 9 consists of documentation for nine seminars in a series of technology seminars initiated by the product development group at Magellan. The seminars were created to keep all staff up to date on past, present, and future technology developments at Magellan. The nine seminars cover the history of Magellan GPS technology and address specific areas of development such as antennas, circuits, signal processing, software, navigation needs, and radio frequency. Other information includes tables providing comparisons for the first, second, and third generations, timelines, SAC chip characteristics, and product shipping dates. The seminars provide a good foundation for understanding what the product development staff accomplished. Researchers should consult Series 8 which documents some of the technical seminars.

- Box 3, Folder 37            Technical seminar, general information , 1997-1998
- Box 3, Folder 38            Technical seminar, Eleven Years and Three and Half Generations of GPS Technology Development in Two Hours, 1997 November 5
- Box 3, Folder 39            Technical seminar, Quest for 50 Cent GPS Antenna, 1997 November 19
- Box 3, Folder 40            Technical seminar, Miscellaneous Circuits, 1997 December 3
- Box 3, Folder 41            Technical seminar, GPS Signal Processing, 1997 December 17
- Box 3, Folder 42            Technical seminar, Software Overview Outline, 1998 January 7
- Box 3, Folder 43            Technical seminar, Navigation Needs, 1998 January 21
- Box 3, Folder 44            Technical seminar, Radio Frequency Evolution at Magellan, 1998 January 28
- Box 3, Folder 45            Technical seminar, Fourth Generation Overview, 1998 February 25
- Box 3, Folder 46            Technical seminar, GPS Navigation for the Mariner, 1998 April 1

### Subseries 3.10: Specifications, 1992-1994

Subseries 10 consists of preliminary, functional, and system requirements describing technical characteristics for several Magellan products.

Box 4, Folder 1	DGPS Black Box, 1992
Box 4, Folder 2	Final differential beacon receiver (2 copies), 1992
Box 4, Folder 3	Magellan NAV 5000 PRO, 1992
Box 4, Folder 4	5000D/5200D, 1992
Box 4, Folder 5	System requirements, 1992
Box 4, Folder 6	Super Pro post processing software , 1993
Box 4, Folder 7	Skyblazer specifications and requirements , 1994
Box 4, Folder 8	MAP 700 aviation graphics handheld functional specifications and system requirements, undated

### Subseries 3.11: TriQuint Semiconductor Materials, 1986-1992

Subseries 11 consists of materials documenting TriQuint Semiconductor, Inc.'s work. TriQuint was a division of Tektronix, Inc., a manufacturer of analog and mixed signal gallium arsenide (GaAs) integrated circuit products. TriQuint supplied custom radio frequency (RF) and Gallium arsenide (GaAs) chips for Magellan's hand-held GPS systems and tested its chips. Documentation includes trip summaries and observations to TriQuint by Don Rea, a Magellan engineer as well as technical drawings, memorandums, development schedules, invoices, purchase orders, and tests results, production quantity and costs, and specifications. In 1986, Don Rea met Gary Barta, then principal engineer at TriQuint through his frequent visits to the company. Barta led the engineering development of the an integrated circuit which combined the GPS L-band low-noise pre-amplifier, UHF local oscillator, down converter and high speed digital dividers on a single gallium-arsenide chip. Nothing like this had been done before for a cost sensitive commercial application. Barta later joined Magellan in November 1988 as Vice President of Engineering and made the chip he had designed actually work in the environment of a hand-held product.

Box 4, Folder 9	Visit and trip report, 1987-1988
Box 4, Folder 10	Memos, 1987-1988
Box 4, Folder 11	Technical drawings, 1987-1988
Box 4, Folder 12	Expenses, invoices and purchase orders , 1988
Box 4, Folder 13	Non-disclosure agreement, 1988
Box 4, Folder 14	Product development schedules and chip options, 1988
Box 4, Folder 15	Product tests and test results , 1988

Box 4, Folder 16	Technical notes and graphs, 1988
Box 4, Folder 17	Frequency graphs, technical notes and drawings (section 1), 1988
Box 4, Folder 18	Correspondence, technical notes and schedules, agreements, contracts (section 2), 1987-1988
Box 4, Folder 19	Time schedule, delivery requirements , 1987-1988
Box 4, Folder 20	Technical notes (section 4), undated
Box 4, Folder 21	ASIC block diagram, drawings of radio frequency chip (section 50), 1987
Box 4, Folder 22	Revised history, specifications, antenna configurations, and frequency graphs (section 6), 1987-1988
Box 4, Folder 23	SOS Mixer chip, double mixer chip (section 7), 1986-1997
Box 4, Folder 24	Technical notes, drawings, memorandums, test board templates and graphs (section 8) , 1988
Box 4, Folder 25	Noise parameters (section 9), undated
Box 4, Folder 26	DATUM 9390 GPS, Boundary Fund (section 10), undated
Box 4, Folder 27	GPS professional development course, 1989
Box 4, Folder 28	Travel directions (Los Angeles, California), undated

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## Series 4: Marketing and Promotional Materials, 1985-1997

Series 4 is divided into six subseries: Subseries 1, Market Research, 1985-1993 and undated; Subseries 2, Product Literature, circa 1990s; Subseries 3, Advertisements, 1988-1995 and undated; Subseries 4, Press Releases, 1988-1996; Subseries 5, Presentation Materials, 1990-[1997?] and undated; and Subseries 6, Newspaper and Magazine Clippings, 1988-1996 and undated. The series consists of product literature, advertisements, press releases, presentation materials, and newspaper and magazine clippings about Magellan products as well as competitors.

### Subseries 4.1: Market Research, 1985-1993 and undated

Subseries 1 consists of market research data in the form of reports prepared by Merrill Lynch, Simmons Market Research Bureau, J & H Instruments, and others, directed interviews and focus group data. There are directed interviews and discussion documentation from 1986 with Coast Guard Rescue, survival trainers, surveyors, hunters, harbor patrols, expeditionists, and mountaineer trainers providing detailed feedback into experiences with the product. The focus group information consists of transcribed interviews, survey text, selection criteria, participant lists, invoices, and technical drawings and mock-ups for the marine, outdoor and hunting markets.

Box 4, Folder 29	History of Magellan Systems Corporation (floppy disks), undated
Box 4, Folder 30	Magellan Systems Corporation Business Plan , 1988
Box 4, Folder 31	Market Analysis, 1992 February 26
Box 4, Folder 32	Marketing plans, 1990 July 11
Box 4, Folder 33	Marketing plans (NAV 1000 PRO) , 1990
Box 4, Folder 34	Descriptive memorandum (by Merrill Lynch) , 1993
Box 4, Folder 35	Civil information on GPS, 1991
Box 4, Folder 36	Market research projects (sporting goods market), 1985-1988
Box 4, Folder 37	Market research projects (interviews), 1986
Box 4, Folder 38	Market research projects (maritime markets), 1987
Box 4, Folder 39-43	Market research projects (marine market focus group II), 1987
Box 4, Folder 44	Market research project (outdoor guides), 1987
Box 4, Folder 45	Market research project (power and motor yacht), 1987
Box 5, Folder 1	Marketing research project (hunting focus group), 1988



- Box 5, Folder 2            Marketing research project (outdoor focus group), 1988
- Box 5, Folder 3            Marketing research project (outdoor specifications), 1988
- Box 5, Folder 4            Market research project (outdoor focus group transcript), 1988
- Box 5, Folder 5            Early marketing and press clippings , 1988
- Box 5, Folder 6            Survey and focus group reports, 1988-1990
- Box 5, Folder 7            Market research for GPS field (NAV 1000) , 1988

### Subseries 4.2: Product literature, circa 1990s

#### *Box 5, Folder 8*

Subseries 2 consists of one file folder of product information sheets detailing specifics about Magellan products such as the NAV 1000, NAV 5000DX, NAV 1000 PRO/Geolink, NAV 5200, NAV 1000M, Meridian GPS, ProMARK V, GPS 2000, and the Global Satellite Communicator (GSC) 100.

### Subseries 4.3: Advertisements, 1988-1995 and undated

Subseries 3 consists of point of purchase ads, artwork and transfer designs for Magellan products. There are some oversize drawings (copies of blueprints) with the transfer design materials.

- Box 5, Folder 9            Point of purchase ads, undated
- Box 5, Folder 10           Artwork (NAV 1000), 1988
- Box 5, Folder 11           Artwork (NAV 1200), 1993-1995
- Box 5, Folder 12           Artwork (Meridian and Trailblazer), 1992-1993
- Box 5, Folder 13           Marine outdoor materials, 1993
- Box 5, Folder 14           Artwork (Magellan), 1993-1995
- Box 5, Folder 15           Artwork (original Magellan expeditions), undated
- Box 5, Folder 17           Advertisements, 1990-1992
- Box 5, Folder 16           Transfer types, undated

### Subseries 4.4: Press Releases, 1988-1996

Subseries 4 consists of press releases and one press kit containing biographies of staff members, black-and-white prints of Randy D. Hoffman, President and Chief Executive Officer, prints of the NAV 1000, and

press releases introducing the NAV 1000. The marine outdoor press releases also contain 1993 dealer price lists for the Trailblazer, Meridian, NAV 5000DX, NAV 5200DX, and the minimum advertised price policy for 1993.

- Box 5, Folder 18            Press release, 1989-1996
- Box 5, Folder 19            Press kit, 1988
- Box 5, Folder 20            Marine outdoor (dealer information), 1993

#### Subseries 4.5: Presentation Materials, 1990-[1997?] and undated

Subseries 5 consists primarily of staff presentation materials used to promote Magellan products. There is one bound presentation, Magellan Systems Corporation Management Presentation, undated, prepared by Merrill Lynch, that provides documentation about the company (an overview), market segments, competition, sales and marketing, product development, technology, manufacturing, and a financial overview.

- Box 5, Folder 21            Proposed GPS product configuration to meet U.S. Army Desert Shield requirements, 1990
- Box 5, Folder 22            Presentation about Magellan Corporation, [1992?]
- Box 5, Folder 23            Satellite Access Products, [1997?]
- Box 5, Folder 24            Management presentation, undated

#### Subseries 4.6: Newspaper and Press Clippings, 1988-1996

Subseries 6 consists primarily of magazine articles. The articles appeared in a variety of publications and included *Defense Electronics*, *Southern Boating*, *Maritime Reporter*, *Cruising World*, *Boating the Journal of the Sport*, *International Defense Review*, and *Navigation News*. The subseries is arranged chronologically.

- Box 5, Folder 25            Clippings, 1988
- Box 5, Folder 26            Clippings, 1989
- Box 6, Folder 1            Clippings, 1990 January-1990 May
- Box 6, Folder 2            Clippings, 1990 June-1990 July
- Box 6, Folder 3            Clippings, 1990 August-1990 December
- Box 6, Folder 4            Clippings, 1991

Box 6, Folder 5	Clippings, 1992
Box 6, Folder 6	Clippings, 1993 <a href="#">Image(s)</a>
Box 6, Folder 7	Clippings, 1994
Box 6, Folder 8	Clippings, 1995
Box 6, Folder 9	Clippings, 1996 and undated
Box 6, Folder 10	For competitors, products, , 1990-1991

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## Series 5: User Guides and Manuals, 1989-2005 and undated

Series 5 consists of training, reference, and user guides for the consumer who purchased Magellan products. The guides are primarily spiral bound and some are annotated. Multiple copies of some years exist. The series is arranged chronologically.

Box 6, Folder 11	NAV 1000, 1989
Box 6, Folder 12	NAV 1000M, 1989
Box 6, Folder 13	NAV 1000M , 1991
Box 6, Folder 14	NAV 1000 M5, 1992
Box 6, Folder 15	NAV 1000 PRO , 1990
Box 6, Folder 16	NAV 1000 PRO, 1991
Box 6, Folder 17	Developers' Kit User Guide (GPS Receiver Module, 1990 May 25
Box 6, Folder 18	Magellan Systems Post Processing Software , 1991
Box 6, Folder 19	Hardware User Guide (OEM GPS Receiver Module), 1991
Box 6, Folder 20	5000 PRO, 1992
Box 6, Folder 21	Skyblazer XL GPS Receiver, 1995
Box 6, Folder 22	GPS Satellite Navigator, 1993-1994
Box 6, Folder 23	NAV 5000, 1991
Box 6, Folder 24	NAV 5000A, 1993
Box 7, Folder 1	NAV 5000D, 1992
Box 7, Folder 2	5000 PRO, 1992
Box 7, Folder 3	Skynav 5000, 1992
Box 7, Folder 4	NAV 5000 DLX, 1994
Box 7, Folder 5	NAV 5200, 1991

Box 7, Folder 6	EC-10X, 1994
Box 7, Folder 7	Skyblazer GPS Receiver, 1994
Box 7, Folder 8	Trailblazer XL, 1994
Box 7, Folder 9	Hotchkiss, Noel J. <i>A Comprehensive Guide to Land Navigation with GPS</i> , 1994
Box 7, Folder 10	Meridian XL and NAV 1200 XL, 1995
Box 7, Folder 11	Meridian XL, 1996
Box 7, Folder 12	Patriot GPS, 1995
Box 7, Folder 13	GPS 3000 Satellite Navigator, 1995
Box 7, Folder 14	GPS 4000 and GPS 4000XL (English and French), 1996
Box 7, Folder 15	GPS 2000 and GPS 2000XL, 1996-1997
Box 7, Folder 16	GPS ColorTRAK Satellite Navigator, 1997
Box 7, Folder 17	GPS Pioneer, 1997
Box 7, Folder 18	Skystar Plus GPS Receiver, 1997
Box 7, Folder 19	GPS Blazer 12 (French and English), 1998
Box 7, Folder 20	GPS Tracker, 1998
Box 7, Folder 21	GSC 100, 1998
Box 7, Folder 22	NAV 6000, 1998
Box 7, Folder 23	GPS 310, 1999
Box 7, Folder 24	GPS 315/320 (English and French), 1999
Box 7, Folder 25	MAP 330, 2000
Box 8, Folder 1-2	Meridian Series of GPS Receivers, 2001
Box 8, Folder 3	SporTrak Handheld GPS, 2002

Box 8, Folder 4            eXplorist Handheld GPS, 2005

Box 8, Folder 5            GPS product accessory list, V.2.03 software, undated

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## Series 6: Financial Materials, 1991-1995 and undated

Series 6 consists of stock information, a Securities and Exchange Commission registration statement, correspondence, registration rights agreements, preferred stock purchase agreements, agreement and plan of merger documents between Magellan Corporation and Orbital Sciences Corporation (November 1994), and two floppy discs (3 1/2" and 5") containing information about the company and its staff.

Box 8, Folder 6	Magellan Corporation Prospectus, 1991
Box 8, Folder 7	Magellan Corporation Prospectus (disks), undated
Box 8, Folder 8-9	Magellan direct investment information, 1991-1995
Box 8, Folder 10	Magellan Corporation merger with Orbital Sciences Corporation, 1994
Box 8, Folder 11	Departmental expense report, 1991
Box 8, Folder 12	Cost analysis of GPS kit accessory, 1991

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## Series 7: Photographs and Slides, 1987-1995 and undated

Series 7 consists of slides, negatives, transparencies, and color and black-and-white prints of Magellan products. Many of the images document early product concepts, and there are some promotional and publicity materials. There is one folder of photographs with images of employees from 1989.

Box 8, Folder 13	Slides of early product concepts, 1987 <a href="#">Image(s)</a>
Box 8, Folder 14	Early product concepts, 1987
Box 8, Folder 15	Keyboard studies by Jean Tuck McGregor, 1988
Box 8, Folder 16	Employees, 1989 and undated <a href="#">Image(s)</a>
Box 8, Folder 17	Military materials (English and Arabic), 1992-1993
Box 8, Folder 18	Original equipment manufacturer (OEM) materials, 1992-1995
Box 8, Folder 19	Nonworking aesthetic models (Trailblazer), 1993
Box 8, Folder 20	Professional and promotional materials, 1993-1995
Box 8, Folder 21	Magellan NAV 1000 Pro, circa 1990s
Box 8, Folder 22	Nonworking aesthetic models (military GPS), undated
Box 8, Folder 23	Nonworking aesthetic models (Meridian), undated
Box 8, Folder 24	Nonworking aesthetic models (Navigator) , undated
Box 8, Folder 25	Early product concepts, undated

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## Series 8: Audiovisual Materials, 1991-1998 and undated

Series 8 consists of 1/2" VHS, BETA Cam SP, and 8 mm video cassettes documenting technical seminars presented by Magellan Systems Corporation staff and instances of Magellan products featured in news segments. Researchers consult the technical seminar documentation in Series 3, Engineering and Product Development Materials. The series is arranged chronologically.

### Subseries 8.1: Videocassettes (1/2" VHS), 1991-1998 and undated

- Box 12, Video OV1214. 47 *Magellan in the News*, 1991 April 11
- Box 9, Video OV 1214.1 *Tortoises, Trimble Navigation (Channel 2)* , 1991 June 18 and 1991 June 24
- Box 9, Video OV 1214.2 *GPS Satellite Tracking, Futurewatch, CNN* , 1992 May 16
- Box 9, Video OV 1214.3 *Summary of field deployment of the Oil Tracker System*, 1992 November
- Box 9, Video OV 1214.4 *ESPN Anthology, GPS*, 1993
- Box 9, Video OV 1214.5 *Military Technology, Frank Houzvicka (KTTV, Channel 11, Fox News)*, 1993 January 14
- Box 9, Video OV 1214.6 *Magellan in the News*, 1993 August 23
- Box 9, Video OV 1214.7 *Orbital Sciences Corporation, Taurus a Low Cost, Responsive Launch Vehicle*, 1994 April 18
- Box 9, Video OV 1214.8 *Spencer Lee of Magellan Systems Corporation, What's New*, 1994 August 29
- Box 9, Video OV 1214.9 *Alert Centre, Inc., CarCop, Global positioning security*, 1994 October 14
- Box 9, Video OV 1214.10 *Larry Schick reports on ski gadgets (KSTW TV, Tacoma, Washington News)* , 1995 February 16
- Box 9, Video OV 1214.11 *Smart Cars, CNBC Money Tonight*, 1995 February 24
- Box 9, Video OV 1214.12 *Larry Schick reports on ski gadgets (KSTW TV, Tacoma, Washington News)*, 1995 March

Box 9, Video OV 1214.13	High Tech Shower International, Magellan Trailblazer GPS Personal Navigation Unit, 1995 March 15
Box 10, Video OV 1214.14	Desert Beauty, Joshua Tree National Park, (KNBC 4 News), 1995 May 12
Box 10, Video OV 1214.15	TCP Boating World, Robert Kaplan and [Caree?] products, 1995 July 27
Box 10, Video OV 1214.16	Global Positioning Satellite (KABC Channel 7 Eyewitness News), 1995 October 4
Box 10, Video OV 1214.17	Holiday Gifts (CNN), 1995 December 4
Box 10, Video OV 1214.18	<i>Mens Journal</i> gift ideas including Magellan, 1995 December 7
Box 10, Video OV 1214.19	Magellan in the News, 1996
Box 10, Video OV 1214.20	GPS 2000 (Richmond, Virginia), 1996 May
Box 10, Video OV 1214.21	GPS 2000 (KNBC, Channel 4 and KTLA, Channel 5), 1996 May 20
Box 10, Video OV 1214.22	<i>Newscount</i> , Hiking Survival Gadgets (KTVK, Channel 3), 1996 May 28
Box 10, Video OV 1214.23	Magellan Trailblazer, (KYW-3 News), 1996 May 28
Box 10, Video OV 1214.24	Can You Believe it? Trailblazer, 1996 May 28
Box 10, Video OV 1214.25	Magellan GPS (Richmond, Virginia), 1996 July
Box 10, Video OV 1214.26	<i>Smithsonian Fantastic Journey</i> (KCBS), 1996 August 10
Box x, Video OV 1214.27-28	Microcom Satellite (KABC, Channel 7), 1996 August 29
Box 11, Video OV 1214.29	Honda ATV/GPS 2000 commercial, [1996?]

Box 12, Video OV 1214.49	GPS 2000, James White, KGTV, Channel 10, San Diego News), 1996 October 21
Box 11, Video OV 1214.30	<i>The Site</i> , Holiday Gifts GPS 4000 (MSNBC), 1996 December 4
Box 11, Video OV 1214.31	Hikers Helper (KGTV, San Diego) , 1997 January 18
Box 11, Video OV 1214.32A	Microcom Satellite Telephone (KABC, Channel 7, Good Morning America), 1997 January 28
Box 11, Video OV 1214.32	Magellan 3000, 1997
Box 11, Video OV 1214.33	Microcom Satellite Telephone (Home Improvement, KABC 7), 1997 January 28
Box 11, Video OV 1214.34	Microcom Satellite Telephone (CNBC), 1997 February 21
Box 12, Video OV 1214.48	GPS 2000 (KGTV, Channel 10, San Diego News), 1997 May 31
Box 11, Video OV 1214.35	Segment on GPS gadgets with Steven Wolprin (CNN-FN), 1997 June 23
Box 11, Video OV 1214.37	Segment on California wildfires and GPS (CNN-FN), 1997 July 30
Box 11, Video OV 1214.38	Outside Magazine, "The Most Toys" featured on CNN, 1997 September 5
Box 11, Video OV 1214.39	Magellan GPS Pioneer (WFOR, Channel 4, Miami News), 1997 December 3
Box 11, Video OV 1214.36	Magellan Systems, donation to Rangers (CNN), 1997 July 29
Box 12, Video OV 1214.41	Fourth Generation, 1998 February 25
Box 12, Video OV 1214.42	<i>Vern's Competitive Review</i> , undated
Box 12, Video OV 1214.43	S/W Systems, [1998?]

Box 12, Video OV  
1214.44 Radio Frequency (RF) Seminar, [1998?]

Box 12, Video OV  
1214.45 Introduction to Navigation, [1998?]

Box 12, Video OV  
1214.46 Skynav 5000 *Watch and Win* Video, undated

### Subseries 8.2: Video Cassettes (8 mm), 1997-1998 and undated

Box 13, Video OV  
1214.50 Technical seminar, Quest for 50 Cent GPS Antenna, 1997 November

Box 13, Video OV  
1214.51 Technical seminar, miscellaneous circuits, 1997 December 3

Box 13, Video OV  
1214.52 Technical seminar, fourth generation overview (Jon Vavrus), 1998 February 25

Box 13, Video OV  
1214.53 Technical seminar, Introduction to Navigation, 1998?

Box 13, Video OV  
1214.54 Technical seminar,, S/W System, [1998?]

Box 13, Video OV  
1214.55 Technical seminar, GPS signal processing (Larry Weill), 1997 December

Box 13, Video OV  
1214.56 [Technical seminar?], history of GPS development, undated

Box 13, Video OV  
1214.57 [technical seminar?], overview of GPS works, 1998?

Box 13, Video OV  
1214.58 Technical seminar, radio frequency (RF) (Gary Barta) , 1998 January

Box 13, Video OV  
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