

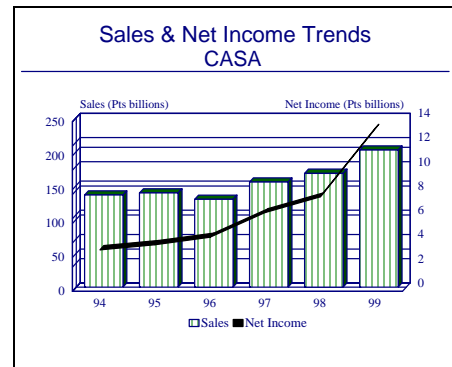
ARCHIVED REPORT

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CASA – Archived 08/2002

Outlook

- CASA is now part of the European Aeronautic Defence and Space Company (EADS)
- With CASA now a major unit of EADS this report will be dropped and its information merged with the EADS report



Headquarters

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Construcciones Aeronauticas SA, also known as CASA, has until recently been part of the government-run holding company Instituto Nacional de Industria (INI). Formed in 1923 for the primary purpose of producing aircraft for the Spanish Air Force, CASA has expanded its business operations to include the commercial aircraft market, as well as missile components and space-related equipment. Until 1950, CASA was devoted almost entirely to license-production of foreign aircraft. In 1972, ENMASA (Empresa Nacional de Motores de Avioacion SA), an engine manufacturer, merged with Hispano Aviacion to become CASA, as it is presently known. Today, CASA is Spain's principal

airframe manufacturer, exporting more an estimated 85 percent of its total production.

CASA has demonstrated its technological and manufacturing capabilities through the company's involvement in such international consortia as Airbus Industrie, Panavia and Eurofighter. CASA has demonstrated its own design excellence through the production of its own aircraft, such as the C-101, C-212, and CN-235. The C-212 has become one of the world's most successful light-transport aircraft.

In late 1999, CASA announced it was joining the European Aeronautic Defence and Space Company (EADS) as a founding member. EADS was officially launched following its listing on the Madrid, Munich, and Paris stock exchanges on July 10, 2000. EADS CASA currently employ approximately 7,400 people.

Structure and Personnel

Alberto Fernández
Chairman and CEO, CASA
Head of Military Transport Aircraft Division, EADS

Product Area

CASA manufactures a wide range of aerospace and defense products for the Spanish Armed Forces and the export market. Its aerospace products include fixed- and rotary-wing aircraft, missile systems, space systems and propulsion systems. The company defines its principal functional areas as follows:

1. Aircraft Division
 - 1.1 Civil Aircraft
 - 1.2 Military Transport Aircraft
 - 1.3 Combat and Training Aircraft
2. Maintenance Division
3. Space Division

Civil Aircraft. This group produces aircraft such as the C-212 and CN-235. It also provides product support services such as spare parts and on-site assistance and training. Other programs include the MD-11, Saab 2000 and, most recently, marketing studies for the CASA 3000. In addition, the company's Airbus activities also fall under the auspices of this group.

Military Transport Aircraft. This division handles the production and delivery of militarized versions of the CN-212 and CN-235 aircraft. This unit is also involved with Euroflag and the Future Large Aircraft (FLA).

Combat and Training Aircraft. This is the company's military aviation arm working on projects such as Eurofighter aircraft. Other programs include the Harrier II Plus and the C-101.

Maintenance Division. This division provides maintenance for a variety of commercial and military aircraft. Notable programs include maintenance of USAF F-15s and F-18s, Spanish F-5Bs, C-130s, and production support services for all Eurocopter helicopters in Spain. CASA is also modernizing the Spanish Air Force's Mirage F-1 aircraft.

Space Division. This operation manufactures components for the Ariane boosters and various components for observation through scientific and telecommunications satellites.

Facilities

European Aeronautic Defence and Space Company NV, Drentestraat 24, NL-1083 HK Amsterdam. Web site: <http://www.eads-nv.com> This is the international headquarters of EADS.

Barajas Production Centre, Avda. Aragón, 404, 28022 Madrid. CASA Headquarters. This is also the location of the Space Division.

Getafe Factory, Av John Lennon, 28906 Getafe, Madrid. This unit handles final assembly of combat aircraft and assembly of structural subassemblies. This location also contains the Maintenance Division.

Illescas Factory, Carretera Nacional Madrid-Teledo, Km. 32 Señorío de Illescas, 452000 Illescas, Toledo. This location manufactures carbon fiber components.

Tablada Factory, Av Garcia Morato, 41011 Sevilla. This factory handles stretch forming and chemical milling as well as assembly of structural subassemblies.

San Pablo Factory, Av Aeropuerto, 41080 Sevilla. This location is responsible for final assembly of transport aircraft. Maintenance of transport aircraft and their components is also undertaken here.

Cadiz Factory, Av. Marconi 33, 11011 Cadiz. Primary site for helicopter component maintenance and sheet metal.

Puerto Real Factory, Poligono Industrial del Trocadero, Puerto Real, Cadiz. This unit focuses on assembly of structural subassemblies.

CASA Aircraft USA Inc, 3810 Concorde Freeway, Suite 1000, Chantilly, VA 22021. Telephone: (703) 802 1000. A wholly owned subsidiary of CASA, this unit provides complete marketing and integrated customer support services in North America and the Caribbean.

Corporate Overview

CASA is the dominant force in the Spanish aerospace industry. As part of EADS, CASA functions as a major part of the new company's Military Transport unit.

New Products and Services

Airbus Industrie A318. This is a twin-turboprop-powered, short/medium-range narrowbody transport. At the September 1998 Farnborough Air Show, Airbus

announced plans to develop a 107-passenger derivative of the A319, called the A318. The consortium's supervisory board had granted authorization for the A318 to be presented commercially to airlines. Airbus stopped short of a formal launch, however.

The program was launched in April 1999. Initial deliveries are planned for 2002. By the end of 1999, Airbus had accumulated a total of 120 orders for the

A318. One key sale occurred in October 1999, when British Airways ordered 12 A318s and took options for an additional 12. The carrier's selection of the A318 followed a lengthy competition with a number of 100-passenger aircraft, including the Boeing 717-200, its direct competitor.

C-295. In November 1996, CASA announced it was developing a new variant of the CN-235, dubbed the C-295. This new aircraft is a 9 ton military payload aircraft with Pratt & Whitney 100-111 engines. The new aircraft is derived from the CN-235, but it has a larger fuselage. According to CASA, first flight occurred in December 1998. In April 1999, Spain's Air Force ordered nine of the new aircraft.

Plant Expansion/Organization Update

European Merger Plans. In early 1998, Aerospatiale, Daimler-Benz Aerospace, British Aerospace, and CASA presented a report to their respective governments outlining their agreement in principle to form a European Aerospace and Defense Company. The new entity, referred to as Euroco, would be a joint stock holding company that would encompass Airbus, a merged missile company, a defense electronics firm and a satellite company. The four principal companies involved tried to work out details of the merger and hoped to bring Alenia and Saab into the organization at a later date. This effort has since been scrapped following the announcement of the formation of EADS and BAE Systems.

Mergers/Acquisitions/Divestitures

CASA Joins EADS. In late 1999, CASA joined the European Aeronautic Defence and Space Company (EADS) as a founding member. The agreement to merge CASA, Aerospatiale Matra SA, and DaimlerChrysler Aerospace AG was signed in Madrid on December 2, 1999, in the presence of Prime Minister José Maria Aznar, Prime Minister Lionel Jospin, and Chancellor Gerhard Schröder.

The Business Combination Agreement was signed by Pedro Ferreras, president of the Spanish state holding SEPI (Sociedad Estatal de Participaciones Industriales); Jean-Luc Lagardère, president of the French Lagardère Group; Philippe Pontet, chairman and CEO of the French State Holding SOGEPa; Philippe Camus, CEO of Aerospatiale Matra and co-CEO of Lagardère Group; Jürgen E. Schrempp, chairman of DaimlerChrysler AG (Stuttgart); and Dr. Manfred Bischoff, DASA chairman and member of the board of DaimlerChrysler.

With the signing of this agreement, CASA was effectively privatized. Prior to this, the Spanish state holding company SEPI (Sociedad Estatal de

Participaciones Industriales) held the shares in the company.

“This merger will strengthen the roles of Spain and all of Europe in the aerospace field and thus in the high-tech sector generally,” SEPI President Pedro Ferreras said. “The shareholders of the parent companies and equally the national economies, the employees, and the customers will profit from this move. It's a merger of growth. Therefore, EADS will secure and enlarge the Spanish base in future high-technologies and thus will lead to much better long-term opportunities for employees in a globally active company.”

As can be expected EADS is owned through a complex structure that is designed to assuage the concerns of DASA over French state ownership and the French government and union officials over workforce security. The primary shareholder of EADS will be the Dutch Holding Partnership with a 65.57 percent stake. This partnership is composed as follows:

1. French pooling company (45.75 percent). This is composed of the French Government (50 percent), Lagardère (37 percent), and private institutions (13 percent).
2. DaimlerChrysler (45.75 percent).
3. SEPI (8.5 percent).

The remaining 34.43 percent of EADS was floated as a Dutch company on both the Paris and Frankfurt stock exchanges in July 2000. *For more details please refer to the "EADS" report located in this binder.*

Teaming/Competition/Joint Ventures

Airbus Industrie. Airbus Industrie (GIE), Paris, France, is an international consortium consisting of Aerospatiale (37.9 percent), Deutsche Airbus (37.9 percent), British Aerospace (20 percent), and CASA (4.2 percent). Belairbus of Belgium is an Associate Member of the consortium. Airbus is the prime contractor on the A300/310/320/321/330/340/350 aircraft. See separate report for more details.

IPTN. One of CASA's newest products is the CN-235, a twin-turboprop transport built in cooperation with Indonesia's IPTN. Each company owns 50 percent of the joint venture, which is known as Airtech. CASA is responsible for marketing in Europe and North America. The CN-235 is designed in both civil and military versions.

Eurofighter Jagdflugzeug GmbH. CASA is also involved in the development of the European Fighter Aircraft (EFA), and is part of Eurofighter Jagdflugzeug GmbH, Munich, Federal Republic of Germany. Britain and Germany have each assumed a 33 percent share of

development costs; Italy, 21 percent, and Spain, 13 percent. Design teams from BAE, MBB (with Dornier as co-contractor), Aeritalia (Alenia), and CASA are representing their respective countries in the development of the new design. BAE will manufacture the front fuselage and half of the right wing, MBB and Dornier will provide the center fuselage and vertical stabilizer, half of the rear fuselage and left wing will be produced by Aeritalia, and CASA will produce half the rear fuselage and half of the right wing.

EUROFLAG. EUROFLAG is a study team composed of Aerospatiale of France, British Aerospace of the UK, Deutsche Aerospace of Germany, Aeritalia of Italy, and CASA of Spain. Currently under study by this group is the European Future Large Aircraft (FLA). This is an advanced-technology, multi-engine, tactical and strategic military transport aircraft. The FLA is sponsored privately by the five participating European aerospace companies. Future government sponsorship and funding is anticipated. Preliminary investigation of European military mission requirements and design parameters are being performed.

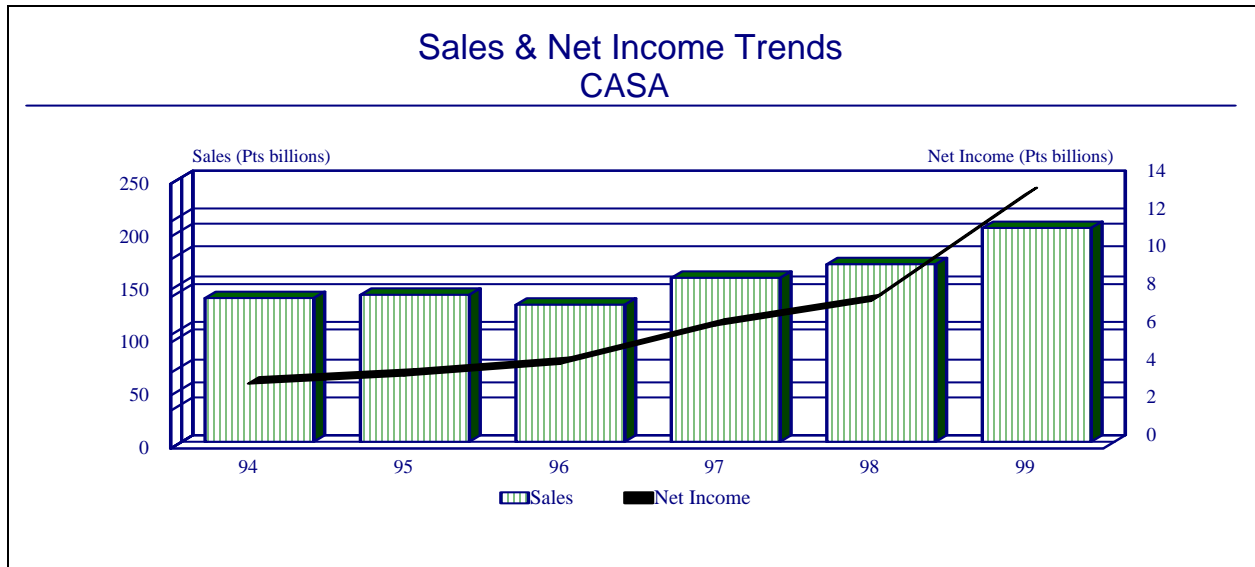
Joint European Helicopter Srl. Joint European Helicopter Srl, Rome, Italy, formed in September 1986, consists of Agusta (38 percent), CASA (5 percent), Fokker (19 percent), and Westland (38 percent). JAH is the prime contractor on the Light Attack Helicopter (LAH). This was a potential European-developed advanced light anti-armor and ground attack helicopter based on Agusta A129. The program was terminated in 1990.

Industria de Propulsores SA. In March 1989, the Spanish government authorized the establishment of a new engine facility, *Industria de Propulsores SA* (ITP). The company has a team of Spanish owners that controls approximately 55 percent of the stock: SENER Ingenieria y Sistemas SA, CASA, and Empresa Nacional Bazan de Construcciones Militares SA. Rolls-Royce plc holds approximately 45 percent of the stock, and Spain's Banco Bilbao Vizcaya holds a small percent. ITP is located at the Zamudio Industrial Park, outside Bilbao. The major program at this operation is the Eurojet EJ200. The prime contractor is Eurojet Turbo GmbH, Munich, Germany.

Financial Results/Corporate Statistics

CASA's 1999 sales rose to a record ESP202 billion from ESP167.7 billion in 1998. The company posted net income of ESP13.4 billion in 1999 compared to a gain of ESP7.8 billion in 1998. According to CASA, Aircraft accounted for 90 percent of sales, Space 3 percent, and Maintenance 7 percent in 1999. Latest year statistics are provided below. The US dollar figure, in millions, is translated at the rate of USD\$1 = ESP165.61. As CASA is now part of EADS, its financial results are included in the new company's data.

Y/E December 31	1995	1996	1997	1998	1999	1999
(Pesetas millions)						USD\$
Sales	138912	129524	154888	167747	202049	1220
Net Income	3855	4468	6500	7798	13454	81
Order Book	310357	311446	415216	553755	626113	3781
R&D Expenditures	17599	17811	18685	19970	26404	159



Strategic Outlook

With CASA part of EADS, Europe now has two giant companies, EADS and BAE Systems on equal ground with such US giants as Lockheed Martin and Boeing.

By combining Aerospatiale Matra, DaimlerChrysler Aerospace, and CASA, EADS gained an 80 percent stake in Airbus Industrie, with the balance held by BAE

Systems. As expected the situation has led to formation of Airbus as a single corporate entity and helped facilitate the launch of the superjumbo A380 jetliner.

With CASA now a major unit of EADS this report will be dropped and its information merged with the EADS report.

Prime Award Summary

Unavailable

Program Activity

Some important aerospace and government programs currently under way at CASA are listed below. The briefs are intended to provide a listing of programs that are of major importance to the company. For detailed information or analysis of specific aerospace and defense programs or equipment, please refer to the appropriate Forecast International binder (for example *Aircraft, Military Vehicles, Warships, Missiles, Electronics, and Gas Turbines*). The following is an outline of the company's business interests:

- Aircraft
- Civil and Military Fixed-Wing Aircraft
- Civil and Military Helicopters
- Aircraft Engines
- Missiles
- Space Systems

- Systems Integration
- Training Systems

Aircraft Programs

Airbus Industrie. Airbus Industrie (GIE), Paris, France, is an international consortium consisting of Aerospatiale (37.9 percent), Deutsche Airbus (37.9 percent), British Aerospace (20 percent) and CASA (4.2 percent). Belairbus of Belgium is an Associate Member of the consortium. Airbus is the prime contractor on the A3 series of aircraft.

Airbus Industrie A300

The A300 is a twin-engine, short-/medium-range, high-capacity, widebody commercial transport. Production of the A300-600R and A300-600F version is continuing.

Airbus Industrie A310

This is a twin-engine, medium/long-range, widebody commercial transport. Production of the A310-300 Version is continuing. The A310 is a direct spin-off from the A300. Although closely related to the A300, the A310 represents a scaling down of its stablemate. The fuselage has been shortened by 13 frames and typically seats about 210 in a mixed-class layout, although as many as 245 can be accommodated. The major design challenge involves an all-new wing, which, like the A300 wing, is constructed at the British Aerospace Hatfield facility. CASA is supplying the horizontal stabilizer for the A310.

Airbus Industrie A319/320/321

These are twin-turbofan-powered, narrowbody commercial passenger transport aircraft for short-/medium-range operations. Potential military applications include maritime patrol, airborne communications, electronic warfare, airborne early warning, and aerial refueling. There have been no purely military customers or requirements to date. The prime contractor is Airbus Industrie (GIE), Paris, France. The Airbus partners shared the development costs of the A320. Aerospatiale builds the forward fuselage, cockpit, and fuselage wing box and handles final assembly; DaimlerChrysler Aerospace provides the center and rear fuselage sections and vertical stabilizer; BAE produces most of the wing; and CASA manufactures the horizontal stabilizer. The A321 will have similar workshares. Production of A320 and A321 is ongoing. Initial development of the 124-seat A319 was approved in May 1992.

Airbus Industrie A330

This is a twin-engine, high-capacity, medium-/long-range, widebody commercial transport aircraft. Early production began following an October 1993 certification of CF6-powered version. Both the PW4168-powered version and Trent-powered version were certified in 1994. CASA produces the A330's tailplane fairings.

Airbus Industrie A340

This is a very long-range, four-engine, high-capacity, widebody commercial transport aircraft. Deliveries of the A340 began in February 1993. CASA is responsible for the A340's tailplane fairings.

Airbus A380

In December 2000, Airbus officially launched the new A380 passenger aircraft. The A380 is to be offered in five passenger versions with capacities ranging from 481 to 656 seats and a freighter version with a 150 ton payload capability. To date, 50 firm commitments have been received from six airlines with options on a further 40 aircraft. Final assembly of the A380 is to take place

at Toulouse and Hamburg where entire fitting-out of the interior and application of the paintwork are to be carried out. The maiden flight is planned for the year 2004, with the first production aircraft entering service early in 2006.

CASA C-101 Aviojet

The C-101 is a single-engine, two-seat trainer/light strike aircraft, developed under a contract from the Spanish Ministry of Defense. This aircraft can perform basic/advanced training, armament training, light strike and armed reconnaissance. Production has been completed. CASA produced 156 aircraft through 1988, including four C-101EB, one C-101CC and one C-101DD prototypes. A C-101 license agreement was signed with ENAER, Santiago, Chile. ENAER assembled 29 under license. Some 145 C-101 aircraft are believed to be in active service in Chile, Honduras, Jordan and Spain. C-101 production ended in 1988.

CASA C-212 Aviocar

The C-212 is an unpressurized 25-28 passenger, twin-turboprop regional/commuter and utility transport aircraft. This aircraft is license-built by Industri Pesawat Terbang Nusantara (IPTN), Bandung, Indonesia. Production of the C-212-300 and C-212M takes place in Spain; production of the NC-212-200 takes place in Indonesia. CASA designed the C-212 as a replacement for the Spanish Air Force's mixed fleet of Ju 52/3m, C-47 and CASA 207 transports. Civil sales of the C-212 disappeared long ago. Military and paramilitary sales of the C-212 have primarily kept the program alive for the past 12 years or so, and decline in demand in this sector has hurt the program. Production of the C-212-300 and the C-212-400 is ongoing. Features of the new C-212-400 include electronic flight instrumentation systems and improvements to the main cabin. CASA has forecast a market for about 100 of the -400s.

CASA/IPTN CN-235/C-295

The CN-235 is a 30- to 44-seat, twin-engine turboprop regional/commuter and military utility transport aircraft. Stretched C-295 seats 60 passengers or 78 troops. Production is under way for domestic and international orders.

Eurofighter Typhoon

CASA is involved in the development of the European Fighter Aircraft (EFA) and is part of Eurofighter Jagdflugzeug GmbH, Munich, Federal Republic of Germany, a consortium formed in 1986 to manage the EFA program. Under the currently structured EFA, Britain is responsible for 36.33 percent of development costs; Germany for 30 percent; Italy for 20 percent and Spain the remaining 13.67 percent. Design teams from

BAe, DaimlerChrysler Aerospace, Alenia, and CASA represented their respective countries in the development of the EFA. Each of the four manufacturers was to maintain a final assembly line, with production shared without duplication of tooling. The first prototype flew in March 1994. Through 2000, one EAP demonstrator and seven EF Typhoon prototypes had been assembled.

F/A-18 Hornet

CASA is manufacturing components for the US-built F/A-18 Hornet fighter. CASA is producing horizontal tail control surfaces, wing flaps and leading edge extensions, vertical tail rudders, rear fuselage side panels, and speed brakes for all F/A-18s under offset provisions of the Spanish buy of 72 Hornets.

McDonnell Douglas/BAE Harrier II

This is a single-engine, single- and twin-seat, transonic, V/STOL ground attack aircraft. McDonnell Douglas Corp and British Aerospace Plc are the prime contractors. AV-8B work split is approximately 60 percent McDonnell Douglas and 40 percent British Aerospace; GR.5/7 work split is about 50 percent each manufacturer. Harrier II Plus program adds Alenia, CASA and Hughes. In March 1993, the Spanish Government authorized the purchase of eight Harrier II Plus aircraft. The contract, also issued via the US Navy, includes a not-to-exceed price of \$257 million. The first aircraft was delivered in 1996. CASA will perform final assembly of the aircraft. Spain may also remanufacture its 10 existing EAV-8Bs to the Harrier II Plus standard.

SAAB 2000

This is a twin-turboprop, high-speed, pressurized regional/commuter aircraft with a 50-passenger capacity. The prime contractor is Saab-Scania AB, Linköping, Sweden. In early October 1989, CASA signed a 10-year agreement with Saab calling for the Spanish manufacturer to design and produce the entire wing. Essentially a scaled Saab 340 wing, the airfoil for the Model 2000 will be produced by CASA at its new facility in Andalusia. The government of Andalusia has invested a sum equal to 50 percent of CASA's risk in the Saab 2000 in order to stimulate high-technology job creation in the southern Spain region. CASA produces the wing box, wing skins, leading and trailing edges, flaps and ailerons, lower nacelle structure, and landing gear doors. It will integrate and test the landing gear system. Total value of the 10-year, 300 ship set deal to CASA is approximately \$500 million. Saab ceased production in 1999 with approximately 60 Saab 2000s produced.

Engine Programs

General Electric F404

This is an advanced-technology, two-shaft, axial-flow, augmented and nonaugmented military turbofan engine. Prime contractor is General Electric Company (USA), GE Aircraft Engines, West Lynn, MA, USA. In 1983, Spain ordered 72 F-18As and took options on an additional 12. Deliveries of these aircraft, designated EF-18, began in mid-1986, with the bulk of deliveries completed by the end of 1991. CASA of Spain has assembled and tested F404 powerplants for the F-18s.

Missile Programs

APACHE

APACHE (Arme Propulse a Charge Ejectable Modular) is a modular air-to-surface weapon system. This weapon is being developed by Matra BAe Dynamics. Matra BAe Dynamics was discussing APACHE production with CASA in Spain, but the formation of EADS has rendered the talks moot.

Space System Programs

Ariane Contractors. Companies supplying components for the Ariane family of launch vehicles include Aeritalia, Aerospatiale, Air Liquide, Air Products (UK) Ltd, Artus SA, British Aerospace, SA Bronzavia, BTMC, Cegedur Pechiney, CNES, Contraves AG, CASA, Crouzet SA, DFVLR, Dornier, ESA, SA ETCA, FN, Ferranti, Fokker BV, Laben Sistemi, Marconi Space Systems Ltd, Matra SA, MBB-ERNO Raumfahrttechnik, Motorola, ONERA, SA ETCA, SAAB-Space AB, SABCA, SAFT, SARMA, SAT, SEP, SFENA, SFIM, SNECMA, SOFRANCE, SNIA-BPD, SODETEG, SOPMEA, Terma Elektronik AS, Thales (formerly Thomson-CSF), and Volvo Flygmotor AB.

Ariane 2/3

Development of Ariane 3 began in July 1980. This launcher is derived from the Ariane 1, and incorporates several modifications that increase payload capacity to 2,700 kg. The Ariane 2 is identical to the Ariane 3, except it does not have strap-on boosters. The Ariane 3 version was first launched on August 4, 1984. This launch successfully placed ECS-2 and Telecom 1A in GTO. Ariane 3 was declared operational in November 1984.

Ariane 4

Ariane 4 is an increased-lift version of the Ariane expendable launch vehicle. Ariane 4 production, marketing, and launch are the responsibility of Arianespace, Evry, France. Production is continuing. The Ariane 4 ELV series is designed to launch commercial, military and science payloads primarily to

geostationary transfer orbit (GTO). The Ariane 4 was the Arianespace workhorse for the 1990s. Development began in January 1982 and led to an initial flight on June 15, 1988.

Ariane 5

This is the Ariane heavy-lift expendable launch vehicle. Ariane 5 development is directed by the French space agency Centre National d'Etudes Spatiales (CNES), Paris, France, for the European Space Agency (ESA). As with the other Ariane launch vehicles, Arianespace, Evry, France, is responsible for production, marketing and launching of the Ariane 5. Arianespace conducted its first Ariane 5 launch, which failed, in June 1996. ESA and Ariane 5 contractors are paying for the first three Ariane 5 launches, with the first commercial mission scheduled for 1998. The Ariane 4 to Ariane 5 transition phase will run through the early years of the new decade.

Atlas

Atlas is a family of medium-to-heavy-lift, expendable launch vehicles. Atlas launch vehicles are manufactured by Lockheed Martin Astronautics. CASA is producing the conical interstage adapters for the Atlas V. The Atlas V maiden mission is slated for 2002.

DRS/Artemis

The Data Relay Satellite (DRS) is a civilian communications satellite to provide high-capacity data relay services for European Space Agency (ESA) members. Artemis (Advanced Relay and Technology Mission Satellite) will carry experimental payloads to demonstrate new technologies and services. Alenia Spazio, Rome, Italy, was selected by ESA for leadership responsibility in developing the DRS system. CASA is producing antennas for the satellite.

ERS

The European Remote Sensing satellite is an ice, coastal and ocean monitoring spacecraft. Dornier System GmbH, Friedrichshafen, is the prime contractor for the ERS. Main program subcontractors include AME, Aerospatiale, BTM, Cap Gemini Sogeti (data processing center, prime contractor), CASA, CDE, CRI, CRISA, Contraves (payload support structure), Crouzet, DSF, EMS, ERA, ETCA (power supply systems), FIAR, IGG, IRW, ITL, Laben (data-processing equipment), MBB-ERNO, MDA Canada (ground stations), MRC, Marconi Space Systems (SAR), NLR, ODE, ORS, Remy, SAGEM, SEP, Saab, Schrack, Selenia Spazio (radar altimeter), Sodern, Space Technologies, Spar, TNO, TSF, Terma, and Thorn EMI, among others. ERS-2 was launched in April 1995 and

is operational. ERS-1 was placed in a standby mode in May 1996.

EUTELSAT

EUTELSAT is a European commercial communications satellite system sponsored by EUTELSAT (European Telecommunications Satellite Organization) for the European Broadcast Union (EBU). Prime contractor for the EUTELSAT II satellite (Spacebus 100 bus) is Aerospatiale. Additional contractors include Alenia (Italy), Alcatel-Espace (France), CASA (Spain), Ericsson Radio Systems (Sweden), ETCA (Belgium), Matra Marconi, Marconi Space Systems (UK), Messerschmitt-Bolkow-Blohm GmbH (MBB) (Germany), and Crouzet (France). The EUTELSAT system provides regional telecommunications in Europe: full-time transponder leases, telephony, occasional TV, VSAT and land-mobile communications via the EUTELTRACS system. EUROPESAT provides DBS services to Europe. Eleven EUTELSAT satellites are currently operational.

HS-601

The HS-601 is a communications satellite designed for operation in geosynchronous and medium altitude orbits. The HS-601 satellite model is intended for use in many applications, including direct broadcast, mobile satellite communications, and Very Small Aperture Terminal (VSAT) networks. Hughes Space and Communications is the prime contractor for the HS-601. Additional contractors include Pressure Systems, Inc, City of Commerce, CA (propellant tanks); Hughes Electronics Corp's Spectrolab Inc, Slymar, CA (dual-junction gallium arsenide solar cells), CASA, Madrid, Spain (spacecraft structural panels). Approximately 60 HS-601 satellites have been produced to date.

ISO

ISO is an infrared astronomy satellite. Aerospatiale, Division Systems Balistiques & Spatiaux, Cannes-la-Bocca, France, is the ISO prime contractor and is responsible for design/development of the telescope equipment. CASA provided the satellite's service module structure, thermal control and electrical harness. The ESA launched the ISO satellite on an Ariane 44P rocket in November 1995.

Spacebus Series

Spacebus series is a family of communications satellite models. Eurosatellite GmbH, Munich, Germany. Prime contractor for the EUTELSAT II satellite (Spacebus 100 bus) is Aerospatiale. Additional contractors include Aeritalia (Italy), Alcatel-Espace (France), CASA (Spain), Ericsson Radio Systems (Sweden), ETCA (Belgium), Marconi Space Systems (Great Britain), Messerschmitt-Bolkow-Blohm GmbH (MBB)

(Germany), and Crouzet (France). Spacebus 100 and 300 are in production. The Spacebus satellite series is intended for use in telephone/data communications and direct broadcast television. The Spacebus satellite has

been produced for five commercial communications systems. These systems include TELE-X, ARABSAT, TDF, EUTELSAT and TV-SAT.

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