

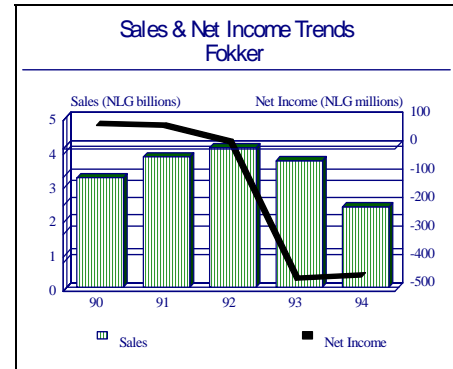
ARCHIVED REPORT

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Fokker Aircraft BV - Archived 3/1998

Outlook

- Fokker declared bankruptcy in March 1996.
- Financially self-sufficient units have survived the bankruptcy and are now part of Fokker Aviation.
- In July 1996, Stork NV, a Dutch industrial conglomerate, acquired Fokker Aviation for 302.5 million guilders.
- Purchase did not include aircraft manufacturing operations which are headed for closure unless a last minute savior appears.



Headquarters

Fokker Aviation BV
Postbus 75047
1117 ZN Schiphol, The Netherlands
Telephone: (31 20) 605 9111

NV Koninklijke Nederlandse Vliegtuigenfabriek Fokker (Royal Netherlands Aircraft Factories Fokker) was established on July 21, 1919, by Anthony Fokker, one of the world's aviation pioneers. Anthony Fokker built his first aircraft, the Spider, in 1910 when he was barely 20 years of age. During World War I, he produced thousands of fighters, such as the famous Dr.I triplane, made notorious by the greatest combat pilot of the war, Manfred Freiherr von Richtoffen. Fokker also designed and produced the Dr.VII, widely recognized as the most effective fighter of the war.

In 1919, Anthony Fokker returned to The Netherlands where he set up a new company in Amsterdam. Shortly thereafter, Fokker founded an American branch of the company. By 1921, Fokker operated three plants in the US. By the late 1920s the US Fokker company had grown to become one of the largest aircraft manufacturers in the world. In addition to civil transport aircraft, Fokker developed military fighters, reconnaissance aircraft and trainers during the 1920s. This wide variety of aircraft sold in large numbers, many being built under license abroad.

After 1934, the Fokker company concentrated on the design and production of military aircraft, at the same time acting as the European marketing office for the Douglas DC-2 and DC-3.

Fokker's activities today are focused on the production of commercial airliners, of which Fokker is currently manufacturing two different models (the Fokker 50 twin-turboprop and the Fokker 100 twin-turbofan). In addition to these advanced and popular aircraft, Fokker manufactures the Lockheed Martin F-16 multirole fighter aircraft, which are supplied to the Royal Netherlands Air Force. The firm can boast that it is the longest established aircraft manufacturer in the world still producing aircraft under its own name. Nevertheless, Fokker became a member of Daimler-Benz AG through the majority acquisition of the Dutch company by Daimler-Benz AG subsidiary Daimler-Benz Aerospace. An agreement was signed between the two firms on April 27, 1993.

In early 1996, following years of problems with the company, Daimler-Benz cut off financial support for Fokker company, pushing it into bankruptcy on March 15, 1996. Viable parts of the Fokker group, such as aircraft maintenance, defense contracting, and aviation electronics, have been transferred to a holding company, Fokker Aviation.

For further details on Fokker please refer to the reports on this binder.
Daimler-Benz and **Daimler-Benz Aerospace** located in

Structure and Personnel

Prior to its bankruptcy Fokker was managed by the following executives.

Supervisory Board

J.E. Schrempp
 Chairman
 M. Kuilman
 Vice Chairman
 M. Bischoff
 F.M.J. Böttcher
 J.C.M. Hovers
 P.J. Idenburg

H. Knitter
 G. Liener
 H. Mehdorn

Board of Management

B.J.A. van Schaik
 Chairman
 B.E. Dijkhuizen
 R.F. Hendriksen
 J.G. Kroon
 Dr R.K. Volk

Product Areas

Prior to its bankruptcy, the company's Aerospace/defense activities were centered on the in-house design, development and production of short-haul commercial airliners and manufacture of components for other civil aircraft programs, including the Airbus A300/310 and Shorts 333/260, and the General Dynamics F-16 Fighting Falcon. Coproduction of the F-16 combat aircraft was undertaken for the requirements of the Royal Netherlands

Air Force. Other areas of activity included the manufacture of special products such as aluminum shelters, and advanced operations to include participation in helicopter programs with an announcement that it was to make a design study contribution for the proposed NH-90 troop transport helicopter. Fokker Aircraft BV has also traditionally engaged in major maintenance, repair and modification for civil and military aircraft.

Facilities

Fokker Aircraft BV, Postbus 7600, NL-1117 ZJ Schipol, The Netherlands. Telephone: (31 20) 605 9111. This location handles all operations relating to the design and manufacture of all Fokker civil and military aircraft. This company entered bankruptcy March 15, 1996.

Fokker Aviation BV, Postbus 75047, 1117 ZN Schiphol, The Netherlands. Telephone: (31 20) 605 9111. This is a holding company formed to run Fokker's viable activities following its bankruptcy, detailed below.

Fokker Services BV, Aviolandalaan 31, PO Box 3, NL-4630 AA Hoogerheide, The Netherlands. This company centers on aircraft overhaul and conversion services.

Fokker Special Products BV, Edisonstraat 1, 7903 AN Hoogeveen, PO Box 59, NL-7900 Hoogeveen, The

Netherlands. This operation produces missile launchers, pylons, fuel tanks, shelters, and various aircraft components.

Fokker Aerostructures BV, PO Box 1, NL-3350 AA, Papendrecht, The Netherlands. This unit manufactures advanced components and assemblies using both metal and composite materials.

Fokker Aviation Marketing & Sales, PO Box 75047, NL-1117 ZN, Schipol, The Netherlands. This is the joint marketing and sales office for Fokker products.

Fokker Elmo BV, PO Box 75, NL-4630 AB, Hoogerheide, The Netherlands. This facility produces electrical wiring systems, control panels, and electronic units for aerospace, defense, and civil applications.

Corporate Overview

Fokker was the principal airframe manufacturer in The Netherlands. Following its bankruptcy, key financially

viable, independent units are now run by the holding company Fokker Aviation.

New Products and Services

Due to bankruptcy, no new programs are expected.

Plant Expansion/Organization Update

Fokker Bankrupt. In March 1996, Fokker collapsed in to bankruptcy. Over the past year Fokker's aircraft operations have been wound down with a total job loss of 5,664. Key to the failure of Fokker was Daimler-Benz's withdrawal of financial support for the troubled company in January 1996. Following a month and a half struggle to find a partner to save the company, the company filed for protection from its creditors on March 15, 1996. Financially self-sufficient units have survived the bankruptcy and are now part of Fokker Aviation. These units include Fokker Aircraft Services, Fokker Elmo, Fokker Special Products, Fokker Product Support, and Fokker Aerostructures. Fokker Aviation employs an estimated 2,400 and has annual sales of \$600 million. The company is headed by Eddy de Vries, a management consultant, and a board consisting of several former top officials of Dutch companies.

Samsung Rescue Attempt Fails. Following its slide into bankruptcy several rescue plans have emerged and disappeared. Perhaps one of the strongest if not longest lasting was the possibility that Samsung of Korea would bid for the company. Originally Samsung along with British Aerospace, Aerospatiale, Bombardier, several Russian firms, and the Taiwanese government were in serious talks with Fokker over a potential buyout. One by one the potential suitors dropped out, including at the time Samsung. However, the Korean conglomerate renewed its interest in the company in August 1996 and began due diligence procedures a month later. However, in November the receivers of Fokker announced that they had failed to reach an agreement with Samsung. Still, Samsung preserved and attempted a long shot by proposing that a consortium of three Korean companies — Daewoo, Hyundai, and Hanjin — led by Samsung take over Fokker. This latest attempt failed when the rival Korean companies said they would not work for Samsung.

Yakolev Sole Surviving Suitor. Following Samsung's failed attempt to takeover Fokker, Russian aircraft manufacturer Yakolev is the only remaining company still thought to be interested in saving Fokker. According to reports, Yakolev has won an agreement from the Russian government to guarantee loans at Western banks to finance its \$216-million bid. If successful, the company wants to move fuselage assembly work from Germany to Saratov and Shorts wing production from Northern Ireland to Smolensk. However, many analysts question whether or not Yakolev could pull off such a deal.

Shorts Shuts Down Wing Production. Perhaps the biggest obstacle facing a potential buyer is one of Fokker's major subcontractors has closed down production as a result of the bankruptcy. Shorts Brothers of Belfast, which made wings for Fokker F-70 and F-100 regional jets, closed its production line down in November citing Fokker's failure to find a buyer as the reason.

Fokker Space Separated. Fokker Space & Systems BV was spun off from Fokker Aircraft in late 1995, and subsequently renamed Fokker Space BV. This unit is unaffected by the bankruptcy of its former parent.

1995 Restructuring. In March 1995, Fokker announced a radical restructuring program that encompassed job cuts and facility closures in an effort to bring the company back into the black by 1996. The main thrust of the restructuring focused on cutting the costs of its components manufacturing operations, which will now be slimmed down and split out into a new aerostructures division, Fokker Aerostructures. Aircraft assembly and design will be concentrated under a separate Fokker Aircraft unit. Among the sites slated to be closed will be the head-office building in Amsterdam-Zuidoost with its operations moved to Schiphol-Oost. The Ypenburg components plant will also be closed with its composites and metal-bonding operations moved and its interior-parts department divested. The company's overall workforce was to be trimmed from 8,500 to 6,700 by mid-1996. Most of the job losses would come from office and support staff, with engineering being the third hardest hit. In addition, supplier contracts will be renegotiated on a case-by-case basis in an attempt to have suppliers share the burden of Fokker's cost-cutting moves.

1994 Cost Cutting. In February 1994, Fokker initiated a major cost cutting plan in an effort to maintain profitability. As part of the plan, Fokker is to shed 1,900 jobs and cut production to only 40 aircraft per year. The company produced a total of around 60 aircraft in 1993. Production rates for the Fokker 50 will fall from 20 to 12, while rates for the regional jet family are expected to drop from 40 to 28. These new production levels were expected to be maintained until 1996 when Fokker hoped for some signs of an upturn in the market. In addition to the layoffs and lower production rates, the company plans to close its Dordrecht facilities, which build aircraft subassemblies.

In July 1994, a financial restructuring agreement valued at approximately 2.0 billion guilders (\$1.16 billion) was reached between DASA, Fokker, and the Dutch government. Fokker will raise 420 million guilders through the sale, and subsequent leaseback from, Rabobank of the Netherlands of technological know-how and patents. Over a period of 10 years, Fokker will lease its own technology from the bank, which has the right to

sell the material to another owner but not to another user. A separate leasing company will be established by Daimler-Benz Inter Services (Debis) which will acquire aircraft currently leased out by Fokker. This leasing company will finance most future new aircraft leases. Fokker plans to offer standardized aircraft to lease customers as much as possible, in order to simplify the later remarketing of these aircraft.

Nederkoorn Resigns. In January 1994, chairman Erik Han Nederkoorn resigned after a boardroom split over cost-cutting measures at Fokker. In December, Nederkoorn announced that the company needed to cut production costs by 30 percent and that this would lead to large layoffs. The plans reportedly went too far for the Dutch members of the supervisory board of Fokker, while not going far enough for the five members representing Daimler-Benz Aerospace and its 51-percent ownership of the company. An immediate result of his departure was a decision to double the management board to six members including Reinhard Volk who comes in from Daimler-Benz Aerospace's MTU subsidiary to take up position of controller.

Mergers/Acquisitions/Divestitures

Stork Acquires Fokker Aviation. In July 1996, Stork NV, a Dutch industrial conglomerate, acquired Fokker Aviation for 302.5 million guilders (roughly \$180 million). The acquisition gives much needed support to Fokker Aviation's various subsidiaries which have been looking for partners since Fokker NV went bankrupt in early 1996. The acquisition does not have any direct influence on the fate of the bankrupt aircraft assembly business, but Stork is contractually bound to provide maximum support if aircraft production is restarted.

Avio-Diepen Sold. In late 1995, Fokker sold its Avio-Diepen spare-part operation to a management lead buy-out for an undisclosed amount.

Alenia Holds Six Percent Share. Following the passage of a law requiring all firms holding institutional investments in Netherlands companies to identify themselves, it was revealed that Alenia has obtained 6.07-percent share in Fokker. The investment totaled approximately US\$37 million, and was undertaken in 1991.

Daimler-Benz Aerospace Takes Control. In April 1993, Daimler-Benz Aerospace completed its plan to take a majority 51-percent stake in Fokker. Daimler-Benz Aerospace will act primarily as a majority shareholder without interfering with the identity or technological leadership of Fokker's jet aircraft projects. Daimler-Benz Aerospace combines the technology and resources of four major German firms: MBB Messerschmitt-Bölkow-Blohm, Telefunken Systemtechnik, MTU Motoren- und Turbinen-Union, and Dornier. The total price of the deal

for Daimler-Benz Aerospace was NLG 880 million (\$509 million).

Teaming/Competition/Joint Ventures

Airbus Industrie. Fokker is an associate member of the Airbus consortium, which was created in late 1970. Airbus Industrie (GIE) is located in Paris, France. This consortium consists of Aerospatiale (37.9 percent), Deutsche Airbus (37.9 percent), British Aerospace (20 percent), and CASA (4.2 percent). Belairbus of Belgium and Alenia of Italy are other associate members of the consortium. Production by Fokker of airframe components for A300 and A310 airliners as an associate partner of Airbus Industrie is undertaken in the Netherlands. Fokker has a workshare of 5.6 percent in the A300-600, program, which involves the production of all moving wing parts. For the A310, program, Fokker has a workshare of one percent. Production for the A310 includes undercarriage doors, wingtips, ailerons and flap track fairings.

Lockheed Martin. In October 1995, Fokker signed an agreement with Lockheed Martin to market and help produce TADS/PNVIS night systems and Hellfire II weapon systems for the Apache helicopter. The accord also covers Fokker's promotion of Lantirn, Pathfinder, and Sharpshooter night vision systems for the F-16 aircraft.

Alliance Development Corp. Joint venture company set up in September 1987 by Hughes Aircraft, Honeywell, Rheinmetall, AEG, Alenia, ESD, GIAT, and Fokker to develop 155 mm APGM for use by NATO in the 1990s

Aerospatiale. Participation in design studies for the NH-90 troop transport helicopter; development by Fokker of robot arms for the Hermes mini-shuttle.

Agusta. Agusta and Fokker are engaged in participation in design studies for the NH-90 troop transport helicopter.

Collins. Collins supplies EFIS and digital FCS for the Fokker 100 as well as integration of complete avionics system for this aircraft.

Dowty. Dowty undertakes production of landing gear for Fokker 50 and Fokker 100 aircraft; production of propellers for Fokker 50 aircraft.

General Dynamics. Coproduction, final assembly and manufacture of components for General Dynamics F-16 combat aircraft is undertaken by Fokker.

Honeywell. Honeywell (formerly Sperry) supplies advanced flight management system for the Fokker 100 airliner as well as joint development of automatic wind-shear recovery system for the Fokker 100.

IPTN. A coproduction agreement was signed in 1990 between IPTN of Indonesia and Fokker for the production of 280 shipsets of Fokker 100 components. IPTN

delivered the first shipset of four Fokker 100 components in early 1993.

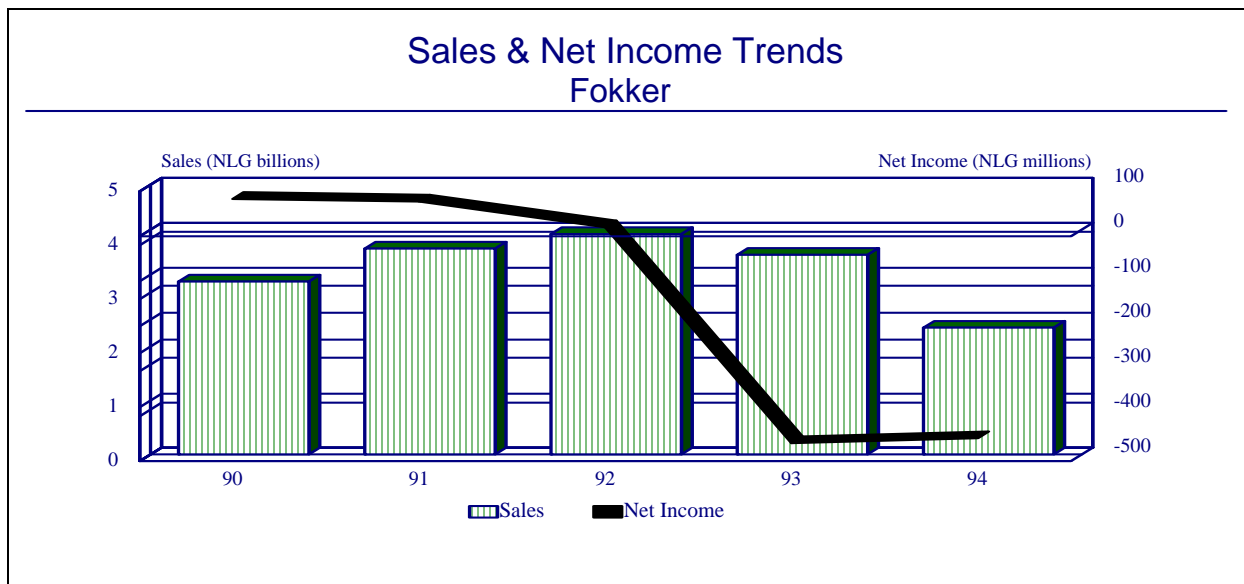
Matra. Matra and Fokker are involved in collaboration on development of robot arm for Hermes mini-shuttle.

Short Brothers. Shorts undertakes production of wings and undercarriage doors for Fokker 100 aircraft; production by Fokker of outer wings and struts for Shorts SD330 and SD360 aircraft. Short Brothers is a subsidiary of Bombardier of Canada. This production ceased in 1996.

Financial Results/Corporate Statistics

Results for Fokker's last published year are as follows. Fokker posted 1994 sales of NLG 2.3 billion, a 35-percent decrease from the NLG 3.7 billion reported in 1993. The company reported a loss of NLG 449 million for 1994 compared to a loss of NLG 460 million in 1993. Latest year statistics are provided below. The Work in Progress listing includes civil aircraft programs in various stages of construction and undelivered orders under construction for third-party programs. US dollar figure translated as a 1994 average at the rate of US\$1=NLG 1.82.

Y/E March 31	1990	1991	1992	1993	1994	1994
(NLG millions)						US\$
Net Sales	3202	3813	4083	3698	2348	1290
Net Income	83	77	20	-460	-449	-246
Work in Progress	NA	2729	3556	2814	2539	1395



Industry Segments

A breakdown of Fokker's sales by major market segment for the years 1991 through 1994 is given below. Totals may not add due to rounding.

SALES	1991	1992	1993	1994
(NLG millions)				
Aircraft Manufacturing	3394	3627	3178	1877
Overhaul & Repair	192	203	166	138
Space & Other Products	199	241	336	321
Other Development Orders	27	11	17	11
TOTAL	3,812	4,082	3,697	2,347

OPERATING INCOME	1991	1992	1993	1994
(NLG millions)				
Aircraft Manufacturing	92	103	-220	-642
Overhaul & Repair	22	18	10	6
Space & Other Products	20	10	27	14
TOTAL	134	131	-183	-622

Strategic Outlook

With Daimler-Benz's decision to end financial support of struggling Fokker, it sealed the fate for the 77-year old aircraft manufacturer. Several months later the company was bankrupt, and almost a year later all hope is gone that the aircraft business can be saved.

Although several attempts were made to save the doomed company, the latest being Korea's Samsung, all have decided against getting involved. The company's final chance is in a offer from Russia's Yakolev, but the chance of this succeeding are long odds indeed.

Dutch labor unions have blamed both Daimler-Benz and their own government for their failure to do more for Fokker, while the German parent firm reportedly expected the Dutch government to step in and save the embattled manufacturer. Fokker's van Schaik has expressed indignation that his company's future was being abandoned just as the US dollar was hardening and the aviation market was recovering. "We were in sight of the harbour but a hole has been blown through our bow," he commented on his perception of the lack of financial support.

Fokker's bankruptcy produced the biggest layoff in Dutch history and has heavily impacted the country's economy. Subcontractors and suppliers throughout the Netherlands are suffering from the loss of Fokker's range of regional aircraft.

In addition, the failure of the company has sent ripples beyond its borders to its numerous suppliers. One of the

hardest hit was Bombardier's Shorts subsidiary which recently shutdown wing production at its Northern Ireland plant as a result of the bankruptcy.

Fokker's problems stem from a number of factors. These include the recent decline in demand for aircraft which resulted in expensive overcapacity at Fokker, a decrease in achievable aircraft prices due to market conditions of low demand and high supply, and high finance charges resulting from previous reorganizations of the company. Added to these factors was a 25-percent drop in the value of the US dollar compared to the Dutch guilder. Since several components of Fokker aircraft are produced in Germany, the strength of the Deutsche mark against the dollar is also a factor. The company is thus caught in a squeeze; its aircraft are sold in weaker dollars while its production costs are often covered by stronger currencies.

Simply put, the basic inability to sell aircraft at an economic price led to Fokker's demise. However, although Fokker has ended its legacy of aircraft manufacturing, some of its units have survived under the umbrella of Fokker Aviation, which was acquired by the Netherlands industrial giant Stork NV. These operations which include Fokker Aircraft Services, Fokker Elmo, Fokker Special Products, Fokker Product Support, and Fokker Aerostructures, will continue to provide support for the 1,100+ Fokker built aircraft in service around the world.

Prime Award Summary

Information unavailable.

Program Activity

Business Interests. Prior to bankruptcy, Fokker's activities included the following:

- Design, development and production of short-haul commercial airliners
- Manufacture of components for civil aircraft programs
- Manufacture of military aircraft
- Space technology
- Aluminum shelters
- Composite material components
- Maintenance, repair and modification for civil and military aircraft
- Electrical and electronic systems
- Cable harnesses
- Missile launchers
- Pylons and fuel tanks

Aircraft Programs

Airbus Industrie

Fokker is an associate member of the Airbus consortium, which was created in late 1970. Production by Fokker of airframe components for A300 and A310 airliners as an associate partner of Airbus Industrie is undertaken in The Netherlands. Fokker has a workshare of 5.6 percent in the A300-600 program, which involves the production of all moving wing parts. For the A310 program, Fokker has a workshare of one percent. Production for the A310 includes undercarriage doors, wingtips, ailerons and flap track fairings.

Fokker 50

The Fokker 50 is a pressurized, twin turboprop, 46-60 and 62-76 passenger regional commuter transport aircraft. The F-50 is designed for short-range regional-commuter passenger transportation. Additional commercial uses include small package general cargo. Other uses are for military and paramedevac, maritime/fisheries patrol, forestry protection, drug interdiction and border patrol. Fokker produced approximately 203 and delivered 198 Model 50 aircraft through the end of 1995. One Fokker 60 Utility had been built.

Fokker 70

Fokker was developing the Fokker 70, a 70-seat variant of the Fokker 100. The first of two Fokker 100 derivatives, the Fokker 70 was launched in mid-1993 on the strength of 15 firm orders and 10 options from two Indonesian airlines: Sempati Air (10 firm orders and five options) and Pelita Air Service (five firm orders and five options). Fokker 70 is based on a shortened Fokker 100 fuselage. In late 1992, Fokker started work on a Fokker 70 prototype, prior to receiving a single firm order for the variant. However, launch orders were received a few months later, in June 1993, from two Indonesian airlines, Sempati Air and Pelita Air Service. The two carriers placed a combined total of 15 firm orders and 10 options. Through the end of 1994, Fokker had secured 40 firm orders for the Fokker 70. First flight of the Fokker 70 prototype occurred in April 1993, and certification from both the US FAA and the Dutch civil aviation authority RLD was received in October 1994. An estimated 37 Fokker 70 aircraft had been completed through the end of 1996.

Fokker 100

The F-100 is a twin-turboprop powered, narrow-body, short range commercial transport aircraft. The Fokker 100 is proving reliable and cost effective, and is highly praised by passengers. The airlines' appreciation has also risen as a result of the downturn in the number of passengers since the Gulf War. The Fokker 100 has been put into service on routes previously operated by larger aircraft, enabling these routes to remain profitable. Through December 1996, Fokker produced and delivered 276 Fokker 100s.

Lockheed F-16 Fighting Falcon

This is a single-engine, single-seat, high-performance fighter/attack aircraft. Fokker, along with SABCA/SONACA, are the NATO Co-Production partners for the F-16. Production of Dutch F-16s at Fokker's Schiphol plant has been concluded. However, the Netherlands has joined Norway and Denmark as well in embarking on an F-16 mid-life upgrade. Dutch F-16s were slated for

replacement by the year 2000, but with the planned upgrade, will now be retained in service until 2010.

Space System Programs

These programs are now run by Fokker Space BV (formerly Fokker Space & Systems BV) which was spun off in late 1995.

Ariane 4 and Ariane 5

The Ariane 4 is a medium-to-heavy lift expendable launch vehicle. The Ariane 5 is a European heavy lift expendable launch vehicle. Arianespace, Evry, France, is responsible for Ariane 4 and 5 production, marketing and operational launch services. Fokker is one of numerous contractors involved in these programs.

Eureca

The European Retrievable Carrier (Eureca) is a free-flying, self-sufficient space platform. Daimler Benz Aerospace, Bremen is the Eureca prime contractor. It is overall Eureca program manager and is responsible for Eureca's Orbital Transfer Assembly, altitude and orbit control system (AOCS), system design and software, plus integration and testing. Additional major contractors include AEG (power supply), Alenia (thermal control and primary structure), BTMC (telemetry/telecommand), Fokker (solar array and magnetic torquer), LABEN (microgravity measurement and check-out equipment), Matra (data handling system (DHS) and attitude control), SABCA (secondary structure), Sener mechanical ground support equipment and antennas, and SNIA-BPD (N₂ cold-gas propulsion/reaction control system). Eureca was deployed from the Space Shuttle for the first time in July 1992 and retrieved in June 1993.

Inmarsat

The Inmarsat (International Mobile Satellite Organization) system is a constellation of telecommunications satellites. The Inmarsat satellite system provides phone, fax, telex, data, and compressed video to customers aboard ships, yachts, cruise vessels, oil drilling rigs, commercial aircraft, automobiles and trucks. Inmarsat 2 is being built by Satcom International, Paris, France. Additional contractors include Hughes Aircraft Co of the United States, Matra of France, Fokker of the Netherlands, Spar from Canada, NEC from Japan and MBB of Germany.

ISO

The ISO is an infrared astronomy satellite. Aerospaziale, Space and Strategic Systems is the ISO prime contractor and is responsible for design/development of the telescope equipment. Other European firms have contributed to the ISO's construction. Officine Galileo is supplying attitude sensor equipment, while Fokker Space & Systems has been tasked to design, manufacture and test the ISO's attitude and orbital control system. The German Ministry

for Research and Technology (BMFT) selected DASA's Dornier as industrial prime contractor for the development and manufacture of the satellite's extremely sensitive Isophot photopolarimeter. Ferranti Defence Systems Ltd's Navigation Systems Department is supplying a gyro package.

Odyssey

Odyssey is a satellite-based mobile communications system. The Odyssey system will provide voice, data, paging, messaging and location-determination services to mobile subscribers worldwide. TRW Space & Technology Group will supply the satellites used in the Odyssey system. Subcontractors include Fokker (solar arrays), Teldix (reaction wheels), Spar Aerospace (L-band antennas), and ANT Nachrichtentechnik GmbH (Ka-band traveling wave tube amplifiers). TRW received Federal Communications Commission approval in February 1995 to build the Odyssey satellite system. Satellite launches — two at a time on Atlas IIAS-class boosters — are slated to begin in the third quarter of 1998 with initial operations using six satellites possible that year. Full operational capability is expected in 1999.

Skynet

Skynet is a military communications satellite used by the United Kingdom Ministry of Defence. Matra Marconi Space is the prime contractor. Fokker Space & Systems BV and TRW are jointly providing the solar panels for Skynet 4D and 4E. Skynet 4D is scheduled for launch aboard a Delta II rocket in 1997, while Skynet 4E will launch aboard an Ariane 4 during the third quarter of 1998.

Spacelab

Spacelab is a habitable orbital scientific laboratory. Daimler-Benz Aerospace, Bremen, Germany, is the prime contractor for the Spacelab program, responsible for overall system design and testing. Other major contractors include: AEG (power systems), Alenia (thermal controls), Aerospaziale (cryostat), Air Liquide (cryogenics), BTMC (sled electronics), CERME (data systems), Christian Rovsing (multi-processors), CIMSA (computers), CIR (ground electronics), CISI (simulators), Crouzet (data systems, cameras, spectrometers), Dornier (IPS, FO Camera, EC and LSS), Dragerwerk (Gas/Oxygen), ESD (computers), Etertec Schlumberger (telemetry), ESA (program management), ETCA (electronics), Fokker (airlock), INTA, Intospace (commercial marketing), Kampsax, Marshall of Cambridge (sled sub-systems), Matra SA (CDMS and software), Matra Marconi Space (solar telescope and experiment pallets), McDonnell Douglas Space Systems Co (Shuttle integration), Microtecnica-Torino (thermal control), Nord-Micro (electronics), ONERA, Osterreichische Klima-Technik, REOSC (optics), Rockwell International, SABCA, SAGEM (servo

systems), SEL, SENER, SODERN, SSC, Thomson-CSF and TRW. Two sets of Spacelab hardware have been produced.

Telecom 1/2

Telecom 1/2 are French domestic telecommunications satellites. Matra Marconi Space, Velizy, France is the prime contractor, and Alcatel Espace, Courbevoie, France handles the communications payload. Other contractors include Aeritalia (structure); Aerospatiale (solar arrays and thermal equipment); Fokker Space & Systems (solar

arrays for Telecom 2); Space Systems/Loral (X-band transponder models for Thomson-CSF); Fiar (Telecom 2 TWT high power voltage equipment); Spar Aerospace (communications antennas); GTE Telecomunicazioni SpA (Ku-band amplifiers, isolators and switches for Thomson-CSF); INTA (S-band antenna); Matra Toulouse (remote control measuring and integration); Matra Velizy (AOCS and propulsion); Daimler-Benz Aerospace (propulsion system); Roving (PSIU and TTCCU); SAAB (encoder/decoder); and SEP (apogee engine).

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