

# ARCHIVED REPORT

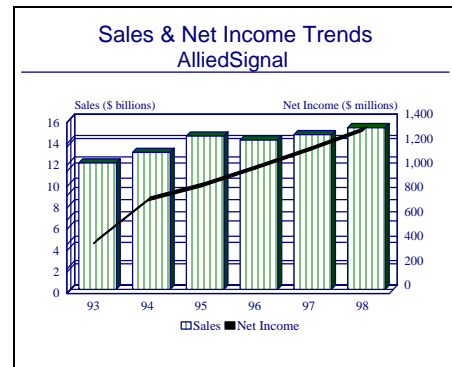
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## AlliedSignal - Archived 12/2000

### Outlook

- Honeywell and AlliedSignal agreed to merge, creating a \$25 billion avionics giant
- The entity's Aerospace organization will combine Honeywell's strengths in sophisticated avionics with AlliedSignal's strengths in flight-safety products and systems
- The new Honeywell International should be a formidable one-stop supplier for aircraft prime manufacturers



### Headquarters

AlliedSignal Incorporated  
Columbia Road and Park Avenue  
PO Box 4000  
Morristown, NJ 07962  
Telephone: (201) 455-2000  
Web Site: <http://www.alliedsignal.com>

In September 1985, the boards of Allied and Signal approved a consolidation of the two companies under an agreement in which both would become wholly owned subsidiaries of AlliedSignal Inc. The resulting conglomerate was involved in many types of businesses. To address the problem of over-diversification, the company's management decided to focus on three sectors – aerospace, automotive, and engineered materials – and to divest the remaining business assets. AlliedSignal used the Henley Group as a spinoff vehicle that included a public offering of Henley shares. Arthur D. Little handled the transaction. Henley was made up of the businesses that did not fit the new AlliedSignal strategic plan.

Today, most of AlliedSignal's major aerospace and defense efforts are handled by the old Bendix, Garrett, and AiResearch companies. Bendix's contribution to AlliedSignal's aerospace and defense work consists of navigational systems and avionics systems including displays and instruments. Signal brought to AlliedSignal the Garrett business in aircraft propulsion systems, auxiliary power systems, pneumatic systems, and industrial engines. AiResearch brought a service and system organization. AlliedSignal Inc was organized as a Delaware corporation in 1985.

In June 1999, Honeywell and AlliedSignal agreed to merge in a deal worth \$14 billion. The combined company will be called Honeywell and will be headquartered in Morristown, NJ. The merger is expected to be completed in late 1999 or early 2000.

At the beginning of 1999, employment was 70,400. PricewaterhouseCoopers LLP is the company's independent auditor. AlliedSignal stock is traded on most domestic and international exchanges under the symbol "ALD."

### Structure and Personnel

Lawrence A. Bossidy  
Chairman and Chief Executive Officer  
Frederic M. Poses

President and Chief Operating Officer  
Richard J. Diemer, Jr.  
Vice President and Controller

Larry E. Kittelberger  
 Vice President and Chief Information Officer  
 Peter M. Kreindler  
 Senior Vice President, General Counsel and  
 Secretary  
 Donald J. Redlinger  
 Senior Vice President, Human Resources and  
 Communications  
 Barry Siadat

Vice President, Growth  
 Raymond C. Stark  
 Vice President, Quality & Six Sigma  
 Jay B. Stephens  
 Vice President, Health, Safety and Environment,  
 and Deputy General Counsel, Litigation and  
 Regulatory Affairs  
 Richard F. Wallman  
 Senior Vice President and Chief Financial Officer

## Product Area

AlliedSignal Inc is a diversified, major aerospace and defense equipment supplier. The company operates in three market segments: Aerospace, Automotive, and Engineered Materials, grouped in the following manner.

1. Aerospace Systems
  - 1.1 Aerospace Equipment Systems
    - 1.1.1 Aircraft Landing Systems
    - 1.1.2 Environmental Control Systems
    - 1.1.3 Engine Systems & Accessories
    - 1.1.4 Power Management and Generation Systems
    - 1.1.5 AlliedSignal Aerospace Canada
    - 1.1.6 AlliedSignal Power Systems Inc
  - 1.2 Electronic & Avionics Systems
    - 1.2.1 Defense & Space Systems
    - 1.2.2 Inertial & Sensor Systems
    - 1.2.3 Business & General Aviation
    - 1.2.4 Air Transport & Regional
  - 1.3 Aerospace Marketing, Sales & Service
  - 1.4 AlliedSignal Technical Services Corporation
  - 1.5 Federal Manufacturing & Technologies
2. Specialty Chemicals and Electronic Solutions
  - 2.1 Specialty Chemicals
  - 2.2 Electronic Materials
3. Turbine Technologies
  - 3.1 AlliedSignal Engines
    - 3.1.1 International Turbine Engine Corporation
    - 3.1.2 CFE Company
    - 3.1.3 Industrial and Marine Engines
    - 3.1.4 Propulsion - Turbofan/Turboprop
    - 3.1.5 Auxiliary Power Units
    - 3.1.6 Turboshift Engines
  - 3.2 Turbocharging Systems
4. Performance Polymers
5. Transportation Products

**Aerospace Systems.** Products for this segment include: Aerospace Equipment Systems (environmental control systems, engine and fuel controls, brakes); Electronic & Avionics Systems (flight safety communications, navigation, radar and surveillance systems, and advanced systems and instruments); and Aerospace Marketing, Sales & Service (repair and overhaul services, hardware, logistics, and management and technical services).

**Specialty Chemicals & Electronic Solutions** includes Specialty Chemicals (fluorine-based products, pharmaceutical and agricultural chemicals, specialty waxes, adhesives and sealants, and process technology); and Electronic Materials (insulation materials for integrated circuitry, copper-clad laminates for printed circuit boards, advanced chip packaging, and amorphous metals).

**Turbine Technologies** includes AlliedSignal Engines (auxiliary power units and propulsion engines); and Turbocharging Systems (turbochargers, charge-air coolers, and portable power systems).

**Performance Polymers** includes the Polymers unit which produces fibers, plastic resins, specialty films, and intermediate chemicals.

**Transportation Products** is composed of the Consumer Products Group (car care products including antifreeze, filters, spark plugs, cleaners, waxes and additives); Friction Materials (friction material and related brake system components); and Truck Brake Systems (air brake and anti-lock braking systems).

## Facilities

The following AlliedSignal operations generate the bulk of the firm's major defense and aerospace work.

### Eastern Region

AlliedSignal Electronics & Avionics Systems, 2100 Northwest 62nd Street, Ft. Lauderdale, FL, 33309. Telephone: (954) 928-2100. This division produces

color weather radar; VHF communication systems; VOR/ILS navigation equipment; ADF transponders; DME; radio altimeters and associated controls; displays and test equipment for commercial, general aviation, and military aircraft; digital VHF communications; RNAV; weather radar; compass systems; and autopilots and flight directors. It also provides support services.

AlliedSignal Electronics & Avionics Systems, Route 46, Teterboro, NJ 07608. Telephone: (201) 288-2000. This division produces inertial guidance units, computer systems, strap-down and conventional gyros, rate gyros, DGs and VGs two-gyro platforms, inertial gyros and accelerometers, star trackers, star sensors, solar array drives, reaction/momentum wheels, CMGs, and specialized missile/drone equipment. Other products manufactured include automatic flight control systems, autothrottle controls, electromechanical engine and flight recording instruments, CRT color displays, and air data recorders.

AlliedSignal Electronics & Avionics Systems, Communications Systems, 1300 East Joppa Road, Baltimore, MD 21286. Telephone: (410) 583-4000. This unit develops and manufactures complex electronic equipment including ATC systems, IFF systems, INFOSEC communications security devices, and target detection devices for the US military.

AlliedSignal Electronics & Avionics Systems, Precision Products, 250 Knotter Drive, Cheshire, CT, 06410. Telephone: (203) 250-3500. The Cheshire facility produces precision instruments such as accelerometers for various aerospace applications.

AlliedSignal Aerospace Equipment Systems, Power Management & Generation Systems, 118 Route 35, Eatontown, NJ 07724. Telephone: (732) 542-2000. This unit manufactures AC and DC electric power generating systems.

### Central Region

AlliedSignal Electronics & Avionics Systems, One Technology Center, 23500 W. 105th St, Olathe, KS 66061. Telephone: (913) 782-0400.

AlliedSignal Aerospace Equipment Systems, Aircraft Landing Systems, 717 North Bendix Drive, South Bend, IN, 46620. Telephone: (219) 231-3000. This unit produces landing gear systems, wheels, brakes, anti-skid systems, steering and hydraulic systems for aircraft.

### Western Region

Allied Signal Aerospace, 2525 West 190th Street, Torrance, CA 90504. Telephone: (310) 323-9500. Web Site: <http://aerospace.alliedsignal.com> This location is the headquarters for the aerospace operation.

AlliedSignal Aerospace Equipment Systems, 2525 West 190th Street, Torrance, CA 90504. Telephone: (310) 323-9500. This unit produces missile systems, ram air turbines, space environmental controls, and life support systems.

AlliedSignal Aerospace Equipment Systems - Tempe, 1300 West Warner Road, PO Box 22200, Tempe, AZ 85284-2896. Telephone: (602) 893-5000. This location designs and develops pneumatic actuators, control valves and starters.

AlliedSignal Engines, 111 South 34th Street, PO Box 52181 Phoenix, AZ 85072. Telephone: (602) 231-1000. This division manufactures gas turbine engines, aircraft and helicopter piston engines, advanced power systems, secondary power systems and control systems.

## Corporate Overview

AlliedSignal serves three major market segments: aerospace, automotive, and engineered materials. The company ranked 18th in terms of DoD prime contractors for 1998.

### New Products and Services

**AS900.** In September 1998, AlliedSignal Inc announced that it is launching full-scale development of its new turbofan engine series, the AS900. The new engine family is designed for a thrust range from 4,000 lb to 9,000 lb and will have potential applications for both regional aircraft and business aviation. The AS900 is

scheduled for FAA certification in the first quarter of 2001.

### Plant Expansion/Organization Update

AlliedSignal Reorganized. In October 1997, Lawrence A. Bossidy, Chairman of the Board and Chief Executive Officer, announced that AlliedSignal will be reorganized into 11 business units, eliminating the sector superstructure. The three sector offices, Aerospace, Automotive and Engineered Materials, were closed and their functions either moved to the corporate or business unit level or eliminated. The new business unit structure is as follows:

1. Turbocharging Systems
2. Engines
3. Aerospace Equipment Systems
4. Electronics and Avionics Systems
5. Aerospace Marketing Sales & Service
6. Federal Manufacturing & Technologies
7. Automotive Products Group
8. Truck Brake Systems, Specialty Chemicals
9. Polymers
10. Electronic Materials
11. Business Services and growth initiatives

Army Closes Stratford Plant. In March 1995, the US Army decided to close the Stratford Army Engine Plant in Stratford, CT. This government-owned facility was run by AlliedSignal Engines. By closing Stratford, the Army estimates a savings of \$80 million over the next 20 years.

AlliedSignal Engines Work Force Reduced. In November 1994, AlliedSignal announced that it would cut its Stratford, CT, work force by 1,000 over the following eight months. The company is consolidating work at Lycoming's Stratford facility with its operations in Phoenix, AZ. The job cuts also reflect the completion of the manufacturing run of the AGT 1500 for the Army's M1 Abrams tank program.

AlliedSignal Engines Formed. In July 1993, AlliedSignal Aerospace announced the formation of a new business unit, AlliedSignal Engines, which combines the company's Propulsion Engines and Auxiliary Power businesses. AlliedSignal Engines will have two basic organizational components. Business Operations will serve customers with AlliedSignal's propulsion and auxiliary power products. Engineering and Manufacturing will be responsible for reorganizing these functions to increase the quality and reliability of products and services while reducing cycle time for product design, delivery and support. The new organization is headquartered in Phoenix, Arizona.

### **Mergers/Acquisitions/Divestitures**

JME Acquired. In August 1999, AlliedSignal completed its acquisition of Johnson Matthey Electronics (JME). AlliedSignal purchased JME for US\$655 million. JME, a leading supplier of materials to the semiconductor and microelectronics industries, will be part of AlliedSignal's Electronic Materials business.

AlliedSignal And Honeywell To Merge. In June 1999, AlliedSignal Inc and Honeywell Inc announced that they have signed a definitive merger agreement which will create a global technology company with revenues of \$25 billion and technical and product leadership across a wide range of industries. The merged company

will be known as Honeywell International and will be headquartered in Morristown, NJ, where AlliedSignal is now based. Honeywell's Minneapolis headquarters will be shut down after the merger closes. The companies have said that about 4,500 employees will be laid off due to the merger.

Under the terms of the agreement, each share of Honeywell common stock will be exchanged for 1.875 shares of AlliedSignal common stock. Based on 126 million Honeywell shares outstanding and AlliedSignal's current stock price, the transaction is valued at more than \$14 billion. The new company will also assume approximately \$1.5 billion of Honeywell debt. The transaction is expected to be tax-free to shareholders and will be accounted for as a pooling of interests. It is expected to close in the fourth quarter of 1999.

Lawrence A. Bossidy, Chairman and CEO of AlliedSignal, will be the new company's Chairman and, until his retirement on April 1, 2000, will focus on integrating the two companies. Michael R. Bonsignore, Chairman and CEO of Honeywell, will be the new company's Chief Executive Officer. The Board of Directors of the new company will be comprised of nine members from the current AlliedSignal Board and six members from the current Honeywell Board. Upon Bossidy's retirement, Bonsignore will become Chairman.

Reporting to Bonsignore will be two Chief Operating Officers: Robert D. Johnson, currently President and CEO of AlliedSignal's Aerospace organization, and Giannantonio Ferrari, currently Honeywell's President and Chief Operating Officer. Johnson will have responsibility for the combined aerospace operations headquartered in Phoenix, Arizona, which will be the new company's largest single segment with approximately \$10 billion in annual revenues. Ferrari will have responsibility for all of the other businesses of the combined company, which have total revenues of approximately \$15 billion: industrial controls, home and building controls, turbochargers and other transportation products, specialty chemicals, and performance polymers.

The new company's Aerospace organization will combine Honeywell's strengths in avionics with AlliedSignal's strengths in flight-safety products and systems to create a global provider of integrated solutions for all classes of aircraft. These broader customer channels, combined with AlliedSignal's strong aerospace aftermarket presence, should significantly increase the scope of the new company's aerospace businesses and position them for accelerated growth.

The companies expect to achieve annual cost savings of approximately \$500 million by rationalizing overhead costs, integrating research & development, and achieving procurement efficiencies. These savings are expected to begin immediately upon closing and to be fully realized by 2002. The combined company will have a work force of more than 120,000 employees after the integration is complete, reflecting the elimination of approximately 2,000 jobs within the first six months after closing and approximately 2,500 additional job reductions in the following year. Although Honeywell's Minneapolis headquarters offices will be closed, the new company will continue to have over 6,000 employees in the Twin Cities area and its commitments to the local community, including philanthropic programs, will be unaffected.

Raytheon Buys Communications Unit. In September 1998, Raytheon completed the purchase of AlliedSignal's Communications Systems unit for \$62.5 million. The purchase operation, based in Towson, Maryland, will become part of Raytheon System's Command, Control and Communications Systems.

Canaan Group Acquired. In August 1998, AlliedSignal acquired The Canaan Group Ltd, a leading aerospace management consulting firm, for an undisclosed amount. The Canaan Group will maintain its operational independence. Since its founding in 1986, the Canaan Group has established itself as a leading consultant in strategy development, market analysis and operations management for airlines, aerospace original equipment manufacturers and service providers.

AlliedSignal Makes Play for AMP. In August 1998, AlliedSignal commenced a tender offer for all of the approximately 220 million outstanding shares of AMP Incorporated at \$44.50 per share in cash, a premium of more than 55 percent. AMP, however, has resisted the takeover attempt and has initiated a poison-pill defense to stop AlliedSignal. So far AMP shareholders tendered 72 percent of their shares to Allied. Obtaining the shares, remains a huge challenge for the AlliedSignal, which said it would buy just 18 percent of AMP's outstanding shares. Allied can't buy all 72 percent because a poison-pill clause in AMP's shareholder rights plan prevents it from owning more than 20 percent of the company. In September, AMP amended the plan to reduce the figure to 10 percent. AMP pledged to keep the poison-pill clause intact until November 1999.

AMP is a manufacturer of electrical and fiberoptic connectors, eyelets, electronic sockets and insertion equipment which inserts connectors into circuit boards. The company also manufactures radio frequency and microwave devices, components, systems and equip-

ment for defense and commercial markets; and custom hybrid cable attenuators, connectors and adapters.

Controlling Stake in NGL Acquired. In June 1998, AlliedSignal completed its acquisition of a controlling interest in Normalair-Garrett Limited (NGL) from UK-based GKN plc for an estimated \$22.7 million. The agreement was originally announced on May 7, 1998. NGL manufactures environmental control systems for the aerospace industry. As part of the transaction, AlliedSignal also acquired from GKN 100 percent of Hermetic Aircraft International Corp, a Holtsville, New York-based repair and overhaul facility, for \$13 million. In 1997, sales for NGL totaled \$155 million and \$18.5 million for Hermetic. AlliedSignal now holds a 52 percent interest in NGL and has the option to acquire the remaining 48 percent interest (valued at \$105.9 million) on or after December 31, 1999. AlliedSignal has held a 48 percent stake in NGL since 1967. NGL, which is based in Yeovil, England, will become part of AlliedSignal's Aerospace Equipment Systems business, while Hermetic Aircraft will become part of AlliedSignal's Aerospace Marketing, Sales & Service business.

Skyforce Avionics Acquired. In May 1998, AlliedSignal acquired Skyforce Avionics, Ltd, a company that designs, manufactures and sells portable and panel-mounted moving map display systems for use in general aviation aircraft. Skyforce, a privately held company with engineering and production facilities in West Sussex, United Kingdom, had \$2 million in 1997 sales. Terms of the acquisition were not announced.

Banner Aerospace Unit Acquired. In December 1997, AlliedSignal Inc announced that it had agreed to acquire the Hardware Group and PacAero unit of Banner Aerospace, an independent distributor of aircraft hardware for \$345 million. Annualized 1997 sales of the Banner Aerospace operations to be acquired by AlliedSignal were approximately \$250 million, principally to commercial air transport and general aviation customers. The Banner Aerospace Hardware Group is a distributor of airframe fasteners and high precision and miniature bearings. Banner Aerospace's PacAero unit distributes adhesives, lubricants, coatings and other chemical products used on airframes. There are approximately 525 employees in the Banner Aerospace units to be acquired by AlliedSignal. More than 200 are located in El Segundo, California; about 140 at a distribution center in Salt Lake City, Utah; the remainder, at facilities located throughout the world.

"The integration of the two businesses, combined with AlliedSignal's marketing strengths, creates a \$400 million aftermarket aerospace hardware distribution business that will provide excellent bottom-line results,"

said Joe Leonard, president of AlliedSignal's Aerospace Marketing, Sales & Service business.

Ocean Systems Sold. In December 1997, L-3 Communications agreed to purchase AlliedSignal Electronics & Avionics Systems' Ocean Systems unit. Ocean Systems has annual revenues of approximately \$100 million, and is a supplier of surface and undersea products to the US Navy, foreign fleets and commercial navigation customers. Ocean Systems, headquartered in Sylmar, California, develops and produces acoustic undersea warfare systems, including airborne dipping sonar systems, surface ship sonar, hydroacoustic products, mine detection and neutralization products. L-3 Communications, headquartered in New York City, is an independent merchant supplier of secure communication systems and products, avionics, microwave components and telemetry, instrumentation and wireless products. Terms of the deal were not disclosed.

Aircraft Lighting Business Acquired. In June 1997, AlliedSignal announced that it would acquire Grimes Aerospace, a supplier of aircraft lighting systems. Grimes manufactures exterior and interior lighting systems, strobes, night vision imaging systems and power supplies. The company also provides flight warning computers, active matrix liquid crystal displays and windshield wiper systems. The company had annual sales of approximately \$230 million. The acquisition was completed in July 1997. Terms of the deal were not disclosed.

Two Auto Units Sold. Divesting what it considers non-core operations, AlliedSignal sold its seat belt and airbag businesses to Breed Technologies for \$710 million in September 1996.

Unit Sold to Bosch. In mid-1996, AlliedSignal announced the sale of its light-vehicle hydraulic and anti-lock brake system business to Robert Bosch GmbH of Germany for \$1.5 billion in cash. AlliedSignal officials said that they will use the proceeds from the sale to pursue acquisitions that would complement or expand the company's current business mix.

Precision Products Purchased. In August 1995, AlliedSignal purchased Northrop Grumman's precision products business for an undisclosed sum. The group was a part of Northrop Grumman's electronic and systems integration division. It develops inertial instruments and systems for military and space uses. Following a transition period of up to two years, AlliedSignal will relocate the operation to one of its own facilities, possibly in Cheshire, Connecticut.

Landing Gear Business Sold. In June 1995, AlliedSignal sold its aircraft landing gear business to

Coltec Industries for an undisclosed amount. The companies also agreed to form a long-term strategic partnership to develop aircraft landing systems.

Lycoming Turbine Engine Purchased. In May 1994, AlliedSignal and Textron signed a Memorandum of Understanding (MoU) for AlliedSignal to acquire the Lycoming Turbine Engine Division of Textron Incorporated for approximately \$375 million in cash plus the assumption of certain liabilities. "This acquisition is a major step forward in the growth of our aerospace business and furthers our strategy to increase the sales of our core businesses and strengthen them with top-quality acquisitions," said Lawrence A. Bossidy, AlliedSignal chairman and CEO. "It will help AlliedSignal grow its engine business profitably by extending our product offering into the larger 70-115-seat regional aircraft market; light, medium and heavy helicopters; and a variety of commercial and military applications for turbine engines." Textron Lycoming's 1993 sales were approximately \$620 million. AlliedSignal's engine business has approximately 6,000 employees, while Textron Lycoming's engine business has approximately 2,900 employees. The transaction was completed in October 1994.

Moog Buys Actuation Product Line. In June 1994, Moog completed its \$71 million acquisition of AlliedSignal's space actuation product lines. Product lines purchased include flight control actuator for commercial and military aircraft, including the Comanche helicopter, and flaps for commercial aircraft and military fighters, including the F-16 and F/A-18. Moog is expected to keep the business at its site in Torrance, California.

FBO Business Sold. In mid-1994, AlliedSignal announced plans to sell its turbine engine maintenance and services business to a corporation formed by current and former hangar operations managers. Per an agreement signed in mid-April, the new company will acquire five facilities – in Los Angeles, Houston, Springfield, Augusta, and Long Island – and continue to offer FBO services from these hangars. AlliedSignal will assist in parts and tech support.

Undersea Technology Business Acquired. In April 1994, AlliedSignal acquired the undersea technology business unit of Honeywell – the German-based ELAC-Nautik. ELAC designs, builds and markets sensors, echographs, survey systems and underwater communications equipment to customers in Germany and worldwide. ELAC had sales of \$30 million in 1993. ELAC will complement AlliedSignal's Ocean Systems unit, which produces ASW and mine warfare equipment, torpedo defenses and dipping sonars.

## Teaming/Competition/Joint Ventures

**Lockheed Martin.** In June 1999, AlliedSignal Technical Services Corporation teamed with Lockheed Martin Mission Systems, Gaithersburg, MD, to bid on the upcoming SpaceLift Range Support Contract Air Force procurement. The US Air Force Space and Missile Systems Center says the contract is expected to commence in early 2000, with a duration of seven-to-ten years. The AlliedSignal-Lockheed Martin team combines AlliedSignal Technical Service's widely recognized expertise in efficient, modern depot management and sustainment engineering with Lockheed Martin's strong background in systems integration and development engineering with spacelift range systems.

**MTU.** In June 1999, AlliedSignal and MTU München, a subsidiary of DaimlerChrysler Aerospace, agreed to form a \$100 million joint venture that will market, sell and provide customer support for AlliedSignal's current portfolio of aeroderivative industrial and marine gas turbines. Called Vericor Power Systems, the joint venture will further expand the gas turbine product line through the combined development and production efforts of AlliedSignal and MTU. The new company is anticipated to become operational in the fourth quarter of 1999. Earlier, in June 1998, AlliedSignal signed agreements with MTU Friedrichshafen and MTU Maintenance Berlin-Brandenburg to package, market, sell and provide integrated repair and overhaul services for AlliedSignal's ASE40, ASE50 and ASE120 gas turbine engines.

**Chinese Joint Ventures.** In October 1995, AlliedSignal and Aviation Industries of China (AVIC) signed a joint venture agreement to develop and produce civil aircraft environmental control systems in China.

In February 1996, the company agreed to form a joint venture with China Aviation Supplies Corp and Beijing Institute of Aeronautical Materials to make aircraft brakes in that country.

A plan to coproduce engines in China was dropped in late 1995 after the US Commerce Department warned that a request to export engine technology to China would be denied.

**Aviadvigatel.** In September 1995, AlliedSignal and Russia's Aviadvigatel agreed on a joint venture to undertake the design, manufacture, sale and support of a range of accessories and system for the PS-90 turboprop and its industrial derivatives. The joint venture will be in Perm and all plants engaged in manufacturing will be within Russia.

**Amherst.** In August 1995, AlliedSignal teamed with Amherst Systems to jointly develop portable electronic combat site testers to be used on the flight line, in

hangars and in maintenance shops. The team is looking to win the Air Force and Navy's Joint Services Electronics Combat System Tester program.

**Rubix.** In February 1995, AlliedSignal and Russia-based Aviation Corp Rubix formed a joint venture to produce and market wheels, brakes, and brake systems for commercial aircraft. The new venture, named Rubix, is equally owned by AlliedSignal and Rubix.

**HAL.** In September 1994, AlliedSignal and Hindustan Aeronautics Ltd signed a contract to service and repair AlliedSignal engines produced under license by HAL.

**Rockwell.** In September 1994, Rockwell and AlliedSignal teamed to pursue the avionics integration program for the Czech Republic's L-159 aircraft program.

**Sextant Avionique.** In August 1993, AlliedSignal and Sextant Avionique entered into discussion concerning a possible joint venture combining their commercial avionics businesses. The companies had been expected to finalize the transaction in late 1993. The US/French venture would have had commercial aircraft systems integration capabilities that would have rivaled those of Honeywell and Rockwell-Collins. AlliedSignal proposed placing its Florida-based Air Transport Avionics and Kansas-based General Aviation Avionics divisions – plus its newly acquired Sundstrand Data Control division – in the venture. The combination, which would have produced worldwide sales of around \$1 billion, would have been almost equal in size to Honeywell's commercial avionics business.

However, in February 1994, talks between the two companies were broken off. The key concern that halted talks lay in the complex structural requirements that would be involved if AlliedSignal integrated its commercial avionics business with Sextant's commercial and military operations. Despite the lack of a formal joint venture, the two companies are expected to continue to explore teaming opportunities in the commercial market.

**GEC-Marconi.** In July 1993, GEC Marconi and AlliedSignal Communications Systems were selected by the USAF as the Phase II contractor to supply the Millimeter Microwave Landing System Avionics (MMLSA). The first increment of funding of \$6.1 million out of \$13.3 million has been issued for the completion of development and the building of 34 units for full qualification testing and support of USAF validation tests. The development program will run for 36 months.

**AVCON.** In April 1993, AlliedSignal Aerospace Systems and Equipment signed a reciprocal licensing agreement

with AVCON (Advanced Control Technology), giving it access to AVCON's magnetic bearings. AlliedSignal plans to use AVCON's bearings in environmental control systems, auxiliary power units, laminar flow control compressors, starter generators and space electrical power generators.

**Chrysler Technologies.** In early 1993, Chrysler Technologies' Airborne Systems and AlliedSignal's Guidance & Control Systems unit were selected to provide an upgraded autopilot and cockpit system for the USAF's entire fleet of C-130 and C-141 transport aircraft. The base program is valued at \$250 million; however, the total worldwide potential for this upgrade is estimated at \$1 billion.

**NIIAO.** AlliedSignal Aerospace's Air Transport Avionics division signed a joint venture agreement with the National Institute of Airborne Avionics Equipment (NIIAO), Zhukovsky, Russia, for joint design, development, and manufacture of avionics. The joint venture company is named America Russian Integrated Avionics (ARIA). One of the major thrusts of the venture will be to develop a new multifunction LCD system for installation on Ilyushin Il-96s, Tupolev Tu-204s, and Ilyushin Il.114s. Installation could begin as early as 1994.

**International Turbine Engine Company (ITEC).** Headquartered in Phoenix, Arizona, the ITEC consists of the following manufacturing participants:

AlliedSignal Incorporated, AlliedSignal Aerospace Company, Garrett Engine Division, and Aero Industry Development Center (AIDC) in Taichung, Taiwan. This company's primary program is the Garrett TFE 1042/1088.

**CFE Company.** Headquartered in Phoenix, AZ, this joint venture company consists of the following manufacturers: GE Aircraft Engines, West Lynn, MA, and AlliedSignal Aerospace Company, and Garrett Engine Division. This venture is currently developing the GE/Garret CFE738 turbofan engine.

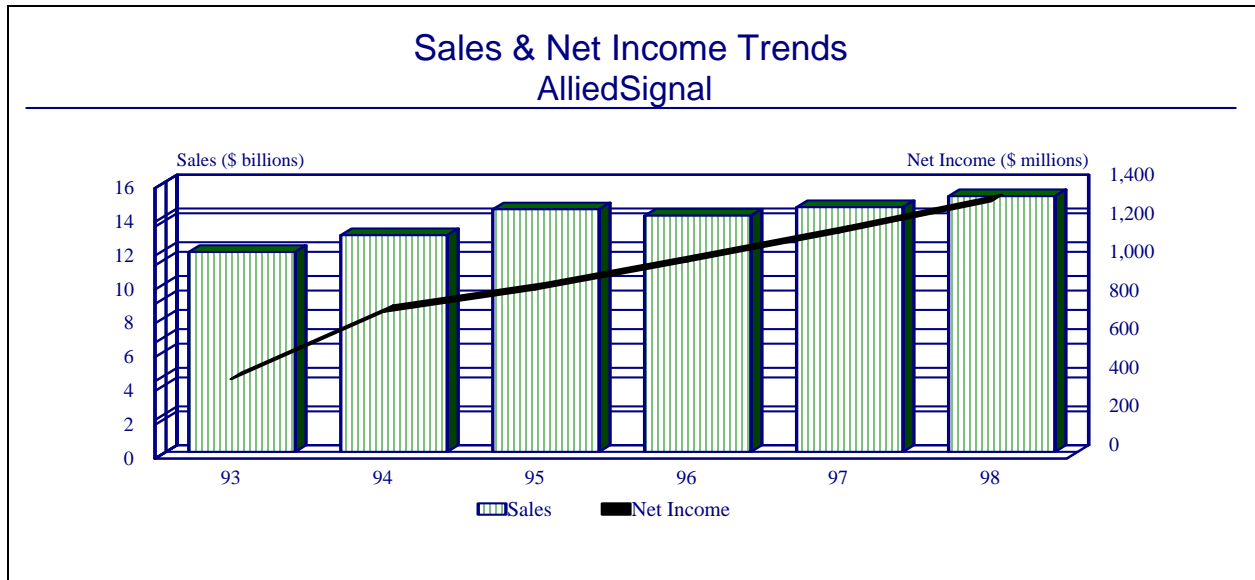
**Light Helicopter Turbine Engine Co (LHTEC).** Headquartered in St. Louis, MO, the LHTEC manufacturing team consists of AlliedSignal Aerospace Company, Garrett Engine Division and General Motors Corp, and Allison Gas Turbine Division, Indianapolis, IN. The primary programs are the LHTEC T800 engine for helicopters and the LHTEC Industrial T800 for industrial and marine use. The T800 is expected to power the Light Helicopter Experimental (LH). Following the development, the two companies will split and compete for potential future production awards.

## Financial Results/Corporate Statistics

Net sales in 1997 totaled \$14.47 billion, up 4 percent from sales of \$13.97 billion the previous year. The lower sales during 1996 were attributed to the sale of the braking business. The company posted record net income of \$1.17 billion for 1997, compared to \$1.02 billion in 1996. During 1992, the impact of SFAS No. 106 resulted in an after-tax provision of \$23 million and the impact of SFAS No. 109 was an after-tax provision of \$2 million. As part of the adoption, AlliedSignal recorded "catch-up" charges of \$1.25 billion related to SFAS No. 106, which resulted in a loss for that year. Financial results for 1993 - 1998 are given below.

Y/E December 31	1993	1994	1995	1996	1997	1998
(\$ millions)						
Net Sales	11827	12817	14346	13971	14472	15128
Percent Govt (DoD)	9	8	8	8	9	9
Net Income	411	759	875	1020	1170	1331
Backlog	4773	4730	4523	4514	5087	5012
R&D Expenditures	313	318	353	345	349	394



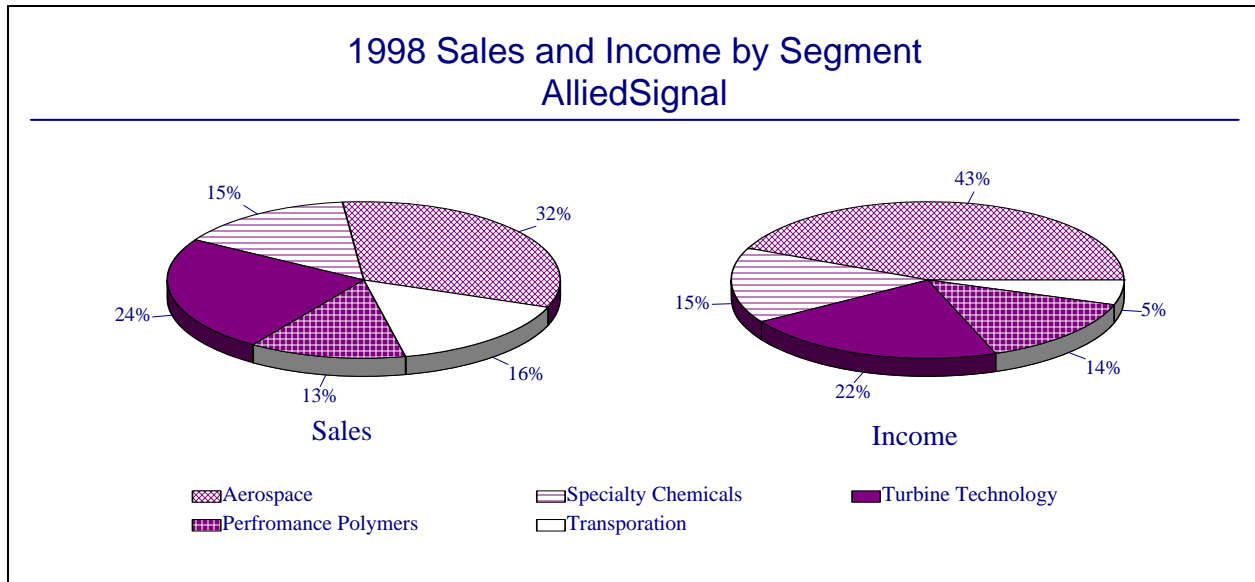


**Industry Segments**

A breakdown of the firm's sales and net income by business segment for 1996 - 1998 is given below.

<b>SALES</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)			
Aerospace Systems	3635	4117	4871
Specialty Chemicals	2117	2218	2241
Turbine Technologies	2775	3111	3638
Performance Polymers	1888	2030	1928
Transportation Products	3539	2983	2441
Corporate	17	13	9
<b>TOTAL</b>	<b>13971</b>	<b>14472</b>	<b>15128</b>

<b>OPERATING INCOME</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)			
Aerospace Systems	469	608	920
Specialty Chemicals	355	326	327
Turbine Technologies	264	401	458
Performance Polymers	211	215	307
Transportation Products	280	194	106
Corporate	-88	-97	-156
<b>TOTAL</b>	<b>1491</b>	<b>1647</b>	<b>1962</b>



### Strategic Outlook

As the waves of consolidation rippled through second tier contractors, AlliedSignal and Honeywell announced their plans to merge into a \$25 billion avionics giant. The complementary acquisition follows the trend toward becoming a “total supplier solution” with AlliedSignal products filling the gap in Honeywell’s avionics portfolio.

The merger is the latest in a series of mergers and acquisitions among system suppliers. Earlier deals include TRW’s acquisition of LucasVarity, BFGoodrich’s purchase of Coltec, and United Technologies merger with Sundstrand.

Unlike the giant mergers of Lockheed Martin and Raytheon, these smaller deals are expected to have more strength in the long run. Thanks to more focused product lines, these new second tier leaders are expected to avoid the stumbling their giant compatriots are currently facing.

The new AlliedSignal/Honeywell will be especially strong in the avionics, engines, and aircraft equipment markets following consummation of the agreement. Although the new entity will take the Honeywell name, AlliedSignal is the driving force behind the deal and will issue the stock that will be exchanged for Honeywell shares. The new corporate name of Honeywell International was taken due to its strong market recognition.

The merger is moving along and is expected to be completed by year end or in early 2000, once it meets all the necessary regulatory approvals. So far the US Justice Department has approved the merger if the

companies divest certain portions of their aviation electronics businesses. Under the conditional approval, Honeywell must divest its traffic alert and collision avoidance system business, and AlliedSignal will divest its search and surveillance weather radar product lines; space and navigation business; operations in Cheshire, CT; and MEMS microSCIRAS guidance technology. The areas accounted for about \$250 million in 1998 revenues. The divestitures would represent only about 1 percent of overall revenues of the combined company and, according to both companies, would not have a significant impact on future earnings.

The agreement in principle with US regulators leaves only one regulatory approval to be cleared before the merger can be completed. The companies are still working with the European Union Commission to obtain clearance. The European Union Commission has until late December to decide whether it will require changes in the alliance.

The current reasoning is that the EU may require AlliedSignal to divest some of its avionics business units as a condition for approval. AlliedSignal officials stated that the company is prepared to divest some overlapping businesses in order to pass muster. The company feels that any required divestitures would probably be less the \$300 million in sales.

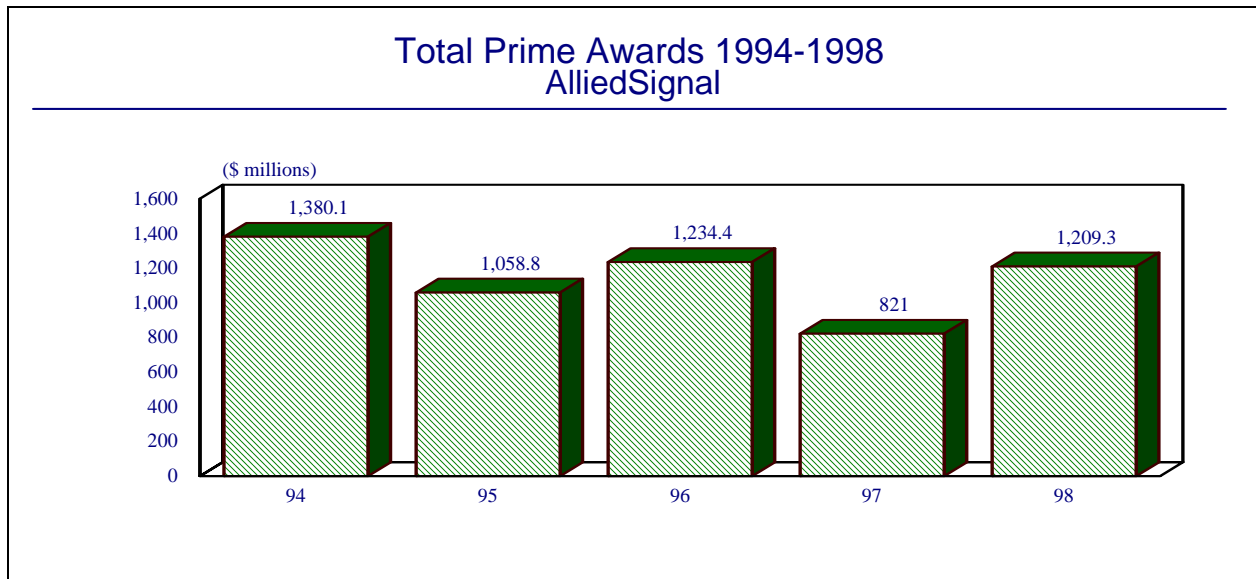
In hindsight, the merger of Honeywell and AlliedSignal is something that should have occurred long ago. By combining the strength of Honeywell’s cockpit systems

with AlliedSignal's prowess in flight-safety products and systems, the new Honeywell International should be a formidable one-stop supplier for aircraft prime manufacturers.

### Prime Award Summary

AlliedSignal's five-year summary of awards by customer from 1994 - 1998 is given below. Zeroes indicate awards, if any, of less than \$50,000.

(\$ millions)	1994	1995	1996	1997	1998
AIR FORCE	163.8	176.8	169.0	159.0	251.4
ARMY	72.7	69.5	71.3	79.7	237.0
CORPS OF ENGINEERS	0.9	0.0	0.0	0.0	0.1
DARPA	0.4	0.7	0.0	0.0	0.0
DEFENSE AGENCIES	0.0	0.0	0.0	2.9	3.1
DEF LOGISTICS AGENCY	11.3	17.5	30.5	43.5	61.8
DEPT OF COMMERCE	0.0	0.0	0.0	0.5	0.4
DEPT OF ENERGY	727.5	622.2	590.9	3.1	0.0
DEPT OF JUSTICE	0.4	0.3	0.3	0.7	0.6
DEPT OF THE INTERIOR	0.0	0.3	0.4	2.8	1.0
DEPT OF TRANSPORTATION	12.2	10.1	13.7	11.7	28.9
GENERAL SERVICES ADMIN	2.3	0.2	0.2	2.8	2.6
NASA	263.7	64.2	224.4	341.9	384.1
NAVY	124.9	97.0	133.7	172.4	238.2
TVA	0.0	0.0	0.0	0.0	0.1
<b>TOTAL</b>	<b>1380.1</b>	<b>1058.8</b>	<b>1234.4</b>	<b>821.0</b>	<b>1209.3</b>



A summary of awards by key location within major geographical areas and by customer, with dollars in millions, is reported below. Zeroes indicate awards, if any, less than \$50,000.

**EASTERN REGION**

<b>Teterboro, NJ</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)					
AIR FORCE	12.8	25.7	11.7	8.4	6.3
ARMY	10.0	8.9	5.0	15.8	18.7
DEF LOGISTICS AGENCY	0.5	1.6	2.4	2.3	6.5
DEPT OF TRANSPORTATION	0.0	0.0	0.0	0.0	0.6
NAVY	23.3	5.4	7.5	0.2	0.2
<b>TOTAL</b>	<b>46.6</b>	<b>41.6</b>	<b>26.6</b>	<b>26.7</b>	<b>32.3</b>

<b>Baltimore, MD</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)					
AIR FORCE	17.1	20.2	8.4	9.1	8.2
ARMY	20.8	24.3	20.2	0.1	0.0
DEFENSE AGENCIES	0.0	0.0	0.0	0.0	0.1
DEPT OF TRANSPORTATION	6.7	1.8	6.9	0.1	0.1
NAVY	16.2	14.2	1.9	0.4	0.0
<b>TOTAL</b>	<b>60.8</b>	<b>60.5</b>	<b>37.4</b>	<b>9.7</b>	<b>8.4</b>

<b>Columbia, MD</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)					
AIR FORCE	0.0	23.6	42.5	63.5	69.8
DEPT OF COMMERCE	0.0	0.0	0.0	0.5	0.4
NASA	11.1	2.3	8.2	10.8	9.6
NAVY	0.0	4.8	0.0	14.3	3.0
<b>TOTAL</b>	<b>11.1</b>	<b>30.7</b>	<b>50.7</b>	<b>89.1</b>	<b>82.8</b>

**CENTRAL REGION**

<b>South Bend, IN</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)					
AIR FORCE	36.0	17.7	13.7	17.3	19.7
ARMY	0.1	0.2	0.2	0.9	2.4
DEF LOGISTICS AGENCY	0.0	0.4	0.3	0.5	0.4
NAVY	10.5	9.3	13.0	4.8	9.1
<b>TOTAL</b>	<b>46.6</b>	<b>27.6</b>	<b>27.2</b>	<b>23.5</b>	<b>31.6</b>

<b>Kansas City, MO</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)					
DEPT OF ENERGY	727.5	480.9	589.9	0.0	0.0
GENERAL SERVICES ADMIN	2.1	0.0	0.0	2.4	2.6
<b>TOTAL</b>	<b>729.6</b>	<b>480.9</b>	<b>589.9</b>	<b>2.4</b>	<b>2.6</b>

**WESTERN REGION**

<b>Torrance, CA</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)					
AIR FORCE	24.1	5.4	9.4	6.3	0.0
ARMY	3.8	3.7	3.7	1.3	0.8
DARPA	0.4	0.7	0.0	0.0	0.0
DEF LOGISTICS AGENCY	2.2	2.1	0.1	1.6	5.6
DEPT OF ENERGY	0.0	0.0	0.2	0.0	0.0
DEPT OF TRANSPORTATION	0.9	0.0	0.2	0.0	0.0
NASA	0.5	1.4	5.2	0.8	0.7
NAVY	11.9	7.7	5.6	1.0	0.8
<b>TOTAL</b>	<b>43.8</b>	<b>21.0</b>	<b>24.4</b>	<b>11.0</b>	<b>7.9</b>
<b>Phoenix, AZ</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
(\$ millions)					
AIR FORCE	34.1	43.3	31.4	23.1	33.8
ARMY	12.0	9.9	15.2	18.6	148.5
DEF LOGISTICS AGENCY	3.8	4.2	15.1	13.7	8.1
DEPT OF ENERGY	0.0	0.0	0.8	3.1	0.0
DEPT OF TRANSPORTATION	0.2	3.4	3.2	1.0	2.8
NASA	1.8	-0.1	5.2	5.3	6.7
NAVY	21.8	8.4	31.4	3.9	2.4
<b>TOTAL</b>	<b>73.7</b>	<b>69.1</b>	<b>102.3</b>	<b>68.7</b>	<b>202.3</b>

**Program Activity**

Some important aerospace and government programs currently under way at AlliedSignal 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:

- Defense Electronics
- ASW
- Avionics
- C3I Systems
- Electronic Warfare
- Radar
- Sensors
- Engines
- Ordnance Systems
- Space Systems
- Systems Integration
- Unmanned Vehicles

**Electronic Programs**

**(Airborne Electronics)**

**Airborne Windshear Detection Systems**

This FAA/NASA Airborne Windshear Sensors Program is a joint cooperative one between the US government and industry to reduce the threat of hazardous wind shear to aviation. AlliedSignal produces the RDR-4B Weather Radar System which has Forward-Looking Windshear Detection/Avoidance capability.

**ARN-123**

The ARN-123 is a VHF omni range (VOR) and instrument landing system (ILS) consisting of a 200channel solid-state VOR/LOC remote-mounted receiver, a 40-channel glide-slope receiver and marker-beacon receiver, and a cockpit control/display unit. Production is continuing.

**APN-169(V)**

The APN-169(V) is an airborne, station-keeping radar for C-130, C-141, and C-17 aircraft. AlliedSignal provides engineering services for this system. APN-169C production continues to support C-130H production and retrofit units to replace older equipment. APN-169E production will support the C-17.

**APS-133(V)**

The APS-133 is an airborne digital color weather radar. The system is in service and production.

**APX-100(V)**

The APX-100 is an airborne IFF transponder compatible with Mk XII IFF systems. The system is applicable to various military fixed- and rotary-wing aircraft. Production is ongoing.

**ARC-199**

The ARC-199 is an airborne high-frequency (HF) radio designed for airborne tactical communications. Production has been completed.

**ARC-200**

This is a high-frequency transmitter and receiver designed for use on F-16 ADF and F/A-18 aircraft. It is in production.

**MLS Avionics**

Microwave Landing System (MLS) avionics consists of MLS receivers, antennas, and control and display instruments. AlliedSignal produces civil/general aviation receivers. The company is also teamed with GEC-Marconi on MMLSA Phase II development.

**(ASW)****AQS-13F/ALFS**

This is the standard dipping sonar used by carrier-based Anti-Submarine Warfare (ASW) helicopters. Due to the solid record the system has built up, both for performance and sales, it is still expected to do well through the turn of the century in terms of continued production and spares activity.

**AQS-18**

The AQS-18 is a lightweight dipping sonar used to detect submarines by naval helicopters based aboard destroyers and frigates. The system was privately developed by AlliedSignal. As the export version of the AQS-13F, sales are expected to remain somewhat stable.

**HELTRAS**

The HELTRAS (Helicopter Long-Range Active Sonar) is a large, long-range sonar system for the detection of submarines and other underwater objects. HELTRAS is currently being used aboard the Italian Navy's EH-101 PPS-6. It is estimated that one installation system and two demonstration models have been built through 1996.

**MK 50 "Barracuda" Torpedo**

The Mk 50 ALWT (Advanced Lightweight Torpedo), "Barracuda," is a lightweight, air/surface launched,

ASW torpedo. AlliedSignal produces the after-body section of this weapon.

**SQR-19**

This is a Tactical Towed Array Sonar (TACTAS) system used on the following ships: CG-47 Ticonderoga class guided-missile cruisers; DDG-51 Arleigh Burke class destroyers and DD-963 Spruance class destroyers; FFG-7 Perry class frigates (USA, Spain); and Halifax class frigates (Canada). The system is in production and operational service.

**(C3I)****TRI-TAC**

TRI-TAC is a tri-service tactical communications system. The program apparently is also being referred to as the Multi-Service Communications System (MSCS). AlliedSignal is working on the KG-84 COMSEC portion of this program.

**(Electronic Systems)****TCAS**

The Traffic Alert and Collision Avoidance System is an air-to-air anti-collision system. The International Civil Aviation Organization (ICAO) refers to this system as ACAS (Airborne Collision Avoidance System). AlliedSignal is working on both TCAS I and II.

**(Land & Sea-Based Electronics)****Precision Runway Monitor**

This is the ESSR-128 Runway Monitoring Secondary Surveillance Radar (PRM). The system is designed for air traffic control of parallel runway operations.

**Engine Programs****Advanced Turbine Engine Gas Generator (ATEGG)**

This is an R&D program that examines the ongoing design, development, and evaluation of turbine engine gas generators and related components for transition into systems development. AlliedSignal Engines is one of several contractors involved with this program.

**AlliedSignal ASE8**

This is a single-shaft, open-cycle, centrifugal-flow constant-speed aviation derivative industrial and marine gas turbine machine. Primary uses include electric power generation (to include small-scale cogeneration and marine auxiliary power generation); and mechanical drive (to include duty as compressor and pump drivers). AlliedSignal Engines is the prime contractor.

**AlliedSignal AGT 1500**

This is a two-spool, axial-centrifugal-flow, recuperative vehicular gas turbine engine used on heavy tracked military vehicles such as the M1 Abrams tank. As of the start of 1995, slightly over 12,600 AGT 1500 engines and equivalents had been built for all M1 tank variants. Production ended in 1995.

**AlliedSignal Engines T55 (Turboshaft)**

This is a two-shaft axial-centrifugal flow free turbine aviation turboshaft engine for medium-lift military and commercial helicopters.

**AlliedSignal JFS 190**

This is a single-shaft gas turbine jet fuel starter/auxiliary hydraulic power unit for heavy fighter/attack aircraft. It is currently in production.

**AlliedSignal LF507**

This is a two-shaft axial-centrifugal flow turbofan engine family designed for regional and commuter jet airliner aircraft in the 30- to 100-seat class, or military variants thereof.

**AlliedSignal LTS101**

This is a two-shaft axial-centrifugal flow free turbine turboshaft engine designed for commercial and military helicopters in the 4 metric-ton class.

**AlliedSignal Model 36**

The Model 36 is a small single-shaft centrifugal-flow gas turbine/APU-GPU machine. Applications include commercial and military Airborne Auxiliary Power Units (APUs), Ground Power Units (GPUs), and vehicular power generation.

**AlliedSignal Model 85**

This is a single-shaft centrifugal-flow gas turbine machine designed as an airborne APU power unit for various transport aircraft and as a Ground Power Unit (GPU) for military and civil applications. The system is in production.

**AlliedSignal Model 131**

This is a single-shaft axial-centrifugal flow bleed air gas turbine machine/Auxiliary Power Unit (APU). Initial application was heavy military transport/bomber aircraft; recent applications include medium-weight commercial transport aircraft. This APU is in production.

**AlliedSignal Model 165**

The 165 is a single-shaft centrifugal-flow turboshaft engine/APU designed for heavy fixed-wing aircraft. The unit is in low-level production.

**AlliedSignal Model 331**

This is a single-shaft centrifugal-flow gas turbine machine/APU designed for heavy fixed-wing commercial and military aircraft. The unit is in Series production.

**AlliedSignal Model 700**

This is a large twin-spool axial-centrifugal-flow gas turbine/APU machine for heavy fixed-wing commercial and military aircraft.

**AlliedSignal RE100**

This is a new single-shaft centrifugal-flow gas turbine/APU machine designed for auxiliary power generation, targeted for the new generation of small, light-to-medium-weight business/executive jet-powered aircraft. Secondary and/or ground power applications may follow. Several preproduction-standard RE100 machines are assumed to have been fabricated to date.

**AlliedSignal RE220**

This is an advanced-technology modular-design single-shaft centrifugal flow integral-bleed gas turbine APU machine designed for high-end business/corporate jet aircraft and the 70-130-seat regional airliner market. Development work started in 1993 by AlliedSignal and its early partners. First production-standard APUs were delivered in July 1995.

**AlliedSignal T53 (Turboshaft)**

This is a two-shaft axial-centrifugal flow free turbine turboshaft engine for light civil and military helicopters. The engine is in production in the USA and Japan.

**AlliedSignal TF/ASE40/50**

This is a twin-shaft (and single-shaft), axial-centrifugal flow, industrial and marine gas turbine engine used in electric power generation; mechanical drivers, to include pumping and compression; and marine propulsion. Work specifically related to the ASE40 was undertaken solely by AlliedSignal Incorporated, perhaps from concepts formulated by the former Avco Lycoming Division. The ASE/TF40 remain in series production.

**AlliedSignal TFE 731**

The TFE 731 is a two-shaft axial-centrifugal-flow geared aviation turbofan engine. The engine is intended for light commercial transport aircraft and business jets and light military trainer/trainer-attack aircraft. It is in production.

**AlliedSignal TFE 1042/1088**

This is a two-shaft low-bypass-ratio geared aviation turbofan engine family designed for light- to medium-weight military fighter, trainer aircraft, and light civil aircraft. The prime manufacturer/contractor is officially the International Turbine Engine Company (ITEC),

Phoenix, Arizona, USA, though AlliedSignal Engines (i.e., historically, Garrett) is considered to be the originator of this engine design. ITEC consists of the following manufacturing participants: AlliedSignal Engines and Aero Industry Development Center (AIDC), Taichung, Taiwan.

### AlliedSignal TPE 331/TPF 351

This is a single-shaft centrifugal-flow turboprop engine Series. The TPF 351 is a free-turbine turboprop. Military variants of the TPE 331 are designated T76. Applications include fixed-wing commuter, corporate, and military aircraft and light general aviation aircraft. It is in Series production.

### CFE Company CFE738

This is a two-spool axial-centrifugal high-bypass-ratio aviation turbofan engine. The primary manufacturer/contractor is CFE Company, Phoenix, AZ. Manufacturing companies in the CFE Company include General Electric Company USA, GE Aircraft Engines, West Lynn, MA, and AlliedSignal Engines, Phoenix, AZ. The engine is in the last stages of engineering development. FAA Certification was obtained in the first quarter of 1994. JAA certification aboard Dassault Falcon 2000 occurred in September 1994.

### Integrated High Performance Turbine Engine Technology Program (IHPTET)

This is an ongoing all-encompassing development and evaluation of aero engine advanced technology to the point at which it can be incorporated into Demonstration/Validation (Dem/Val) or Full-Scale Development (FSD) programs. AlliedSignal Engines is one of several contractors involved with this program. The program was begun in FY89, incorporating much of the Joint Technology Demonstrator Engine (JTDE) Program structure and tasks. Phase I completed.

## US Contract Awards

Below is a listing of major contracts awarded to AlliedSignal from the United States government in the past three years (contracts as of press date).

<u>Date</u>	<u>Awards</u> <u>(\$ millions)</u>	<u>Contract #</u>	<u>Description</u>
<b>1997</b>			
3/26/97	\$20.6	N68936-97-C-0166	Retrofit conversion of 24 MQM-8X fleet and MQM-8G standard vandal targets into MQM-8G extended range targets.
5/22/97	\$22.8	F41608-97-D-0534	Overhaul of 258 central gear boxes and 156 jet fuel starters in support of F-15 aircraft.
8/1/97	\$8.8	F41608-97-D-0706	Forty-four 85-185L APUs and 37 installation kits applicable to the MC-130H and AC-130 U aircraft.
8/28/97	\$27.0	DAAE30-97-C-1087	Engineering & manufacturing development of a mortar fire

### Joint Turbine Advanced Gas Generator (JTAGG)

This is an R&D effort involving the design, development, and evaluation of turbine gas generators of varying sizes. AlliedSignal Engines is one of several contractors involved with this program. Program was begun in FY87. The overall effort is ongoing.

### LHTEC CTP800

This is an advanced-technology centrifugal-flow free turbine turboprop engine designed for light/medium commercial and military fixed-wing aircraft. This program is in Full-Scale Engineering Development.

### LHTEC T800

This is an advanced-technology centrifugal-flow free turbine turboshaft engine designed for use on light commercial and military helicopters. The prime contractor/manufacturer is LHTEC (Light Helicopter Turbine Engine Co), St. Louis, MO. The LHTEC manufacturing team consists of AlliedSignal Engines, Phoenix, AZ, and General Motors Corp, Allison Engine Company, Indianapolis, IN.

### LHTEC Industrial T800

This is an advanced-technology free turbine industrial and marine (aero-derivative) gas turbine. The prime contractor/manufacturer is LHTEC (Light Helicopter Turbine Engine Co), St. Louis, MO. For industrial and marine applications, the machine is considered production-ready at this time.

### Ordnance Programs

#### 227 mm Multiple Launch Rocket System

The MLRS is a tracked multiple-launch rocket system. AlliedSignal supplies the stabilization reference platform. The 227-millimeter Multiple Launch Rocket System is in serial production in the United States.



<u>Date</u>	<u>Awards (\$ millions)</u>	<u>Contract #</u>	<u>Description</u>
9/26/97	\$9.7	N00383-95-G-M120	control system. Improvement to the air flow multiplier systems of the P-3 aircraft.
9/26/97	\$10.9	F42630-97-C-0279	Nine line items of wheel and brake components in support of the C-17 aircraft.
12/19/97	\$13.4	DAAH03-98-C-0028	42 CH-47 engine conversion kits and 42 CH-47 engine fielding kits.
12/23/97	\$17.9	?	Spare parts for the AGT1500 tank engine.
12/23/97	\$6.6	N00024-96-C-6214	Incorporation of acoustic modules for the SSN-688 Los Angeles class attack submarine.
<b>1998</b>			
2/19/98	\$39.1	DAAH10-98-C-0023	R&D of the tri-service program to further develop the JTAGG.
2/24/98	\$12.7	F41608-98-D-0229	Repair & overhaul of 1,115 unified fuel controls to the F-100-PW 100 & 200 engines on the F-15 and F-16 aircraft.
3/20/98	\$6.7	N00024-96-C-6214	Incorporate upgrades to the TB-23 towed array.
5/27/98	\$18.4	F33615-98-C-2803	R&D for the Joint Turbine Advanced Gas Generator (JTAGG) III program.
6/25/98	\$15.4	F41608-98-D-0250	426 mounted accessory drives applicable to the F-15 aircraft.
7/29/98	\$34.4	DAAH23-98-C-0028	70 conversion kits and 70 engine fielding kits.
8/14/98	\$5.7	N00421-98-C-1270	Logistics services for LAMPS Mk III/SRQ-4 data link.
8/18/98	\$7.4	F33615-98-C-2804	Joint Expendable Engine Concepts II R&D program.
9/28/98	\$11.8	DAAH23-98-D-0138	500 anti-icing valve assemblies.
9/29/98	\$13.6	DAAJ09-97-D-0148	600 AH-64 clutch assembly APUs.
9/30/98	\$12.3	DAAE07-98-C-0033	Long lead materials in support of the Anniston Army Depot.
9/30/98	\$6.1	N000383-95-G-M120	Improvement of APU of the P-3 aircraft.
<b>1999</b>			
4/1/99	\$5.2	N00024-99-D-04035	Engineering services in support of the TF40B component improvement program.
4/6/99	\$9.9	N65236-99-D-6706	Support services for C4I programs and projects.
4/12/99	\$13.4	F41608-99-D-0219	Repair of components of the avionics intermediate shop in support of the F-15 aircraft.
4/28/99	\$5.8	N65236-99-D-3813	logistic support on a wide variety of electronic equipment on various ships.
5/6/99	\$9.7	F19628-99-D-0013	Engineering services to support the installation of TCAS in various aircraft.
5/13/99	\$23.4	N00173-99-C-2025	R&D in support of the Space Systems Development Department.
5/26/99	\$15.1	DAAH23-98-C-0028	70 T55-L-712 engine conversions to T55-GA-714A configuration.
6/17/99	\$57.1	DAAH23-99-C-0094	T65L to T55-GA-714A engine upgrade for 73 CH-47D helicopters.
6/17/99	\$5.1	N00383-95-G-M120	42 turbines to be used on the T55 engine for the CH-47 helicopter.

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