

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(X) ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 1999

or
() TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from
to

Commission file number
1-3229

NORTHROP GRUMMAN CORPORATION
(Exact name of registrant as specified in its charter)

DELAWARE
(State or other jurisdiction of
incorporation or organization)

95-1055798
(I.R.S. Employer
Identification No.)

1840 Century Park East
Los Angeles, California
(Address of principal executive offices)

90067
(Zip Code)

Registrant's telephone number, including area code (310) 553-6262

Securities registered pursuant to Section 12(b) of the Act:

Title of each class
Common Stock, \$1 par value

Name of each exchange
on which registered
New York Stock Exchange
Pacific Stock Exchange

Securities Registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes

No

-

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

As of February 14, 2000, 69,733,243 shares of Common Stock were outstanding, and the aggregate market value of the Common Stock (based upon the closing price of the stock on the New York Stock Exchange) of the Registrant held by nonaffiliates was approximately \$3,225 million.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement for the 2000 Annual Meeting of Stockholders.
Part III

PART I

Item 1. Business

Northrop Corporation was incorporated in Delaware in 1985. In 1994, the company purchased the outstanding common stock of Grumman Corporation and, effective May 18, 1994, Northrop Corporation was renamed Northrop Grumman Corporation. Northrop Grumman is an advanced technology company operating in the Integrated Systems and Aerostructures (ISA), Electronic Sensors and Systems (ESS), and Information Technology (Logicon) segments of the broadly defined aerospace and defense industry. The ISA segment includes the design, development and manufacturing of aircraft and aircraft subassemblies. The ESS segment includes the design, development, manufacturing and integration of electronic systems and components for military and commercial use. Logicon, the company's information technology segment, includes the design, development, operation and support of computer systems for scientific and management information.

Additional information required by this Item is contained in Part II, Item 7 of this Annual Report on Form 10-K.

Item 2. Properties

The major locations, general status of the company's interest in the property, and identity of the industry segments that use the property described are indicated in the following table.

Location -----	Property Interest -----
Annapolis, Maryland (2) (b) (e)	Owned, Leased
Arlington, Virginia (2) (3) (4) (a) (c)	Leased
Baltimore, Maryland (2) (3) (a) (c) (e)	Leased
Belcamp, Maryland (2) (a)	Leased
Benton, Pennsylvania (2) (b)	Leased
Bethpage, New York (1) (2) (a) (b) (c) (d) (e)	Owned
Bohemia, New York (3) (a)	Owned, Leased
Bremerton, Washington (2) (e)	Leased
Bridgeport, West Virginia (2) (b)	Owned
Burlington, Canada (2) (b)	Owned
Calverton, New York (1) (a) (d) (e)	Owned
Carson, California (1) (c)	Leased
Chandler, Arizona (1) (b)	Owned
Chesapeake, Virginia (1) (3) (a)	Leased
Cincinnati, Ohio (2) (b)	Leased
Clearfield, Utah (1) (c)	Leased
Cleveland, Ohio (1) (2) (a) (b)	Owned, Leased
Colorado Springs, Colorado (3) (a)	Leased
Compton, California (1) (c) (e)	Owned, Leased
Dahlgren, Virginia (3) (a)	Leased
Dallas, Texas (1) (a) (b) (c) (d) (e)	Owned
El Segundo, California (1) (a) (b) (c) (d) (e)	Owned, Leased
Elk Grove Village, Illinois (2) (c)	Leased
Elkridge, Maryland (2) (c) (d)	Leased
Fairfax, Virginia (3) (a)	Leased
Falls Church, Virginia (3) (a)	Leased
Fort Tejon, California (1) (d)	Owned
Grand Prairie, Texas (1) (a) (b) (c) (d) (e)	Owned, Leased
Hagerstown, Maryland (2) (e)	Leased
Hawthorne, California (1) (2) (4) (a) (b) (c) (d) (e)	Owned, Leased
Herndon, Virginia (3) (a) (c)	Leased
Hicksville, New York (1) (a) (d) (e)	Owned, Leased
Hunt Valley, Maryland (2) (a) (b) (e)	Owned, Leased
Huntsville, Alabama (2) (3) (a) (b) (c) (e)	Leased
Jacksonville, Florida (1) (a) (c) (d) (e)	Leased
Knoxville, Tennessee (2) (3) (a)	Leased
Lake Charles, Louisiana (1) (a) (b) (c) (e)	Owned, Leased
Lexington, South Carolina (1) (c)	Owned
Linthicum, Maryland (1) (2) (a) (b) (c) (e)	Owned, Leased
Los Angeles, California (3) (4) (a)	Leased

NORTHROP GRUMMAN CORPORATION

Melbourne, Florida (1) (a) (b) (c) (e)	Owned, Leased
Melville, New York (2) (d)	Leased
Milledgeville, Georgia (1) (a) (b) (c) (d) (e)	Owned, Leased
New Town, North Dakota (1) (b) (c)	Owned, Leased
Newport News, Virginia (3) (a)	Leased
Northfields, United Kingdom (2) (a)	Leased
Norwalk, Connecticut (2) (b)	Leased
Palmdale, California (1) (a) (b) (c) (d) (e)	Owned, Leased
Perry, Georgia (1) (a) (b) (c) (e)	Leased
Pico Rivera, California (1) (a) (b) (d) (e)	Owned, Leased
Pittsburgh, Pennsylvania (2) (d)	Leased
Point Mugu, California (1) (a) (b) (c) (e)	Owned, Leased
Reston, Virginia (3) (a)	Leased
Rolling Meadows, Illinois (2) (3) (a) (b) (c) (e)	Owned, Leased
San Diego, California (1) (2) (3) (a) (b) (c)	Owned, Leased
San Pedro, California (3) (a) (c) (e)	Leased
Santa Isabel, Puerto Rico (2) (b)	Leased
St. Augustine, Florida (1) (a) (b) (c) (e)	Owned, Leased
Stuart, Florida (1) (a) (b) (c) (e)	Leased
Sunnyvale, California (2) (3) (a) (b)	Owned, Leased
Sykesville, Maryland (2) (b)	Owned
Tacoma, Washington (3) (a)	Leased
Torrance, California (1) (3) (a) (b) (c) (e)	Owned, Leased
Warner Robins, Georgia (1) (2) (3) (a) (c)	Owned, Leased
Woodland Hills, California (2) (a)	Leased

Following each described property are numbers indicating the reporting segments utilizing the property:

- (1) Integrated Systems and Aerostructures
- (2) Electronic Sensors and Systems
- (3) Logicon
- (4) General Corporate Asset

Following each described property are letters indicating the types of facilities located at each location:

- (a) office
- (b) manufacturing
- (c) warehouse
- (d) research and testing
- (e) other

Government-owned facilities used or administered by the company consist of 8 million square feet at various locations across the United States.

The company believes its properties are well-maintained and in good operating condition. Under present business conditions and the company's volume of business, productive capacity is currently in excess of requirements.

Item 3. Legal Proceedings

U.S. ex rel Jordan v. Northrop Grumman Corporation

In October 1999, the company was served with a fifth amended complaint that was filed by the government in the U.S. District Court for the Central District of California in this action which was commenced in May 1995. The complaint alleges that the company violated the False Claims Act by knowingly supplying BQM-74C aerial target drones that contained various defective components between 1992 and 1995. The government seeks to recover damages up to \$139,860,632 under theories of fraud, payment by mistake, unjust enrichment, breach of warranty and breach of contract and penalties up to \$3,380,000. The company intends to vigorously defend this matter.

Zabielski and related cases

In July and August 1998, three shareholder derivative lawsuits, respectively encaptioned Zabielski v. Kent Kresa, et al., Harbor Finance Partners v. Kent Kresa et al., and Clarren v. Kent Kresa, et al., were filed in the Superior Court of California for the County of Los Angeles. These lawsuits each contain similar allegations that the directors of the company and certain of its officers breached their fiduciary duties in connection with the shareholder vote approving the proposed acquisition of the company by Lockheed Martin Corporation, and that certain defendants engaged in stock trades in violation of federal and state securities laws. The lawsuits are purportedly brought on the company's behalf and do not seek relief against the company. The defendants deny the allegations made in these actions and intend to defend the actions vigorously.

Fanni and related cases

Five shareholder class action lawsuits, making similar allegations, were filed between July and September, 1998 in the United States District Court for the Central District of California against the company, its directors, and certain of its officers. Three of these lawsuits, respectively encaptioned Fanni v. Northrop Grumman Corp., et al., Schnee v. Northrop Grumman Corp., et al., and Florida State Board of Admin. v. Northrop Grumman Corp., et al. allege that defendants issued misleading proxy materials in connection with the proposed acquisition of the company by Lockheed Martin Corporation, in violation of the federal securities laws. These actions seek unspecified damages on behalf of a class of shareholders related to the accelerated vesting of stock incentive plans upon the shareholder vote to approve the merger. Two of these lawsuits, respectively encaptioned Burroughs v. Northrop Grumman Corp., et al., and Miller, et al. v. Northrop Grumman Corp., et al., allege that defendants disseminated misleading information in connection with the proposed acquisition, in violation of the federal securities laws, thereby artificially inflating the market price of the company's common stock. These actions seek unspecified damages for a class of shareholders who purchased Northrop Grumman stock between July 3, 1997 and March 9, 1998. The District Court consolidated Fanni, Schnee and Florida State Board of Admin. into one action, and Burroughs and Miller into another action. The company and the individual defendants deny the allegations made in these actions and intend to defend the actions vigorously.

U.S. ex rel. McMorrough v. Northrop Grumman Corporation

In October 1998, the United States, acting through the Department of Justice, intervened in a portion of this civil action initially filed under seal in the U.S. District Court for the Western District of Louisiana in March 1995. The government intervened in the portion of the complaint that alleges the company knowingly supplied improperly heat-treated parts for Joint STARS aircraft in 1994 and 1995, in violation of the False Claims Act. Thereafter in March 1999 the government filed a separate complaint with respect to the heat treating issues. The government seeks unspecified damages in connection with the alleged violations. The company intends to vigorously defend this matter.

General

The company, as a government contractor, is from time to time subject to U.S. Government investigations relating to its operations. Government contractors that are found to have violated the False Claims Act, or are indicted or convicted for violations of other Federal laws, or are considered not to be responsible contractors may be suspended or debarred from government contracting for some period of time. Such convictions could also result in fines. Given the company's dependence on government contracting, suspension or debarment could have a material adverse effect on the company.

The company is involved in certain other legal proceedings arising in the ordinary course of business, none of which the company's management believes will have a material adverse effect on the company's financial condition.

NORTHROP GRUMMAN CORPORATION

Executive Officers of the Registrant

The following individuals were the executive officers of the company as of February 2000:

Name	Age	Office Held	Since	Business Experience Last Five Years
Kent Kresa	61	Chairman, President & CEO	1990	
Herbert W. Anderson	60	Corporate Vice President, President and Chief Executive Officer, Logicon, Inc	1998	Corporate Vice President and General Manager, Data Systems & Services Division
Ralph D. Crosby, Jr	52	Corporate Vice President and President, Integrated Systems and Aerostructures Sector	1998	Corporate Vice President and General Manager, Commercial Aircraft Division; Prior to September 1996, Corporate Vice President and Deputy General Manager, Commercial Aircraft Division; Prior to March 1996, Corporate Vice President and Deputy General Manager, Military Aircraft Systems Division; Prior to January 1996 Corporate Vice President and General Manager, B-2 Division
J. Michael Hateley	53	Corporate Vice President and Chief Human Resources and Administrative Officer	2000	Vice President, Personnel; Prior to January 1999, Vice President Human Resources, Security and Administration, Military Aircraft Systems Division; Prior to 1996, Vice President, Human Resources, Security and Administration, B-2 Division
Robert W. Helm	48	Corporate Vice President, Government Relations	1994	
Richard R. Molleur	67	Corporate Vice President and General Counsel	1991	
John H. Mullan	57	Corporate Vice President and Secretary	1999	Acting Secretary; Prior to May 1998 Senior Corporate Counsel
Albert F. Myers	54	Corporate Vice President and Treasurer	1994	
James G. Roche	60	Corporate Vice President And President, Electronic Sensors and Systems Sector	1998	Corporate Vice President and General Manager, Electronic Sensors and Systems Division; Prior to 1996, Corporate Vice President and Chief Advanced Development, Planning, and Public Affairs Officer
Richard B. Waugh, Jr.	56	Corporate Vice President and Chief Financial Officer	1993	

NORTHROP GRUMMAN CORPORATION

Item 4. Submission of Matters to a Vote of Security Holders

No information is required in response to this Item.

PART II

Item 5. Market for Registrant's Common Equity and Related Stockholder Matters

The information required by this Item is contained in Part II, Item 8 of this Annual Report on Form 10-K.

Item 6. Selected Financial Data

The information required by this Item is contained in Part II, Item 7 of this Annual Report on Form 10-K.

NORTHROP GRUMMAN CORPORATION

Item 7. Management's Discussion and Analysis of the Company's
Financial Condition and Results of Operations

BUSINESS CONDITIONS

Northrop Grumman is one of the major companies that competes in both the domestic and international markets of the aerospace and defense industry. While Northrop Grumman is subject to the usual vagaries of the marketplace, it is also affected by the unique characteristics of the aerospace and defense industry and by certain elements peculiar to its own business mix. It is common in this industry for work on major programs to be shared among a number of companies. A company competing to be a prime contractor can turn out to be a subcontractor. It is not uncommon to compete with customers, and simultaneously on other contracts, to be either a supplier to or a customer of such competitor. The nature of major aerospace programs, conducted under binding contracts, allows companies that perform well to benefit from a level of program continuity unknown in many industries. While Northrop Grumman conducts most of its business with the U.S. Government, principally the Department of Defense, domestic and international commercial sales still represent a significant portion of total revenue.

The collapse of communism and the subsequent reductions in the U.S. defense budget have fundamentally altered the landscape of the global aerospace and defense industry. Since the early 1990's the industry has been going through a consolidation process and, along with it, significant downsizing. These actions, in which Northrop Grumman has participated, have made competition even more intense than in the past. Lockheed Martin Corporation, The Boeing Company, and Raytheon Company are the largest companies in the aerospace and defense industry at this time. Northrop Grumman competes against these and other companies for a number of large and smaller programs. Intense competition and long operating cycles are both characteristics of the industry's and Northrop Grumman's business.

The current composition of Northrop Grumman resulted from a series of strategic acquisitions and mergers by the former Northrop Corporation beginning in 1992, when the company acquired a 49 percent interest in the Vought Aircraft Company, a designer and builder of commercial and military aerostructures. The remaining 51 percent interest in Vought Aircraft was purchased in 1994. Also in 1994, the company purchased the outstanding common stock of Grumman Corporation and the company was renamed Northrop Grumman Corporation. In 1996, Northrop Grumman acquired the defense electronic systems group of Westinghouse Electric Corporation. Effective August 1, 1997, the company consummated its merger with Logicon, Inc. (Logicon), a leading defense information technology company.

On July 3, 1997, the company announced that it had entered into a definitive agreement with Lockheed Martin Corporation to combine the companies. On February 26, 1998, shareholders of Northrop Grumman approved the merger. On March 23, 1998, the U.S. Government filed suit to block the merger and on July 16, 1998, Lockheed Martin notified the company that it was terminating its merger agreement with the company pursuant to the terms of the agreement. The company recorded charges totaling \$186 million in 1998 for costs related to the terminated merger. The charges cover vesting of restricted stock which became issuable following shareholder approval of the merger and other costs associated with the terminated merger, including investment banking fees, legal and accounting fees, and costs related to responding to the Government's request for information.

In 1998 and 1999 the company acquired several businesses. Inter-National Research Institute Inc. (INRI) was acquired in 1998 and the Information Systems Division of California Microwave, Inc., Data Procurement Corporation (DPC), and Ryan Aeronautical, an operating unit of Allegheny Teledyne Incorporated, were all acquired in 1999.

Northrop Grumman's three reportable segments are its three operating units: Integrated Systems and Aerostructures (ISA), Electronic Sensors and Systems (ESS) and Logicon, the company's information technology sector.

Integrated Systems and Aerostructures Segment

Air Combat Systems (ACS), Aerostructures, Airborne Early Warning and Electronics Warfare (AEW/EW), and Airborne Ground Surveillance and Battle Management (AGS/BM) are the four major business areas within the ISA segment.

The ACS business area includes Northrop Grumman's largest program, the B-2 bomber, for which the company is the prime contractor. The company continues to perform modifications to Block 20 aircraft to bring them to the fully operational Block 30 configuration. The U.S. Air Force currently plans to operate two B-2 bomber squadrons of eight aircraft each with an additional five aircraft available to fill in for those in depot for periodic maintenance. The B-2 work is performed at the ISA segment's California facilities in Palmdale and Pico Rivera.

The company is the principal subcontractor to The Boeing Company on the F/A-18 program, which is also included in the ACS business area. The F/A-18 is a fighter/ground-attack aircraft with configurations equipped for either one or two crew members. Principally deployed by the U.S. Navy on aircraft carriers, it also has been purchased by several other nations as a land-based combat aircraft. The company builds approximately 40 percent of the aircraft including the center and aft fuselage, vertical tails, and associated subsystems. The F/A-18 single-seat E and two-seat F, enhanced versions of the F/A-18C and D models, are

NORTHROP GRUMMAN CORPORATION

currently in production and will serve as the U.S. Navy's next-generation multimission aircraft. The F/A-18 work is performed at the company's facility in El Segundo, California.

In July 1999, the company purchased Ryan Aeronautical and combined its products with the existing sub-scale targets programs to form the unmanned systems business element reported in the ACS business area. The purchase included two major development projects, Global Hawk and the Miniature Air Launched Decoy (MALD). Global Hawk is being developed for the U.S. Air Force to provide battlefield commanders with intelligence imagery from high altitudes for long periods of time. MALD is a small jet powered aerial vehicle designed to imitate manned jet fighters in radar images and confuse enemy air defense systems.

The company's Aerostructures business area manufactures portions of the Boeing 737, 747, 757, 767 and 777 jetliners, the Gulfstream IV and V business jets, and the Boeing C-17 military transport. Northrop Grumman has been a principal airframe subcontractor for the Boeing 747 jetliner since the program began in 1966, producing the fuselage and aft body section for the 747 as well as cargo and passenger doors, the vertical and horizontal body stabilizers, floor beams and other structural components. The majority of the Boeing jetliner work is performed at the ISA segment's production sites in Hawthorne, California and Grand Prairie, Texas.

Northrop Grumman manufactures engine nacelles for the Gulfstream IV and other business jets and produces the integrated wings for Gulfstream's newest business jet, the Gulfstream V. The company also produces the empennage, engine nacelles, and control surfaces for the C-17, the U.S. Air Force's most advanced airlifter. This work is performed at the Grand Prairie, Texas and Stuart, Florida facilities.

The AEW/EW business area produces the E-2C Hawkeye and performs upgrades to EA-6B aircraft. Northrop Grumman is a major producer of airborne early warning and control systems, including the all-weather E-2C Hawkeye aircraft. The E-2C has been in active service with the U.S. Navy since 1973 and is employed by the air forces of five other nations. The EA-6B is the armed services only offensive tactical radar jamming aircraft. Manufacturing for both aircraft is performed at Northrop Grumman's St. Augustine, Florida site while engineering, program management and product development is performed in Bethpage, New York.

The company is the prime contractor for the E-8 Joint Surveillance Target Attack Radar System (Joint STARS), which is included in the AGS/BM business area. Joint STARS detects, locates, classifies, tracks and targets potentially hostile ground movement in all weather conditions. It is designed to operate around the clock in constant communication through secure data links with Air Force command posts, Army mobile ground stations or centers of military analysis far from the point of conflict. The Joint STARS platform is a Boeing 707-300 airframe that is remanufactured at Northrop Grumman's Lake Charles, Louisiana site. Final installation of electronics and testing are performed at the company's test facility in Melbourne, Florida.

Electronic Sensors and Systems Segment

The ESS segment comprises four business areas: Aerospace Electronic Systems; Command, Control, Communications, Intelligence and Naval Systems (C3I&N); Defensive Electronic Systems; and several smaller business elements referred to as "Other". The segment's primary expertise is the ability to conceive, design, produce and support high performance sensors and intelligence systems operating in all environments from underseas to outer space.

Aerospace Electronic Systems includes four business elements: combat avionics systems, land combat systems, airborne surveillance systems, and space systems. Combat avionics systems is focused on providing radar and electro-optic-based avionics systems to meet the needs for targeting and strike missions for armed forces worldwide. The AN/APG-66/68 airborne fire control radar series aboard F-16 fighters throughout the world has set a new standard for performance and reliability over the last two decades. More than six thousand AN/APG-66/68 radars have been produced since 1976. The basic radar, with multiple variants, is currently on 16 airborne platforms deployed in 20 countries. Northrop Grumman currently is leading a team developing the next-generation air-dominance radar (AN/APG-77) featuring a low observable, active electronically scanned array with multiple target, all-weather capability for the U. S. Air Force's F-22 aircraft. Advanced radar concepts for the next generation Joint Strike Fighter have been developed and flown aboard Northrop Grumman flight test aircraft. These radar systems are produced at the company's Linthicum, Maryland facility.

Northrop Grumman's land combat systems business element, teamed with Lockheed Martin, is producing the Longbow APG-78 fire control radar and the Longbow Hellfire missile for the U. S. Army's AH-64 Apache attack helicopter and the British WAH-64 Westland Apache. There is extensive international interest in the Apache Longbow battlefield tactical weapon system. Longbow fire control radar work is performed at the ESS segment's Linthicum facility and the Longbow missile work is performed in Huntsville, Alabama. Additionally, Northrop Grumman is currently in Low Rate Initial Production (LRIP) for the BAT "brilliant" anti-armor submunition at the company's new BAT production facility at Huntsville. BAT is an autonomous submunition that uses passive acoustic and infrared sensors to find, attack and destroy moving tanks and other armored vehicles in hostile territory. BAT is designed to be carried and dispensed by the U. S. Army's TACMS (Tactical Missile System) Block II surface-to-surface missile with potential application for ground-, air-, and sea-launched cruise missiles, artillery rockets, and munitions dispensers.

Airborne surveillance systems products include the Airborne Warning and Control System (AWACS) radar (AN/APY-1, APY-2), which, integrated in the highly reliable Boeing 707 and 767 aircraft, has been the surveillance system of choice for U.S. and allied forces worldwide. The AWACS Radar System Improvement Program (RSIP) is currently in production for the U.S. Air Force, the United Kingdom and NATO. RSIP will enhance the performance of the AWACS radar against smaller cross section targets. A new surveillance product, the Multirole Electronically Scanned Array (MESA), is currently being developed for installation on seven Boeing 737 aircraft for the Royal Australian Air Force. These systems are produced at the Linthicum, Maryland facility. The E-8 Joint STARS is equipped with the Northrop Grumman Norden Systems AN/APY-3 air-to-ground surveillance system, which provides long-range, standoff, real-time surveillance of the battlefield. An advanced Radar Technology Insertion Program (RTIP) is currently under development. With its advanced active aperture, the RTIP will provide significant performance upgrades on Joint STARS for its current mission and opens the way for incorporation of new missions. These systems are produced at the company's Norwalk, Connecticut facility. The space systems business element develops space sensors and systems, with subsegments of military and civil/commercial space, and intelligence, surveillance, reconnaissance ground-based processing systems.

The C3I&N business area produces air defense and air traffic control radar systems for domestic and international customers. The new highly mobile, solid-state AN/TPS-70 family of radars and U. S. Air Force AN/TPS-75 are among the products in this business area. They have been the front line U.S. Air Force air defense system standard since 1968. These systems currently operate in more than 30 countries, supporting air defense, air sovereignty, air traffic control, and counter-narcotics needs. The ASR-12, a solid-state, new generation derivative of the company's FAA standard ASR-9 terminal radar is now in full production, with 12 systems on order and three systems operational in Peru, Mexico, and El Salvador.

C3I&N is also a leader in producing marine machinery and advanced propulsion systems, missile launchers, shipboard electronics and control systems, mine countermeasures, and underseas vehicles. Every Nimitz-class aircraft carrier is fitted with eight turbine generator sets. The company produces these generators as well as the main propulsion system for the U.S. Navy's Seawolf- and Virginia-class attack submarines at its Sunnyvale, California site. Late in 1999, the company was one of two selected by the Navy to develop the next generation Electro-Magnetic Launcher (EMALS), which could ultimately replace the steam catapult. The Sunnyvale facility also has responsibility for integration of the intercooled recuperated (ICR) gas turbine engine, which is a candidate for the DD-21 next generation destroyer. The company's Annapolis, Maryland facility has responsibility for the Advanced SEAL Delivery System (ASDS) mini-submarine and the SPQ-9B shipboard radar, and is a significant participant in the DD-21 competition.

The Defensive Electronic Systems business area includes radio frequency and infrared countermeasures equipment. The company's Rolling Meadows, Illinois site produces the AN/ALQ-135, an internally mounted radar jammer deployed on F-15 fighter aircraft as part of that aircraft's tactical electronic warfare system. The AN/ALQ-162 Shadowbox, a jammer built specifically to counter continuous wave radars, has been installed on the AV-8B and certain foreign owned F/A-18 aircraft. It also is being deployed on U.S. Army helicopters and special mission aircraft and has been sold to the air forces of three other nations. The company is currently producing a directional infrared countermeasures (DIRCM) system for the United Kingdom and the U.S. Special Operations Command. DIRCM is slated for use on British helicopters and transports and U.S. Special Operations Command C-130 transports to protect the aircraft from heat-seeking missiles. DIRCM is the first infrared countermeasures system of its kind and was developed to accommodate laser capabilities currently in development. The company's Linthicum, Maryland site produces the AN/ALQ-165 airborne self-protection jammer in a joint venture with ITT Avionics. The AN/ALQ-165 is an internally mounted system that protects tactical aircraft against numerous radar-guided threats. It currently is installed on U.S. and international F/A-18 and F-14 aircraft.

Included in the business area labeled "Other" is California Microwave Systems, which was acquired by Northrop Grumman in April 1999. This unit specializes in airborne reconnaissance and surveillance systems, government ground-based satellite communications systems, communications gateway systems, and mission planning. California Microwave Systems' customers include the U.S. military services, other U.S. government agencies, and international defense organizations. Other elements included in "Other" are systems development and technology and automation and information systems.

Logicon Segment

The three major business areas reported in Logicon, the company's information technology sector, are: Government Information Technology, Technology Services, and Commercial Information Technology.

Logicon is a leading provider of advanced information technologies, systems and services. Its areas of expertise include: command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR); weapon systems; information systems; training and simulation; science and technology; base and range support; and systems support services. Customers include the U.S. Government, both Department of Defense (DoD) and non-DoD Federal agencies, state and local governments, and commercial enterprises. Contracts with the U.S. Government account for most of the segment's revenues.

NORTHROP GRUMMAN CORPORATION

In the following table of segment and major customer data, revenue from the United States Government includes revenue from contracts on which Northrop Grumman is the prime contractor as well as those on which the company is a subcontractor and the ultimate customer is the U.S. Government.

RESULTS OF OPERATIONS BY SEGMENT AND MAJOR CUSTOMER

Year ended December 31, \$ in millions	1999	1998	1997
Net Sales			
Integrated Systems & Aerostructures			
United States Government	\$3,925	\$3,755	\$3,932
The Boeing Company	733	1,075	883
Other customers	333	263	452
Intersegment sales	6	5	13
	4,997	5,098	5,280
Electronic Sensors & Systems			
United States Government	1,894	2,014	2,394
Other customers	673	708	490
Intersegment sales	146	177	180
	2,713	2,899	3,064
Logicon			
United States Government	1,248	948	884
Other customers	189	139	118
Intersegment sales	22	20	20
	1,459	1,107	1,022
Intersegment eliminations	(174)	(202)	(213)
Total net sales	\$8,995	\$8,902	\$9,153
Operating Margin			
Integrated Systems & Aerostructures	\$ 392	\$ 280	\$ 493
Electronic Sensors & Systems	199	218	248
Logicon	80	60	67
	671	558	808
Adjustments to reconcile to total operating margin:			
Corporate expenses	(26)	(58)	(30)
Deferred state tax (provision)benefit	(29)	(10)	8
Mark-to-market restricted stock rights			(39)
Pension income	353	266	133
Total operating margin	\$ 969	\$ 756	\$ 880

NORTHROP GRUMMAN CORPORATION

Year ended December 31, \$ in millions	1999	1998	1997
Contract Acquisitions			
Integrated Systems & Aerostructures	\$ 4,434	\$ 3,896	\$ 4,427
Electronic Sensors & Systems	3,055	2,388	2,983
Logicon	1,481	1,205	938
Total acquisitions	\$ 8,970	\$ 7,489	\$ 8,348
Funded Order Backlog			
Integrated Systems & Aerostructures	\$ 6,376	\$ 6,933	\$ 8,130
Electronic Sensors & Systems	3,439	2,951	3,285
Logicon	609	565	447
Total backlog	\$10,424	\$10,449	\$11,862
Assets			
Integrated Systems & Aerostructures	\$ 3,497	\$ 3,797	\$ 3,847
Electronic Sensors & Systems	3,883	3,913	3,990
Logicon	618	618	559
Segment assets	7,998	8,328	8,396
General corporate	1,287	1,208	1,281
Total assets	\$ 9,285	\$ 9,536	\$ 9,677
Capital Expenditures			
Integrated Systems & Aerostructures	\$ 85	\$ 110	\$ 125
Electronic Sensors & Systems	97	82	94
Logicon	19	19	17
General corporate			2
Total expenditures	\$ 201	\$ 211	\$ 238
Depreciation and Amortization			
Integrated Systems & Aerostructures	\$ 133	\$ 142	\$ 173
Electronic Sensors & Systems	222	211	208
Logicon	32	38	35
General corporate	2	2	2
Total depreciation and amortization	\$ 389	\$ 393	\$ 418

An individual company's success in the competitive aerospace/defense environment depends upon its ability to develop and market its products, as well as, its ability to provide the people, facilities, equipment and financial capacity needed to deliver those products with maximum efficiency. It is necessary to maintain, as the company has, sources for raw materials, fabricated parts, electronic components and major subassemblies. In this manufacturing and systems integration environment, effective oversight of subcontractors and suppliers is as vital to success as managing internal operations. Northrop Grumman's operating policies are designed to enhance these capabilities. The company also believes that it maintains good relations with its employees, approximately 16 percent of whom are covered by collective bargaining agreements.

U.S. Government programs in which Northrop Grumman either participates, or strives to participate, must compete with other programs for consideration during our nation's budget formulation and appropriation processes. Budget decisions made in this environment will have long-term consequences for the size and structure of Northrop Grumman and the entire defense industry. An important factor in determining Northrop Grumman's ability to compete successfully for future contracts will be its cost structure vis-a-vis other bidders.

Although the ultimate size of future defense budgets remains uncertain, the defense needs of the nation are expected to provide substantial research and development (R&D) funding and other business for the company to pursue well into the future.

Northrop Grumman has historically concentrated its efforts in such high technology areas as stealth, airborne surveillance, battle management, precision weapons, systems integration, defense electronics, and information technology. Even though a high priority has been assigned by the Department of Defense to the company's major programs, there remains the possibility that one or more of them may be reduced, extended or terminated.

Northrop Grumman pursues new business opportunities when justified by acceptable financial returns and technological risks. The company examines opportunities to acquire or invest in new businesses and technologies to strengthen its traditional business areas. Northrop Grumman continues to capitalize on its technologies and skills by entering into joint ventures, partnerships or associations with other companies.

In the event of termination for the government's convenience, contractors are normally protected by provisions covering reimbursement for costs incurred subsequent to termination. The company received a termination for convenience notice on the Tri-Service Standoff Attack Missile (TSSAM) program in February 1995. In December 1996, the company filed a lawsuit against the U.S. Government in the U.S. Court of Federal Claims seeking the recovery of approximately \$750 million for uncompensated performance costs, investments, and a reasonable profit on the program. In prior years, the company had charged to operations in excess of \$600 million related to this program. Northrop Grumman is unable to predict whether it will realize some or all of its claims, none of which are recorded on the balance sheet, from the U.S. Government on the TSSAM contract.

Prime contracts with various agencies of the U.S. Government and subcontracts with other prime contractors are subject to a profusion of procurement regulations, including the International Traffic in Arms Regulations promulgated under the Arms Export Control Act, with noncompliance found by any one agency possibly resulting in fines, penalties, debarment or suspension from receiving additional contracts with all agencies. Given the company's dependence on U.S. Government business, suspension or debarment could have a material adverse effect on the company's future. Moreover, these contracts may be terminated at the U.S. Government's convenience.

Environmental Issues

Federal, state and local laws relating to the protection of the environment affect the company's manufacturing operations. The company has provided for the estimated cost to complete remediation where the company has determined that it is probable that the company will incur such costs in the future, including those for which it has been named a Potentially Responsible Party (PRP) by the Environmental Protection Agency or similarly designated by other environmental agencies. The company has been designated a PRP under federal Superfund laws at 13 hazardous waste sites and under state Superfund laws at eight sites. It is difficult to estimate the timing and ultimate amount of environmental cleanup costs to be incurred in the future due to the uncertainties regarding the extent of the required cleanup and the status of the law, regulations and their interpretations. Nonetheless, to assess the potential impact on the company's financial statements, management estimates the total reasonably possible remediation costs that could be incurred by the company. Such estimates take into consideration the professional judgment of the company's environmental engineers and, when necessary, consultation with outside environmental specialists. In most instances, only a range of reasonably possible costs can be estimated. However, in the determination of accruals, the most probable amount is used when determinable and the minimum is used when no single amount is more probable. The company records accruals for environmental cleanup costs in the accounting period in which the company's responsibility is established and the costs can be reasonably estimated. The company does not anticipate and record insurance recoveries before collection is probable. Management estimates that at December 31, 1999, the range of reasonably possible future costs for environmental remediation, including Superfund sites, is \$80 million to \$111 million, of which \$87 million has been accrued. Should other PRPs not pay their allocable share of remediation costs, the company may have to incur costs in addition to those already estimated and accrued. The company is making the necessary investments to comply with environmental laws; the amounts, while not insignificant, are not considered material to the company's financial position, results of operations, or cash flows.

Year 2000 Issues

The company established and implemented its program to address the possibility of computer failure upon entering the year 2000 (Year 2000), beginning in 1996. The program encompassed the entire company and all aspects of Year 2000 compliance including software applications, mainframe environment, desktop equipment, networks, telecommunications, department supported systems, facilities systems, embedded systems in product deliverables, review of major suppliers and major customers' Year 2000 status, and development of contingency plans and year end support plans. All phases of the program were completed by the end of 1999.

The company has separately identified the costs of Year 2000 remedial efforts only for internal information services personnel, principally as a planning and control tool. The total cost of these efforts incurred during the years 1996 through 1999 was approximately \$41 million. Year 2000 costs are allowable costs under applicable government contracting regulations. Accordingly, the portion of Year 2000 costs allocable to contracts are charged as part of normal overhead pursuant to approved methods established for this purpose.

To date, the company has not experienced any major system failures or other adverse consequences due to Year 2000 noncompliance. While the possibility still exists for future computer failures, internally or among its customers and suppliers, management does not expect that these developments, should they occur, would have a material adverse impact on the financial position, results of operations, or cash flows of Northrop Grumman.

NORTHROP GRUMMAN CORPORATION

MEASURES OF VOLUME

Contract Acquisitions

Contract acquisitions tend to fluctuate from year to year and are determined by the size and timing of new and add-on orders. The effects of multiyear orders and/or funding can be seen in the highs and lows shown in the following table.

Contract Acquisitions

\$ in millions	1999	1998	1997

Integrated Systems & Aerostructures			
ACS	\$1,421	\$1,430	\$1,607
Aerostructures	1,302	1,453	1,425
AEW/EW	1,106	679	728
AGS/BM	686	434	761
Intrasegment eliminations	(75)	(95)	(81)
	-----	-----	-----
	4,440	3,901	4,440
	-----	-----	-----
Electronic Sensors & Systems			
Aerospace Electronic Systems	1,375	1,047	1,496
C3I&N	727	907	964
Defensive Electronic Systems	708	311	508
Other	308	225	176
	-----	-----	-----
	3,118	2,490	3,144
	-----	-----	-----
Logicon			
Government Information Technology	1,015	813	711
Technology Services	347	300	150
Commercial Information Technology	140	113	97
	-----	-----	-----
	1,502	1,226	958
	-----	-----	-----
Intersegment eliminations	(90)	(128)	(194)
	-----	-----	-----
Total acquisitions	\$8,970	\$7,489	\$8,348
	=====	=====	=====

ISA acquisitions in 1999 were 14 percent higher than in 1998 reflecting increases in both the AEW/EW and AGS/BM business areas. Included in the AEW/EW business area in 1999 is funding for the multiyear buy for 25 E-2C aircraft. The AGS/BM business area received orders for two, one and two Joint STARS aircraft in 1999, 1998 and 1997, respectively.

The ACS business area recorded incremental B-2 funding for ongoing development work, spares and other customer support for the operational aircraft program in each of the last three years. The company still stands to gain future post production business, such as airframe depot maintenance, repair of components, operational software changes, and product improvement modifications. The company received orders for 30, 20 and 12 F/A-18E/F shipsets in 1999, 1998 and 1997, respectively. Acquisitions in 1998 included orders for 6 F/A-18C/D shipsets.

The Aerostructures business area received authorization to produce 25, 50 and 50 747 jetliner shipsets in 1999, 1998 and 1997, respectively. The company recorded orders for 30, 27 and 6 wing shipsets for the Gulfstream V business jet in 1999, 1998 and 1997, respectively.

ESS acquisitions in 1999 were 25 percent higher than in 1998. The Aerospace Electronic Systems business area received funding in 1999 for the Longbow missile multiyear contract and the BAT LRIP contract. In the C3I&N business area, a lower level of international awards for air traffic control radar systems was posted in 1999 than in 1998. The Defensive Electronic Systems business area recorded increased orders in 1999 for the ALQ-135 and DIRCM programs.

Logicon acquisitions increased by 23 percent in 1999 over 1998, reflecting higher volume in all three business areas. The increase in Government Information Technology acquisitions is due to a higher win rate on contracts bid as well as the inclusion of two new businesses acquired: INRI, purchased in September 1998, and DPC, purchased in June 1999. In the third quarter of 1998, Logicon won the Joint Base Operations Support Contract (J-BOSC), which is reported in the Technology Services business area. Under this contract, which has a five-year basic performance period with a five-year option, the segment provides base operations support for NASA's Kennedy Space Center and the U.S. Air Force's 45th Space Wing, which includes Cape Canaveral Air Station and Patrick Air Force Base.

NORTHROP GRUMMAN CORPORATION

Sales

Year-to-year sales vary less than contract acquisitions and reflect performance under new and ongoing contracts.

Net Sales

\$ in millions	1999	1998	1997

Integrated Systems & Aerostructures			
ACS	\$2,059	\$2,114	\$2,446
Aerostructures	1,411	1,583	1,545
AEW/EW	888	780	739
AGS/BM	714	716	631
Intrasegment Eliminations	(75)	(95)	(81)

	4,997	5,098	5,280

Electronic Sensors & Systems			
Aerospace Electronic Systems	1,105	1,265	1,240
C3I&N	843	904	887
Defensive Electronic Systems	536	544	656
Other	229	186	281

	2,713	2,899	3,064

Logicon			
Government Information Technology	971	787	770
Technology Services	346	213	156
Commercial Information Technology	142	107	96

	1,459	1,107	1,022

Intersegment eliminations	(174)	(202)	(213)

Total sales	\$8,995	\$8,902	\$9,153
=====			

ISA segment sales declined by 2 percent in 1999 as compared to 1998. The decreasing trend in ACS revenues is primarily attributable to the B-2 program, which decreased by \$86 million in 1999 as compared to 1998, following a \$291 million decrease in 1998 as compared to 1997. Current planning data indicate that the level of overall B-2 revenue for 2000, when production is expected to be substantially completed, will decline by approximately 40 percent from the 1999 level. Sales on the F/A-18 program increased by \$74 million in 1999 as compared to 1998. The last 17 shipsets of the C/D version of the F/A-18 were delivered in 1999; shipsets delivered in 1998 and 1997 were 34 and 35, respectively. In 1999 the company delivered the first twelve shipsets under the F/A-18E/F production contract and the last five shipsets under the F/A-18E/F LRIP contract.

The production contract is accounted for under the units-of-delivery method, which results in revenue being recorded as deliveries are made. The LRIP contract, which began in 1996 and was completed in 1999, is accounted for under the cost-to-cost type of percentage-of-completion method, resulting in revenue being recorded as costs are incurred. In 2000 the company plans to deliver 28 F/A-18E/F shipsets under production contracts. Sales on the Kistler K-1 program were recorded on a cost recovery basis as cash was received. Such sales declined \$10 million in 1998 from the \$63 million recorded in 1997. Work on this program was discontinued in December 1998 due to difficulties encountered by Kistler Aerospace Corporation in obtaining financing. No operating margin was recorded on this program.

Aerostructures sales declined in 1999 from 1998 levels due to a \$251 million reduction in Boeing commercial aerostructures sales partially offset by a \$69 million increase in C-17 revenue. The small increase in Aerostructures sales in 1998 over 1997 reflects a \$192 million increase in Boeing commercial aerostructures sales and a reduction in other aerostructures revenue due to the sale in late 1997 of the company's Grumman Allied Industries subsidiary. Deliveries of 747 fuselage shipsets were 32 in 1999, 56 in 1998, and 46 in 1997. Northrop Grumman is producing the Gulfstream V wings under a revenue-sharing agreement with Gulfstream Aerospace (Gulfstream). Northrop Grumman recognizes revenue for its proportionate share of the revenue of each business jet when delivered to the ultimate customer by Gulfstream. The company is using program accounting for the Gulfstream V with an estimated 300 shipsets to be delivered over a fourteen-year period. Northrop Grumman has received 133 orders for the Gulfstream V through December 1999. Inventoried costs at December 31, 1999, include \$116 million of costs representing the excess of the production cost of delivered units over the estimated average unit cost. All costs for the development of the wings have been expensed as incurred. The company expects commercial aerostructures revenues to be lower in 2000 than in 1999.

AEW/EW sales increased in 1999 over 1998 primarily due to increased EA-6B revenue. AGS/BM sales in 1999 were unchanged from the level reported in 1998. Overall ISA revenue for 2000 is expected to be approximately 12 percent to 15 percent lower than 1999.

ESS segment sales declined by 6 percent in 1999 as compared to 1998. Lower Aerospace Electronic Systems business area sales are attributable to lower space systems and combat avionics systems sales. The C3I&N business area reflects lower marine volume. The improvement in the "Other" business area is due to the inclusion of California Microwave Systems, which was acquired by Northrop Grumman in April 1999. ESS segment sales for 1998 declined 5 percent as compared to 1997 due to lower Defensive Electronic Systems volume as well as lower revenues on a number of programs included in the "Other" business area. Within the C3I&N business area, increased 1998 airspace management sales more than offset lower marine sales. For 2000, the company expects ESS segment sales to be between \$2.8 billion and \$3.1 billion.

Logicon sales in 1999 increased by 32 percent over 1998 sales, which follows an 8 percent increase in 1998 sales over 1997. All three business areas improved in both 1999 and 1998 over prior year sales.

NORTHROP GRUMMAN CORPORATION

The Government Information Technology and Commercial Information Technology business area improvements in 1999 reflect the higher level of acquisitions and higher win rate on contracts bid. Most of the additional sales generated in the Technology Services business area, in both 1999 and 1998, is attributable to the commencement of work in the fourth quarter of 1998 on the J-BOSC contract, which was won earlier in that year. The company expects Logicon sales to increase by approximately ten percent in 2000 over 1999.

Funded Order Backlog

The year-end funded order backlog is the sum of the previous year-end backlog plus the year's contract acquisitions minus the year's sales. Backlog is converted into the following years' sales as costs are incurred or deliveries are made. It is expected that approximately 60 percent of the 1999 year-end backlog will be converted into sales in 2000.

Funded Order Backlog

\$ in millions	1999	1998	1997

Integrated Systems & Aerostructures			
ACS	\$ 2,360	\$ 2,998	\$ 3,682
Aerostructures	1,925	2,034	2,164
AEW/EW	1,209	991	1,092
AGS/BM	882	910	1,192
	-----	-----	-----
	6,376	6,933	8,130

Electronic Sensors & Systems			
Aerospace Electronic Systems	1,761	1,491	1,709
C3I&N	775	891	888
Defensive Electronic Systems	789	617	850
Other	199	120	81
	-----	-----	-----
	3,524	3,119	3,528

Logicon			
Government Information Technology	412	368	342
Technology Services	149	148	61
Commercial Information Technology	48	50	44
	-----	-----	-----
	609	566	447

Intersegment Eliminations	(85)	(169)	(243)

Total backlog	\$10,424	\$10,449	\$11,862
=====			

Total U.S. Government orders, including those made on behalf of foreign governments (FMS), comprised 74 percent of the backlog at the end of 1999 compared with 73 percent at the end of 1998 and 72 percent at the end of 1997. Total foreign customer orders, including FMS, accounted for 13 percent of the backlog at the end of 1999 compared with 15 percent in 1998 and 17 percent in 1997. Domestic commercial business in backlog was 16 percent at the end of 1999 and was 17 percent at the end of both 1998 and 1997.

MEASURES OF PERFORMANCE

The company's operating margin for 1999 was \$969 million compared to \$756 million for 1998, reflecting increases in the ISA and Logicon segments, as well as increased pension income.

ISA segment operating margin in 1999 was \$392 million as compared to \$280 million in 1998, reflecting increases in both the ACS and AGS/BM business areas. In 1999 the ACS business area benefited from upward cumulative margin rate adjustments totaling \$70 million on the B-2 program and \$11 million on the F/A-18E/F program. In 1997, ACS recorded a \$55 million cumulative margin rate adjustment on the B-2 production contract. In 1999, five B-2's were delivered under the production contract as compared to five in 1998 and four in 1997. Following the award of the last increment of production funding for the B-2, the company began recording future operating margin increases on all production aircraft as these units were delivered and accepted by the customer. At the time each unit is delivered, an assessment is made of the status of the production contract so as to estimate the amount of any probable additional margin available beyond that previously recognized. That unit's proportionate share of any such unrecognized remaining balance is then recorded. In this fashion it is believed that margin improvements will be recognized on a more demonstrable basis. All 15 production units have been initially delivered. Three units remain to be retrofitted and are scheduled for delivery in the first half of 2000.

Since the beginning of the Joint STARS program, the company (and prior to 1994, the Grumman Corporation) as of December 31, 1998 had incurred over \$100 million of costs in excess of revenues in the performance of the development and production phases of the program. Including support and other work, the company recorded on the Joint STARS program operating losses of \$25 million and \$29 million in 1998 and 1997, respectively. In 1998, the company submitted Requests for Equitable Adjustment (REAs) to the U.S. Air Force seeking adjustment to production contracts for cost increases incurred during the refurbishment and conversion of used Boeing 707 aircraft to Joint STARS platforms. The company and the U.S. Air Force executed an Alternate Dispute Resolution Agreement to attempt to resolve these REAs, and in April 1999 the company filed these REAs as certified claims. In December 1999, the company reached a settlement of these contract claims with the U.S. Air Force. The company is now able to recognize underlying improved performance on the production phase of this program. As a result, cumulative margin rate adjustments totaling \$37 million were recorded in the fourth quarter. The company expects to record margin on Joint STARS in 2000 and beyond. Revenue on the Joint STARS program is recognized using the cost-to-cost percentage-of-completion method of accounting.

ISA segment operating margin in 1999 was reduced by downward cumulative rate adjustments on several Boeing commercial aerostructures contracts totaling \$77 million, as well as by lower overall margin rates on this work. Operating margin in the ISA segment in 1998 was reduced by \$104 million in charges on the Boeing 747 fuselage program. This included a charge of \$47 million resulting from an increase in the estimated cost to complete work on the current production block due to reduced deliveries on the current contract; and a charge of \$57 million for certain nonrecurring costs of the Accurate Fuselage Assembly (AFA) precision manufacturing system, which are no longer considered recoverable from sales of future deliveries. The company committed to the AFA program in 1996 as a condition of its current fuselage contract with Boeing, which completes in 2006. The AFA program involves the conversion to a digital manufacturing design and the implementation of advanced precision manufacturing techniques. The company's investment in this program was intended to be amortized over the life of the current production contract. The decline in production rates to two per month on the 747 program for an indefinite period significantly reduced the recoverability of this investment through future profits, thus causing the company to take the \$57 million charge. In 1998 the company began discussions with Boeing regarding the company's claims for recovery of incurred and estimated future out-of-scope work and related delay and disruption costs associated with the AFA program. In the second quarter of 1999, the company resolved its claims with Boeing. The settlement had no material effect on the company's financial results for 1999.

ESS segment operating margin in 1999 was \$199 million, down from the \$218 million reported for 1998. The decrease is a result of lower sales volume as well as a reduction of approximately \$44 million resulting from the pension plan merger, which is described below. The decrease also reflects lower margins in the Defensive Electronic Systems business area, due in part to additional costs incurred in transitioning a development program to production. ESS segment 1998 operating margin was reduced by a \$21 million fourth quarter charge for estimated future costs not considered recoverable from future revenues on the DIRCM program. The charge resulted from increased costs associated with solving technical design issues as well as difficulties in achieving timely completion of the second series of live-fire tests on the large turret version. In 1997, increases in the cost estimate to complete the company's work on DIRCM resulted in cumulative margin rate adjustments totaling \$33 million. Partially offsetting these downward adjustments was the settlement of a claim involving work performed in the 1980's on the MX missile Interface Test Adapter (ITA), which resulted in an \$8 million increase in operating margin and \$12 million in interest income.

Logicon operating margin in 1999 was \$80 million, a 33 percent increase over the \$60 million recorded in 1998. The increase is attributable to increased sales volume in all business areas and improved performance in the Technology Services business area. These improvements were somewhat offset by \$4 million of nonrecurring charges related to employee termination costs and legal accruals. Logicon operating margin in 1998 was reduced by \$8 million for consolidation and reorganization charges.

Operating margin in 1999 included \$353 million of pension income compared with \$266 million in 1998 and \$133 million in 1997. The increases are primarily attributable to the high market returns on investments experienced over the last several years. Northrop Grumman has again experienced a high rate of return on plan assets in 1999, which in turn will affect 2000 pension income calculations. Additionally, the discount rate on obligations used to determine pension income for 2000 has been increased to 7.5 percent in order to reflect market conditions at December 31, 1999. For 2000, these two factors are expected to result in a significant increase in pension income and a small reduction to company contributions to the plans.

In July 1999, the company merged three of its retirement plans into one, to include the former Northrop Grumman Pension Plan, the Electronic Sensors and Systems Sector Employees Pension Plan (non-represented), and the Commercial Aircraft Employees Pension Plan (salaried). The pension plan merger does not result in any changes to any participant's existing pension benefits, nor does it alter individual plan designs. The retirement plan merger resulted in a reduction to 1999 net income of approximately \$16 million, or \$.24 per share.

Included in the 1998 results are pretax costs totaling \$58 million related to activities to realign operating units, consolidate facilities and laboratories and exit certain business areas, which reduced operating margin by \$43 million and other income by \$15 million. The operating margin amount was reflected in segment results as follows: ISA, \$6 million; ESS, \$13 million; and Logicon, \$8 million. The remaining \$16 million was included in Corporate expenses. The charge included \$20 million for employee termination costs, \$12 million for write-down to estimated fair value of assets available for sale, \$3 million for losses on disposals of assets, \$9 million for write-off of purchased intangible assets no longer considered recoverable from future revenues, \$9 million for loss on sale of a business, and \$5 million for excess capacity lease costs, net of estimated sublease income through 2008. The employee termination costs represent cash severance payments made to employees.

Capital assets are transferred to assets available for sale when a decision is made to sell the facility and selling efforts are actively underway. In some cases, operations continue and, when costs are allowable under government contracts, depreciation expense is recorded until the facility is vacated or sold. In 1999, \$2 million was transferred to assets available for sale and assets with a carrying value of \$13 million were sold. In 1998, \$37 million was transferred to assets available for sale, \$2 million in depreciation expense on these assets was

recorded, and assets with a carrying value of \$46 million were sold. Assets available for sale are evaluated at least annually for recoverability and written down to estimated fair value as necessary. In 1998, a write down adjustment of \$12 million was recorded. In 1997, recovery of \$24 million of the 1996 write-down, related to the sale of the company's Perry, Georgia, facility, was included in Other Income(Deductions). The assets available for sale at the end of 1999 are expected to be sold in 2000.

Included in the 1998 results is a \$30 million write-off of an investment related to Kistler Aerospace Corporation's K-1 program. The investment consisted of advances on behalf of Kistler Aerospace that were made in 1998 to continue the company's efforts in support of the K-1. The write off resulted from the company's assessment that the near-term likelihood of Kistler obtaining additional financing made recovery of the investment uncertain.

Interest expense for 1999 was \$224 million, a \$9 million decrease from 1998, which in turn was down \$24 million from the 1997 level. The 1999 interest expense includes \$11 million related to settlement of various legal and tax issues. Total debt stood at \$2.2 billion at the end of 1999 compared to \$2.8 billion at the end of both 1998 and 1997.

The company's effective federal income tax rate was 36.6 percent in 1999, 37.8 percent in 1998, and 37.5 percent in 1997.

Effective January 1, 1999, the company adopted the new accounting standard, SOP 98-5 - Reporting on the Costs of Start-Up Activities, which requires that certain costs that previously had been deferred be expensed and reported as a cumulative effect of a change in accounting principle. The company reported a \$16 million after-tax charge, or \$.24 per share, to write off the previously deferred start-up costs. All such costs incurred after January 1, 1999, approximately \$7 million before tax, were expensed as incurred and included in cost of sales.

MEASURES OF LIQUIDITY AND CAPITAL RESOURCES

The trend and relationship of sales volume with net accounts receivable and inventoried costs is a useful measure in assessing the company's liquidity. In 1999, the company's year-end net investment in these balances represented 29 percent of sales, compared with 32 percent in 1998 and 30 percent in 1997.

In 1999 cash provided by operations was \$1,207 million, a record level and considerably more than the \$244 million generated in 1998 and the \$730 million generated in 1997. The improvement in 1999 cash from operations is attributable to many factors, the more significant of which are: increased operating margin, improved cash management of working capital, lower pension plan contributions as a result of the pension plan merger, and accelerated cash collections in part due to customers' Year 2000 concerns. The lower generation of cash from operations in 1998 was driven by expenses related to the terminated merger with Lockheed Martin Corporation, as well as, an increase in working capital for Boeing jetliners in support of increased production levels.

Cash generated from operating activities in 1999 was sufficient to finance capital expenditures, pay dividends to shareholders, acquire new businesses for approximately \$240 million in cash, and reduce net debt (total debt less cash balances) by \$704 million. In 1998 additional borrowings under the revolving credit facility along with the cash generated by operating activities provided sufficient cash flows to service debt, finance capital expenditures, and pay dividends to shareholders.

The following table is a condensed summary of the detailed cash flow information contained in the Consolidated Statements of Cash Flows.

Year ended December 31	1999	1998	1997

Cash came from			
Customers	98%	95%	94%
Lenders		3	4
Buyers of assets/other	2	2	2

	100%	100%	100%
=====			
Cash went to			
Employees and suppliers of services and materials	84%	90%	83%
Sellers of assets	5	3	2
Lenders	9	5	10
Suppliers of facilities/other	1	1	4
Shareholders	1	1	1

	100%	100%	100%
=====			

The company has a credit agreement with a group of domestic and foreign banks to provide for two credit facilities: \$1.8 billion available on a revolving credit basis through March 2002; and a variable interest rate \$450 million term loan payable in quarterly installments of \$50 million plus interest through March 2002.

To provide for long-term liquidity the company believes it can obtain additional capital from such sources as: the public or private capital markets; the further sale of assets; sale and leaseback of operating assets; and leasing rather than purchasing new assets.

Cash generated from operations, supplemented by borrowings under the credit agreement, are expected to be sufficient in 2000 to service debt, finance capital expansion projects, and continue paying dividends to the shareholders. With the completion of the B-2 EMD contract, federal and state income taxes that have been deferred since the inception of the contract in 1981, will become payable. The contract is expected to be completed in 2002 with taxes of approximately \$1 billion due, to be paid that year. The company plans to use cash generated from operations supplemented by additional borrowings under the credit agreement and/or additional borrowings from public or private capital markets to pay these taxes.

Capital expenditure commitments at December 31, 1999, were approximately \$145 million including \$5 million for environmental control and compliance purposes. Capital expenditures for 1999 were \$201 million including \$22 million for capitalized software costs. For 2000, capital expenditures are expected to be approximately \$250 to \$275 million, including approximately \$40 million for capitalized software costs.

The company will continue to provide the productive capacity to perform its existing contracts, prepare for future contracts, and conduct R&D in the pursuit of developing opportunities. While these expenditures tend to limit short-term liquidity, they are made with the intention of improving the long-term growth and profitability of the company.

FORWARD-LOOKING INFORMATION

Certain statements and assumptions in Management's Discussion and Analysis and elsewhere in Part I of this Form 10-K contain or are based on "forward-looking" information (that the company believes to be within the definition in the Private Securities Litigation and Reform Act of 1995) that involves risk and uncertainties, including statements and assumptions with respect to future revenues, program performance and cash flows, the outcome of contingencies including litigation and environmental remediation, and anticipated costs of capital investments and planned dispositions. The company's operations are necessarily subject to various risks and uncertainties; actual outcomes are dependent upon many factors, including, without limitation, the company's successful performance of internal plans; government customers' budgetary restraints; customer changes in short-range and long-range plans; domestic and international competition in both the defense and commercial areas; product performance; continued development and acceptance of new products; performance issues with key suppliers and subcontractors; government import and export policies; termination of government contracts; the outcome of political and legal processes; legal, financial, and governmental risks related to international

transactions and global needs for military and commercial aircraft and electronic systems and support; as well as other economic, political and technological risks and uncertainties.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

The company has fixed-rate long-term debt obligations, most of which are not callable. The company also has financial instruments that are subject to interest rate risk, principally variable-rate short-term debt outstanding under the Credit Agreement. The company may enter into interest rate swap agreements to offset the variable-rate characteristics of these loans. At December 31, 1999, no interest rate swap agreements were in effect. The company does not hold or issue derivative financial instruments for trading purposes.

Only a small portion of the company's transactions are contracted in foreign currencies. The company does not consider the market risk exposure relating to foreign currency exchange to be material.

Selected Financial Data

Year ended December 31, \$ in millions, except per share	1999	1998	1997	1996	1995
Net sales to					
United States Government	\$ 7,067	\$ 6,717	\$ 7,210	\$ 7,224	\$ 6,148
The Boeing Company	733	1,075	883	569	569
Other customers	1,195	1,110	1,060	814	555
Total net sales	\$ 8,995	\$ 8,902	\$ 9,153	\$ 8,607	\$ 7,272
Operating margin	\$ 969	\$ 756	\$ 880	\$ 703	\$ 572
Net income	467	194	407	264	277
Basic earnings per share	6.73	2.83	6.10	4.22	4.79
Diluted earnings per share	6.69	2.79	5.98	4.15	4.71
Cash dividends per share	1.60	1.60	1.60	1.60	1.60
Net working capital	329	666	221	106	435
Current ratio	1.13 to 1	1.28 to 1	1.08 to 1	1.04 to 1	1.25 to 1
Total assets	\$ 9,285	\$ 9,536	\$ 9,677	\$ 9,645	\$ 5,642
Long-term debt	2,000	2,562	2,500	2,950	1,163
Total long-term obligations	3,564	4,319	4,339	4,694	2,281
Long-term debt as a percentage of shareholders' equity	61.4%	89.9%	95.3%	129.3%	73.3%
Operating margin as a percentage of					
Net sales	10.8	8.5	9.6	8.2	7.9
Average segment assets	11.9	9.0	10.4	10.3	10.8
Net income as a percentage of					
Net sales	5.2	2.2	4.5	3.1	3.8
Average assets	4.9	2.0	4.2	3.5	4.7
Average shareholders' equity	15.3	7.1	16.6	13.6	18.5
Research and development expenses					
Contract	\$ 1,149	\$ 1,489	\$ 1,670	\$ 1,632	\$ 1,179
Noncontract	197	203	256	255	164
Payroll and employee benefits	3,304	3,476	3,504	3,378	2,883
Number of employees at year-end	44,600	49,600	52,000	51,600	42,300
Number of shareholders at year-end	11,173	11,774	11,400	11,773	12,471
Depreciation	\$ 193	\$ 207	\$ 232	\$ 210	\$ 231
Amortization of					
Goodwill	103	94	94	83	38
Other purchased intangibles	93	92	92	82	21
Maintenance and repairs	92	92	107	93	80
Rent expense	117	106	108	110	106
Floor area (millions of square feet)					
Owned	18.8	19.2	20.5	22.5	20.1
Commercially leased	10.6	10.6	10.0	9.9	8.2
Leased from United States Government	7.5	7.6	8.8	9.0	10.2

Item 8. Financial Statements and Supplementary Data

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

December 31, \$ in millions	1999	1998

Assets:		
Current assets		
Cash and cash equivalents	\$ 142	\$ 44
Accounts receivable	1,402	1,507
Inventoried costs	1,190	1,373
Deferred income taxes	23	24
Prepaid expenses	36	85

Total current assets	2,793	3,033

Property, plant and equipment at cost		
Land and land improvements	163	170
Buildings	777	785
Machinery and other equipment	1,860	2,014
Leasehold improvements	95	89

Accumulated depreciation	2,895 (1,655)	3,058 (1,784)

	1,240	1,274

Other assets		
Goodwill, net of accumulated amortization of \$441 in 1999 and \$338 in 1998	3,469	3,381
Other purchased intangibles, net of accumulated amortization of \$388 in 1999 and \$295 in 1998	761	795
Prepaid retiree benefits cost, intangible pension asset and benefit trust fund	946	787
Deferred income taxes		166
Assets available for sale	26	37
Investments in and advances to affiliates and sundry assets	50	63

	5,252	5,229

	\$ 9,285	\$ 9,536
=====		

NORTHROP GRUMMAN CORPORATION

December 31, \$ in millions	1999	1998

Liabilities and Shareholders' Equity:		
Current liabilities		
Notes payable to banks	\$ 25	\$ 69
Current portion of long-term debt	200	200
Trade accounts payable	490	416
Accrued employees' compensation	366	337
Advances on contracts	316	354
Income taxes payable	58	
Deferred income taxes	550	527
Other current liabilities	459	464

Total current liabilities	2,464	2,367

Long-term debt	2,000	2,562
Accrued retiree benefits	1,458	1,704
Other long-term liabilities	42	53
Deferred income taxes	64	
Shareholders' equity		
Paid-in capital		
Preferred stock, 10,000,000 shares authorized; none issued		
Common stock, 200,000,000 shares authorized; issued and outstanding:		
1999 - 69,719,164		
1998 - 68,836,810	1,028	989
Retained earnings	2,248	1,892
Accumulated other comprehensive loss	(19)	(31)

	3,257	2,850

	\$9,285	\$9,536
=====		

The accompanying notes are an integral part of these consolidated financial statements.

NORTHROP GRUMMAN CORPORATION

CONSOLIDATED STATEMENTS OF INCOME

Year ended December 31, \$ in millions,
except per share

	1999	1998	1997
Net sales	\$8,995	\$8,902	\$9,153
Cost of sales			
Operating costs	6,852	6,930	7,040
Administrative and general expenses	1,174	1,216	1,233
Operating margin	969	756	880
Other income(deductions)			
Interest income	18	11	17
Merger costs		(186)	(18)
Interest expense	(224)	(233)	(257)
Investment losses		(30)	
Other, net	(1)	(6)	29
Income before income taxes	762	312	651
Federal and foreign income taxes	279	118	244
Income before cumulative effect of accounting change	483	194	407
Cumulative effect of accounting change	(16)		
Net income	\$ 467	\$ 194	\$ 407
Weighted average common shares outstanding, in millions	69.3	68.5	66.7
Basic earnings per share:			
Before cumulative effect of accounting change	\$ 6.97	\$ 2.83	\$ 6.10
Accounting change	(.24)		
Basic earnings per share	\$ 6.73	\$ 2.83	\$ 6.10
Diluted earnings per share:			
Before cumulative effect of accounting change	\$ 6.93	\$ 2.79	\$ 5.98
Accounting change	(.24)		
Diluted earnings per share	\$ 6.69	\$ 2.79	\$ 5.98

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

Year ended December 31, \$ in millions

	1999	1998	1997
Net income	\$ 467	\$ 194	\$ 407
Other comprehensive income			
Minimum pension liability adjustments, before tax	19	(13)	(28)
Income tax expense(benefit)	7	(4)	(10)
Other comprehensive income(loss), net of tax	12	(9)	(18)
Comprehensive income	\$ 479	\$ 185	\$ 389

The accompanying notes are an integral part of these consolidated financial statements.

NORTHROP GRUMMAN CORPORATION

CONSOLIDATED STATEMENTS OF CHANGES
IN SHAREHOLDERS' EQUITY

Year ended December 31, \$ in millions,
except per share

	1999	1998	1997

Paid-in Capital			
At beginning of year	\$ 989	\$ 838	\$ 784
Stock issued in purchase of business	30		
Employee stock awards and options exercised, net of forfeitures	9	151	60
Treasury stock transactions			(6)

At end of year	1,028	989	838

Retained Earnings			
At beginning of year	1,892	1,807	1,502
Net income	467	194	407
Cash dividends	(111)	(109)	(102)

At end of year	2,248	1,892	1,807

Accumulated Other Comprehensive Loss			
At beginning of year	(31)	(22)	(4)
Change in excess of additional minimum pension liability over unrecognized prior service costs, net of tax	12	(9)	(18)

At end of year	(19)	(31)	(22)

Total shareholders' equity	\$3,257	\$2,850	\$2,623
=====			
Book value per share	\$46.72	\$41.39	\$38.99
=====			
Cash dividends per share	\$ 1.60	\$ 1.60	\$ 1.60
=====			

The accompanying notes are an integral part of these consolidated financial statements.

NORTHROP GRUMMAN CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

Year ended December 31, \$ in millions	1999	1998	1997
Operating Activities			
Sources of Cash			
Cash received from customers			
Progress payments	\$1,691	\$1,844	\$2,264
Other collections	7,450	6,929	7,050
Interest received	18	11	17
Income tax refunds received	75	26	13
Other cash receipts	7	6	7
Cash provided by operating activities	9,241	8,816	9,351
Uses of Cash			
Cash paid to suppliers and employees	7,715	8,273	8,280
Interest paid	216	219	251
Income taxes paid	85	46	64
Other cash payments	18	34	26
Cash used in operating activities	8,034	8,572	8,621
Net cash provided by operating activities	1,207	244	730
Investing Activities			
Payment for businesses purchased, net of cash acquired	(232)	(50)	
Additions to property, plant and equipment	(201)	(211)	(238)
Proceeds from sale of property, plant and equipment	40	63	106
Proceeds from sale of affiliates/operations			19
Advances to affiliate		(30)	
Funding of retiree benefit trust		(2)	
Other investing activities	1	(5)	
Net cash used in investing activities	(392)	(235)	(113)
Financing Activities			
Borrowings under lines of credit	22	295	422
Repayment of borrowings under lines of credit	(434)	(55)	(808)
Principal payments of long-term debt/capital leases	(200)	(200)	(200)
Proceeds from issuance of stock	6	36	17
Dividends paid	(111)	(109)	(102)
Other financing activities		5	(6)
Net cash used in financing activities	(717)	(28)	(677)
Increase(decrease) in cash and cash equivalents	98	(19)	(60)
Cash and cash equivalents balance at beginning of year	44	63	123
Cash and cash equivalents balance at end of year	\$ 142	\$ 44	\$ 63

NORTHROP GRUMMAN CORPORATION

Year ended December 31, \$ in millions	1999	1998	1997

Reconciliation of Net Income to Net Cash			
Provided by Operating Activities:			
Net income	\$ 467	\$ 194	\$ 407
Adjustments to reconcile net income to net cash provided			
Depreciation	193	207	232
Amortization of intangible assets	196	186	186
Common stock issued to employees	2	88	24
Loss on disposals of property, plant and equipment	21	30	18
Loss(gain) on assets available for sale		15	(8)
Loss on investment		30	
Retiree benefits income	(249)	(194)	(44)
Decrease(increase) in			
Accounts receivable	170	1,212	(81)
Inventoried costs	172	(111)	(147)
Prepaid expenses	45	(18)	2
Increase(decrease) in			
Progress payments	21	(1,280)	66
Accounts payable and accruals	(2)	(115)	91
Provisions for contract losses	(8)	54	(30)
Deferred income taxes	230	112	188
Income taxes payable	58	(16)	(9)
Retiree benefits	(129)	(178)	(180)
Other noncash transactions	20	28	15

Net cash provided by operating activities	\$1,207	\$ 244	\$ 730
=====			
Noncash Investing and Financing Activities:			
Purchase of businesses			
Fair value of assets acquired	\$ 328	\$ 71	
Cash paid	(232)	(51)	
Stock issued	(30)		

Liabilities assumed	\$ 66	\$ 20	
=====			

The accompanying notes are an integral part of these consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation and Significant Accounting Estimates

The consolidated financial statements include the accounts of the corporation and its subsidiaries. All material intercompany accounts, transactions and profits are eliminated in consolidation.

The company's financial statements are in conformity with generally accepted accounting principles. The preparation thereof requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingencies at the date of the financial statements as well as the reported amounts of revenues and expenses during the reporting period. Estimates have been prepared on the basis of the most current and best available information and actual results could differ from those estimates.

Nature of Operations

Northrop Grumman is a major producer of military and commercial aircraft subassemblies and defense electronics and is the prime contractor on the U.S. Air Force B-2 Stealth Bomber. The company operates within the broadly defined aerospace industry. The majority of the company's products and services are ultimately sold to the U.S. Government and the company is therefore affected by, among other things, the federal budget process.

The company's three reportable segments are its three operating units: Integrated Systems and Aerostructures (ISA), Electronic Sensors and Systems (ESS), and Logicon, the company's information technology sector. Included in the Management's Discussion and Analysis section of this report are general descriptions of the company's principal products and services under the titles Integrated Systems and Aerostructures Segment, Electronic Sensors and Systems Segment, and Logicon Segment (see pages 9 through 13) and segment data in the table titled Results of Operations by Segment and Major Customer (see pages 14 and 15), which are considered to be an integral part of these financial statements. Only these portions of Management's Discussion and Analysis are incorporated by reference into these financial statements.

Sales to the U.S. Government (including foreign military sales) are reported within each segment and in total in the Selected Financial Data. The company does not conduct a significant volume of activity through foreign operations or in foreign currencies. Intersegment sales are transacted at cost incurred with no profit added. Management principally uses operating margin as the measure to evaluate segment profitability. The company does not allocate federal income tax expense, pension income, the deferred portion of state income tax expense, interest income, or interest expense to segments. General corporate assets include cash and cash equivalents, corporate office furnishings and equipment, other unallocable property, investments in affiliates, prepaid retiree benefits cost, intangible pension asset, benefit trust fund assets, deferred tax assets and certain assets available for sale.

Sales

Sales under cost-reimbursement, service, research and development, and construction-type contracts are recorded as costs are incurred and include estimated earned fees or profits calculated on the basis of the relationship between costs incurred and total estimated costs (cost-to-cost type of percentage-of-completion method of accounting). Construction-type contracts embrace those fixed-price type contracts that provide for the delivery at a low volume per year or a small number of units after a lengthy period of time over which a significant amount of costs have been incurred. Sales under other types of contracts are recorded as deliveries are made and are computed on the basis of the estimated final average unit cost plus profit (units-of-delivery type of percentage-of-completion method of accounting).

Certain contracts contain provisions for price redetermination or for cost and/or performance incentives. Such redetermined amounts or incentives are included in sales when the amounts can reasonably be determined. In the case of the B-2 bomber production contract, future changes in operating margin will be recognized on a units-of-delivery basis and recorded as each equivalent production unit is delivered. Amounts representing contract change orders, claims or limitations in funding are included in sales only when they can be reliably estimated and realization is probable. In the period in which it is determined that a loss will result from the performance of a contract, the entire amount of the estimated ultimate loss is charged against income. Loss provisions are first offset against costs that are included in assets, with any remaining amount reflected in Other Current Liabilities. Other changes in estimates of sales, costs and profits are recognized using the cumulative catch-up method of accounting. This method recognizes in the current period the cumulative effect of the changes on current and prior periods. Hence, the effect of the changes on future periods of contract performance is recognized as if the revised estimates had been the original estimates.

Contract Research and Development

Customer-sponsored research and development costs (direct and indirect costs incurred pursuant to contractual arrangements) are accounted for like other contracts.

Noncontract Research and Development

This category includes independent research and development costs and company-sponsored research and development costs (direct and indirect costs not recoverable under contractual arrangements). Independent research and development (IR&D) costs are included in administrative and general expenses (indirect costs allocable to U.S. Government contracts) whereas company-sponsored research and development costs are charged against income as incurred.

Environmental Costs

Environmental liabilities are accrued when the company determines it is responsible for remediation costs and such amounts are reasonably estimable. When only a range of amounts is established and no amount within the range is better than another, the minimum amount in the range is recorded. The company does not anticipate and record insurance recoveries before collection is probable.

Interest Rate Swap Agreements

The company may enter into interest rate swap agreements to offset the variable-rate characteristic of certain variable-rate term loans outstanding under the company's Credit Agreement. Interest on these interest rate swap agreements is recognized as an adjustment to interest expense in the period incurred.

Income Taxes

Provisions for federal, state and local income taxes are calculated on reported financial statement pretax income based on current tax law and also include, in the current period, the cumulative effect of any changes in tax rates from those used previously in determining deferred tax assets and liabilities. Such provisions differ from the amounts currently payable because certain items of income and expense are recognized in different time periods for financial reporting purposes than for income tax purposes.

The company accounts for certain contracts in process using different methods of accounting for financial statements and tax reporting and thus provides deferred taxes on the difference between the financial and taxable income reported during the performance of such contracts.

In accordance with industry practice, state and local income and franchise tax provisions are included in administrative and general expenses.

Earnings per Share

Basic earnings per share is calculated using the weighted average number of shares of common stock outstanding during each period, after giving recognition to stock splits and stock dividends. Diluted earnings per share reflect the dilutive effect of stock options and other stock awards granted to employees under stock-based compensation plans.

Basic and diluted earnings per share are calculated as follows:

	Net Income	Shares	Earnings per share
	(millions)	(millions)	

1999			
Basic earnings per share before cumulative effect of accounting change	\$483 =====	69.3	\$6.97 =====
Dilutive effect of stock options and awards		.4 -----	
Diluted earnings per share before cumulative effect of accounting change	\$483 =====	69.7 =====	\$6.93 =====
Basic earnings per share	\$467 =====	69.3	\$6.73 =====
Dilutive effect of stock options and awards		.4 -----	
Diluted earnings per share	\$467 =====	69.7 =====	\$6.69 =====
1998			
Basic earnings per share	\$194 =====	68.5	\$2.83 =====
Dilutive effect of stock options and awards		1.0 -----	
Diluted earnings per share	\$194 =====	69.5 =====	\$2.79 =====
1997			
Basic earnings per share	\$407 =====	66.7	\$6.10 =====
Dilutive effect of stock options and awards		1.4 -----	
Diluted earnings per share	\$407 =====	68.1 =====	\$5.98 =====

Cash and Cash Equivalents

Cash and cash equivalents include interest-earning debt instruments that mature in three months or less from the date purchased.

Accounts Receivable

Accounts receivable include amounts billed and currently due from customers, amounts currently due but unbilled (primarily related to contracts accounted for under the cost-to-cost type of percentage-of-completion method of accounting), certain estimated contract changes, claims in negotiation that are probable of recovery, and amounts retained by the customer pending contract completion.

Inventoried Costs

Inventoried costs primarily relate to work in process under fixed-price type contracts (excluding those included in unbilled accounts receivable as previously described). They represent accumulated contract costs less the portion of such costs allocated to delivered items. Accumulated contract costs include direct production costs, factory and engineering overhead, production tooling costs, and allowable administrative and general expenses (except for general corporate expenses and IR&D allocable to commercial contracts, which are charged against income as incurred).

In accordance with industry practice, inventoried costs are classified as a current asset and include amounts related to contracts having production cycles longer than one year.

Depreciable Properties

Property, plant and equipment owned by the company are depreciated over the estimated useful lives of individual assets. Capital leases providing for the transfer of ownership upon their expiration or containing bargain purchase options are amortized over the estimated useful lives of individual assets. Most of these assets are depreciated using declining-balance methods, with the remainder using the straight-line method, with the following lives:

	Years

Land improvements	2-20
Buildings	3-45
Machinery and other equipment	2-33
Leasehold improvements	Length of lease

Goodwill and Other Purchased Intangible Assets

Goodwill and other purchased intangible assets are amortized on a straight-line basis over weighted average periods of 38 years and 15 years, respectively. Goodwill and other purchased intangibles balances are included in the identifiable assets of the industry segment to which they have been assigned and amortization is charged against the respective industry segment operating margin. The recoverability of goodwill and other purchased intangibles is evaluated at least annually considering the projected future profitability and cash flow of the operations to which they relate. When it is determined that an impairment has occurred, an appropriate charge to operations is recorded. Charges of \$7 million and \$9 million were recorded in 1999 and 1998, respectively, for purchased intangible assets no longer considered recoverable from future revenues.

Assets Available for Sale

Capital assets are transferred to assets available for sale when a decision is made to sell a facility and selling efforts are actively underway. In some cases, operations continue and, when costs are allowable under government contracts, depreciation expense is recorded until the facility is vacated or sold. Assets available for sale are evaluated at least annually for recoverability and written down to estimated fair value as necessary. When an asset is written down to estimated fair value, depreciation ceases.

Financial Statement Reclassification

To conform to the presentation in 1999, certain amounts for 1998 and 1997 have been reclassified in the Consolidated Financial Statements. The reclassifications had no effect on net income or earnings per share for any period presented.

BUSINESS COMBINATIONS

Effective August 1, 1997, the company consummated the merger of its wholly owned acquisition subsidiary with and into Logicon, Inc. a leading defense information technology and services company. Each share of Logicon's common stock was converted to .6161 of a share of the company's common stock. The merger was accounted for as a pooling of interests.

ACQUISITIONS

In 1998 the company acquired Inter-National Research Institute Inc. for \$55 million in cash. In 1999 the company acquired three businesses, the Information Systems Division of California Microwave, Inc., Data Procurement Corporation, and Ryan Aeronautical, an operating unit of Allegheny Teledyne Incorporated, for a total of \$271 million in cash and stock. The results of operations of the acquired companies were included in the consolidated results of Northrop Grumman Corporation from their respective acquisition dates.

The purchase method of accounting was used to record all four acquisitions with estimated fair values being assigned to assets and liabilities. The excess of the purchase price over the net tangible assets acquired was assigned to identifiable intangible assets and the remaining balance was assigned to goodwill.

Unaudited pro forma consolidated results, after giving effect to the businesses acquired in 1998 and 1999, would not have been materially different from the reported amounts for 1997, 1998 or 1999.

TERMINATED MERGER AGREEMENT

On July 3, 1997, the company announced that it had entered into a definitive agreement with Lockheed Martin Corporation to combine the companies. On February 26, 1998, shareholders of Northrop Grumman approved the merger. On March 23, 1998, the U.S. Government filed suit to block the merger. On July 16, 1998, Lockheed Martin notified the company that it was terminating its merger agreement with the company pursuant to the terms of the agreement.

The company recorded charges totaling \$186 million in 1998 for costs related to the terminated merger. The charges cover vesting of restricted stock which became issuable following shareholder approval of the merger and other costs associated with the terminated merger, including investment banking fees, legal and accounting fees, and costs related to responding to the Government's request for information.

NEW ACCOUNTING STANDARDS

In January 1999, the company adopted Statement of Position (SOP) 98-1 - Accounting for the Costs of Computer Software Developed or Obtained for Internal Use, which requires capitalization of certain costs incurred after the date of adoption to develop or obtain software for internal use. Adoption of this standard had no material effect on the company's results of operations, financial position, or cash flows.

In January 1999, the company adopted SOP 98-5 - Reporting on the Costs of Start-Up Activities, which requires that certain costs, that previously had been deferred, be expensed and reported as a cumulative effect of a change in accounting principle, and all such future costs be expensed as incurred. In the first quarter of 1999, the company recorded a \$16 million after-tax charge, or \$.24 per share, as the cumulative effect of a change in accounting principle.

In June 1998, the Financial Accounting Standards Board issued SFAS No. 133- Accounting for Derivative Instruments and Hedging Activities, which becomes effective for fiscal years beginning after June 15, 2000. This standard provides authoritative guidance on accounting and financial reporting for derivative instruments. Management is currently evaluating the effect that adoption of this standard will have on the company's results of operations, financial position, and cash flows.

ACCOUNTS RECEIVABLE

Unbilled amounts represent sales for which billings have not been presented to customers at year end, including differences between actual and estimated overhead and margin rates. These amounts are usually billed and collected within one year. Progress payments are, however, received on a number of fixed-price contracts accounted for using the cost-to-cost type percentage-of-completion method.

The claim receivable as of December 31, 1998, represents costs incurred to date on the Accurate Fuselage Assembly (AFA) program that the company expected to recover from The Boeing Company for out-of-scope work and related delay and disruption costs incurred on the program. In the second quarter of 1999, the company resolved its claims with Boeing. The settlement had no material effect on the company's financial results for 1999.

Accounts receivable at December 31, 1999, are expected to be collected in 2000 except for approximately \$89 million due in 2001 and \$16 million due in 2002 and later.

Allowances for doubtful amounts represent mainly estimates of overhead type costs which may not be successfully negotiated and collected.

Accounts receivable were comprised of the following:

\$ in millions	1999	1998

Due from U.S. Government, long-term contracts		
Current accounts		
Billed	\$ 424	\$ 362
Unbilled	1,879	2,145
Progress payments received	(1,283)	(1,388)
	-----	-----
	1,020	1,119

Due from other customers, long-term contracts		
Current accounts		
Billed	122	141
Unbilled	165	137
Claim		29
	-----	-----
	287	307

Total due, long-term contracts	1,307	1,426

Trade and other accounts receivable		
Due from U.S. Government	57	63
Due from other customers	76	65
	-----	-----
Total due, trade and other	133	128

Allowances for doubtful amounts	1,440	1,554
	(38)	(47)
	-----	-----
	\$ 1,402	\$ 1,507
=====		

INVENTORIED COSTS

Inventoried costs were comprised of the following:

\$ in millions	1999	1998
Production costs of contracts in process	\$1,320	\$1,487
Excess of production cost of delivered items over the estimated average unit cost	161	162
Administrative and general expenses	230	245
	1,711	1,894
Progress payments received	(521)	(521)
	\$1,190	\$1,373

Inventoried costs relate to long-term contracts in process and include expenditures for raw materials and work in process beyond what is required for recorded orders. These expenditures are incurred to help maintain stable and efficient production schedules. The excess of production costs of delivered and in process items over the estimated average costs is carried in inventory under the learning curve concept. Under this concept, production costs per unit are expected to decrease over time due to efficiencies arising from continuous improvement in the performance of repetitive tasks

The ratio of inventoried administrative and general expenses to total inventoried costs is estimated to be the same as the ratio of total administrative and general expenses incurred to total contract costs incurred.

According to the provisions of U.S. Government contracts, the customer has title to, or a security interest in, substantially all inventories related to such contracts.

NORTHROP GRUMMAN CORPORATION

INCOME TAXES

Income tax expense, both federal and foreign, was comprised of the following:

\$ in millions	1999	1998	1997

Currently payable			
Federal income taxes	\$ 63	\$ 6	\$ 26
Foreign income taxes	4	5	3

	67	11	29
Change in deferred federal income taxes	212	107	215

	\$ 279	\$ 118	\$ 244
=====			

Income tax expense differs from the amount computed by multiplying the statutory federal income tax rate times the income before income taxes due to the following:

\$ in millions	1999	1998	1997

Income tax expense at statutory rate	\$ 267	\$ 109	\$ 228
Goodwill amortization	16	16	17
Benefit from ESOP dividends	(3)	(3)	(3)
Other, net	(1)	(4)	2

	\$ 279	\$ 118	\$ 244
=====			

Deferred income taxes arise because of differences in the treatment of income and expense items for financial reporting and income tax purposes. The principal type of temporary difference stems from the recognition of income on contracts being reported under different methods for tax purposes than for financial reporting.

The tax effects of significant temporary differences and carryforwards that gave rise to year-end deferred federal and state tax balances, as categorized in the Consolidated Statements of Financial Position, were as follows:

NORTHROP GRUMMAN CORPORATION

\$ in millions	1999	1998

Deferred tax assets		
Deductible temporary differences		
Provision for estimated expenses	\$ 33	\$ 41
Retiree benefit plan expense		364
Other		12
	33	417

Taxable temporary differences		
Income on contracts	(10)	(12)
Purchased intangibles		(89)
Excess tax over book depreciation		(69)
Other		(57)
	(10)	(227)
	\$ 23	\$ 190
=====		
Deferred tax liabilities		
Taxable temporary differences		
Income on contracts	\$ 913	\$ 865
Goodwill amortization	95	
Purchased intangibles	89	
Excess tax over book depreciation	72	
Administrative and general expenses period costed for tax purposes	14	18
Other	14	
	1,197	883

Deductible temporary differences		
Provision for estimated expenses	(207)	(174)
Retiree benefit plan expense	(197)	(16)
Other	(50)	(30)
	(454)	(220)

Tax carryforwards		
Tax credits	(75)	(82)
Alternative minimum tax credit	(54)	(54)
	(129)	(136)
	\$ 614	\$ 527
=====		
Net deferred tax liability		
Total deferred tax liabilities (taxable temporary differences above)	\$1,207	\$1,110
Less total deferred tax assets (deductible temporary differences and tax carryforwards above)	616	773
	\$ 591	\$ 337
=====		

The tax carryforward benefits are expected to be used in the periods in which net deferred tax liabilities mature. These tax credit carryforwards are in various amounts and expire over the years 2001 through 2007. The alternative minimum tax credit can be carried forward indefinitely.

NOTES PAYABLE TO BANKS AND LONG-TERM DEBT

The company has available short-term credit lines in the form of money market facilities with several banks. The amount and conditions for borrowing under these credit lines depend on the availability and terms prevailing in the marketplace. No fees or compensating balances are required for these credit facilities. At December 31, 1999, \$25 million was outstanding at a weighted average interest rate of 6.75 percent. At December 31, 1998, \$67 million was outstanding at a weighted average interest rate of 5.60 percent.

Additionally, the company has a credit agreement with a group of domestic and foreign banks to provide for two credit facilities: \$1.8 billion available on a revolving credit basis through March 2002; and a term loan payable in nine quarterly installments of \$50 million plus interest through March 1, 2002. The company pays, at least quarterly, interest on the outstanding debt under the credit agreement at rates that vary based in part on the company's credit rating and leverage ratio.

At December 31, 1999, \$150 million at a weighted average interest rate of 6.76 percent was outstanding under the company's revolving credit facility. At December 31, 1998, \$512 million at a weighted average interest rate of 5.66 percent was outstanding. At December 31, 1999, the \$450 million term loan had a weighted average interest rate of 6.61 percent. At December 31, 1998, \$650 million was outstanding at a weighted average interest rate of 5.68 percent. Principal payments permanently reduce the amount available under this agreement as well as the debt outstanding. Under these agreements, in the event of a "change in control," the banks are relieved of their commitments. Compensating balances are not required under these agreements.

The company's credit agreements contain restrictions relating to the payment of dividends, acquisition of the company's stock, aggregate indebtedness for borrowed money and interest coverage. At December 31, 1999, \$880 million of retained earnings were unrestricted as to the payment of dividends.

Long-term debt consisted of the following:

\$ in millions	1999	1998
Notes due 2004, 8.625%	\$ 350	\$ 350
Notes due 2006, 7%	400	400
Debentures due 2016, 7.75%	300	300
Debentures due 2024, 9.375%	250	250
Debentures due 2026, 7.875%	300	300
Revolving credit facility	150	512
Term loans payable to banks	450	650
	2,200	2,762
Less current portion	200	200
	\$2,000	\$2,562
	=====	=====

The debt indenture contains restrictions relating to limitations on liens, sale and leaseback arrangements and funded debt of subsidiaries.

The principal amount of long-term debt outstanding at December 31, 1999, due in each of the years 2000 and 2001 is \$200 million, with \$50 million due in 2002, \$350 million due in 2004 and \$1,400 million due thereafter.

FAIR VALUE OF FINANCIAL INSTRUMENTS

The following methods and assumptions were used by the company in estimating its fair value disclosures for financial instruments:

Due to the short-term nature of these items, the carrying amount reported in the Consolidated Statements of Financial Position for Cash and Cash Equivalents and amounts borrowed under the company's short-term credit lines are estimated to approximate fair value.

The fair value of the long-term debt at the respective year-ends was calculated based on interest rates available for debt with terms and due dates similar to the company's existing debt arrangements.

The company has limited involvement with derivative financial instruments and does not use them for trading purposes. To mitigate the variable rate characteristic of its term loans, the company has from time to time entered into interest rate swap agreements. No interest rate swap agreements were in effect at December 31, 1999, or December 31, 1998. If any interest rate swap agreements had existed, unrealized gains(losses) would be calculated based upon the amounts at which they could have been settled at then current interest rates.

Carrying amounts and the related estimated fair values of the company's financial instruments at December 31 of each year are as follows:

\$ in millions	1999	1998
-----	-----	-----
Long-term debt		
Carrying amount	\$2,200	\$2,762
Fair value	2,154	2,914
-----	-----	-----

RETIREMENT BENEFITS

The company sponsors several defined-benefit pension plans covering over 80 percent of employees. Pension benefits for most employees are based on the employee's years of service and compensation during the last ten years before retirement. It is the policy of the company to fund at least the minimum amount required for all qualified plans, using actuarial cost methods and assumptions acceptable under U.S. Government regulations, by making payments into a trust separate from the company. Five of the company's fourteen qualified plans, which cover more than 70 percent of all employees, were in a legally defined full-funding limitation status at December 31, 1999.

The company and subsidiaries also sponsor defined-contribution plans in which most employees are eligible to participate. Company contributions for most plans are based on a matching of employee contributions up to 4 percent of compensation.

In addition, the company and its subsidiaries provide certain health care and life insurance benefits for retired employees. Employees achieve eligibility to participate in these contributory plans upon retirement from active service and if they meet specified age and years of service requirements. Election to participate must be made at the date of retirement. Qualifying dependents are also eligible for medical coverage. Approximately 70 percent of the company's current retirees participate in the medical plans. Plan documents reserve the company's right to amend or terminate the plans at any time. Premiums charged retirees for medical coverage are based on years of service and are adjusted annually for changes in the cost of the plans as determined by an independent actuary. In addition to this medical inflation cost-sharing feature, the plans also have provisions for deductibles, copayments, coinsurance percentages, out-of-pocket limits, schedule of reasonable fees, managed care providers, maintenance of benefits with other plans, Medicare carve-out and a maximum lifetime benefit of from \$250,000 to \$1,000,000 per covered individual. It is the policy of the company to fund the maximum amount deductible for income taxes into the VEBA trust established for the Northrop Retiree Health Care Plan for Retired Employees for payment of benefits.

NORTHROP GRUMMAN CORPORATION

The cost to the company of these plans in each of the last three years is shown in the following table.

\$ in millions	Pension Benefits			Medical and Life Benefits		
	1999	1998	1997	1999	1998	1997

Components of net periodic benefit cost(income)						
Service cost	\$ 200	\$ 187	\$ 162	\$ 34	\$ 27	\$ 27
Interest cost	659	642	618	102	95	98
Expected return on plan assets	(1,136)	(1,008)	(834)	(30)	(34)	(26)
Amortization of						
Prior service costs	35	35	34			
Transition assets, net	(42)	(42)	(42)			
Net gain from previous years	(69)	(80)	(71)	(2)	(16)	(10)

Net periodic benefit cost(income)	\$ (353)	\$ (266)	\$(133)	\$ 104	\$ 72	\$ 89
=====						
Defined contribution plans cost	\$ 92	\$ 89	\$ 84			
=====						

Major assumptions as of each year-end used in the accounting for the defined-benefit plans are shown in the following table. Pension cost is determined using all three factors as of the end of the preceding year, whereas the funded status of the plans, shown later, uses only the first two factors as of the end of each year.

	1999	1998	1997

Discount rate for obligations	7.50%	6.50%	7.00%
Rate of increase for compensation	5.00	4.00	4.50
Expected long-term rate of return on plan assets	9.50	9.50	9.50

These assumptions also were used in retiree health care and life insurance benefit calculations with one modification. Since, unlike the pension trust, the earnings of the VEBA trust are taxable, the above 9.5 percent expected rate of return on plan assets was reduced accordingly to 6 percent after taxes. A significant factor used in estimating future per capita cost of covered health care benefits for the company and its retirees is the health care cost trend rate assumption. The rate used was 10 percent for 1999 and is assumed to decrease gradually to 6 percent for 2006 and thereafter. A one-percentage-point change in that rate would have the following effects:

\$ in millions	1-Percentage-Point Increase	1-Percentage-Point Decrease

Effect on total of service and interest cost components	\$ 18	\$ (15)
Effect on postretirement benefit obligation	166	(146)

NORTHROP GRUMMAN CORPORATION

The following tables set forth the funded status and amounts recognized in the Consolidated Statements of Financial Position at each year-end for the company's defined-benefit pension and retiree health care and life insurance benefit plans. Pension benefits data includes the qualified plans as well as thirteen unfunded non-qualified plans for benefits provided to directors, officers and employees either beyond those provided by, or payable under, the company's main plans.

\$ in millions	Pension Benefits		Medical and Life Benefits	
	1999	1998	1999	1998

Change in benefit obligation				
Benefit obligation at beginning of year	\$10,164	\$ 9,056	\$ 1,559	\$ 1,443
Service cost	200	187	34	27
Interest cost	659	642	102	95
Plan participants' contributions	7	7	26	25
Amendments	4	3		
Actuarial loss(gain)	(771)	851	(72)	67
Benefits paid	(612)	(582)	(115)	(98)

Benefit obligation at end of year	9,651	10,164	1,534	1,559

Change in plan assets				
Fair value of plan assets at beginning of year	12,033	10,832	570	538
Actual return on plan assets	2,284	1,651	154	61
Employer contributions	80	125	58	44
Plan participants' contributions	7	7	26	25
Benefits paid	(612)	(582)	(115)	(98)

Fair value of plan assets at end of year	13,792	12,033	693	570

Funded status	4,141	1,869	(841)	(989)
Unrecognized prior service cost	169	200	2	2
Unrecognized net transition asset	(120)	(162)		
Unrecognized net gain	(3,573)	(1,723)	(319)	(125)

Net asset(liability) recognized	\$ 617	\$ 184	\$(1,158)	\$(1,112)
=====				
Amounts recognized in the statement of financial position				
Prepaid benefit cost	\$ 851	\$ 712	\$ 30	\$
Accrued benefit liability	(234)	(528)	(1,188)	(1,112)
Additional minimum liability	(36)	(64)		
Intangible asset	7	16		
Accumulated other comprehensive loss	29	48		

Net asset(liability) recognized	\$ 617	\$ 184	\$(1,158)	\$(1,112)
=====				

NORTHROP GRUMMAN CORPORATION

For pensions plans with benefit obligations in excess of assets as of December 31, 1999, the projected benefit obligation was \$224 million, the accumulated benefit obligation was \$203 million, and the fair value of assets was \$7 million. As of December 31, 1998, the projected benefit obligation was \$1,451 million, the accumulated benefit obligation was \$1,285 million, and the fair value of assets was \$784 million.

Pension plan assets at December 31, 1999, comprised 48 percent domestic equity investments in listed companies (including 2 percent in Northrop Grumman common stock); 14 percent equity investments listed on international exchanges; 22 percent in fixed income investments; 5 percent in venture capital and real estate investments; and 11 percent in cash and cash equivalents. The investment in Northrop Grumman represents 4,111,669 shares, or 6 percent of the company's total shares outstanding.

Retiree health care and life insurance plan assets at December 31, 1999, comprised 64 percent domestic equity investments in listed companies; 24 percent equity investments on international exchanges; and 12 percent in cash and equivalents.

COMMITMENTS AND CONTINGENCIES

The corporation and its subsidiaries have been named as defendants in various legal actions. Based upon available information, it is the company's expectation that those actions are either without merit or will have no material adverse effect on the company's results of operations or financial position.

In accordance with company policy on environmental remediation, the estimated cost to complete remediation has been accrued where it is probable that the company will incur such costs in the future, including those for which it has been named a Potentially Responsible Party by the Environmental Protection Agency or similarly designated by other environmental agencies. To assess the potential impact on the company's financial statements, management estimates the total reasonably possible remediation costs that could be incurred by the company, taking into account currently available facts on each site as well as the current state of technology and prior experience in remediating contaminated sites. These estimates are reviewed periodically and adjusted to reflect changes in facts and technical and legal circumstances. Management estimates that at December 31, 1999, the range of reasonably possible future costs for environmental remediation is \$80 million to \$111 million, of which \$87 million has been accrued. Although management cannot predict whether new information gained as projects progress will materially affect the estimated liability accrued, management does not anticipate that future remediation expenditures will have a material adverse effect on the company's results of operations, financial position, or cash flows.

The company has entered into standby letter of credit agreements and other arrangements with financial institutions primarily relating to the guarantee of future performance on certain contracts. Contingent liabilities on these agreements aggregated approximately \$535 million at December 31, 1999.

The company has agreed to invest an additional \$30 million in Kistler Aerospace Corporation preferred stock. This investment will only be made when Kistler Aerospace Corporation has obtained additional funding from other sources and will represent the last increment of funding required to complete and test the first K-1 vehicle, and is subject to the company's then determination that the K-1 is a viable launch system.

Minimum rental commitments under long-term noncancellable operating leases total \$394 million which is payable as follows: 2000 - \$93 million, 2001 - \$70 million, 2002 - \$60 million, 2003 - \$51 million, 2004 - \$42 million, and 2005 and thereafter - \$78 million.

STOCK RIGHTS

The company has a Common Stock Purchase Rights plan with one right issued in tandem with each share of common stock. The rights will become exercisable on the tenth business day after a person or group has acquired 15 percent or more of the general voting power of the company, or announces an intention to make a tender offer for 30 percent or more of such voting power, without the prior consent of the Board of Directors. If the rights become exercisable, a holder will be entitled to purchase one share of common stock from the company at an initial exercise price of \$250.

If a person acquires more than 15 percent of the then outstanding voting power of the company or if the company is combined with an acquiror, each right will entitle its holder to receive, upon exercise, shares of the company's or the acquiror's (depending upon which is the surviving company) common stock having a value equal to two times the exercise price of the right.

The company will be entitled to redeem the rights at \$.01 per right at any time prior to the earlier of the date that a person has acquired or obtained the right to acquire 15 percent of the general voting power of the company or the expiration of the rights in October 2008. The rights are not exercisable until after the date on which the company's prerogative to redeem the rights has expired. The rights do not have voting or dividend privilege and cannot be traded independently from the company's common stock until such time as they become exercisable.

STOCK COMPENSATION PLANS

At December 31, 1999, Northrop Grumman had two stock-based compensation plans - the 1993 Long-Term Incentive Stock Plan (LTISP) applicable to employees and the 1995 Stock Option Plan for Non-Employee Directors (SOPND). The LTISP contains change in control provisions which were activated in February 1998 upon approval by the shareholders of the proposed merger of the company with Lockheed Martin Corporation, causing all then unvested stock awards to become immediately vested.

The LTISP permits grants to key employees of three general types of stock incentive awards: stock options, stock appreciation rights (SARs) and stock awards. Under the LTISP, each stock option grant is made with an exercise price either at the closing price of the stock on the date of grant (market options) or at a premium over the closing price of the stock on the date of grant (premium options). Options generally vest in 25 percent increments two, three, four and five years from the grant date and expire ten years after the grant date. No SARs have been granted under the LTISP. Stock awards, in the form of restricted performance stock rights, are granted to key employees without payment to the company. Recipients of the rights earn shares of stock based on a total-shareholder-return measure of performance over a five-year period with interim distributions three and four years after grant. If at the end of the five-year period the performance objectives have not been met, unearned rights up to 100 percent of the original grant for five elected officers and, up to 70 percent of the original grant for all other recipients, will be forfeited. Termination of employment can result in forfeiture of some or all of the benefits extended under the plan. Each year 1.5% of the company's total issued and outstanding common stock at the end of the preceding fiscal year become available for issuance pursuant to incentive awards. During 1998 and 1999, a number of awards granted under the LTISP contained terms, including limitations and conditions on exercisability and vesting, that took into account and were predicated upon future annual share availability.

The SOPND permits grants of stock options to nonemployee directors. Each grant of a stock option is made at the closing market price on the date of the grant, is immediately exercisable, and expires ten years after the grant date. At December 31, 1999, 244,500 shares were available for future grants under the SOPND.

The company applies Accounting Principles Board Opinion 25 - Accounting for Stock Issued to Employees and related Interpretations in accounting for awards made under the plans. When stock options are exercised, the amount of the cash proceeds to the company is recorded as an increase to paid-in capital. No compensation expense is recognized in connection with stock options. Compensation expense for restricted performance stock rights is estimated and accrued over the vesting period. The fixed 30 percent minimum distribution portion is recorded at grant value and the variable portion is recorded at market value. Compensation expense recognized for stock awards was \$15 million in 1999, \$163 million in 1998, and \$57 million in 1997.

Stock option activity for the last three years is summarized below:

	Shares Under Option	Weighted- Average Exercise Prices	Shares Exercisable

Outstanding at December 31, 1996	4,027,272	\$47	1,384,026
Granted, market options	15,000	85	
Cancelled	(100,932)	58	
Exercised	(570,182)	34	

Outstanding at December 31, 1997	3,371,158	49	1,556,475
Granted, market options	992,000	74	
Granted, premium options	1,986,450	95	
Cancelled	(5,700)	65	
Exercised	(766,182)	48	

Outstanding at December 31, 1998	5,577,726	70	2,624,276
Granted, market options	69,200	62	
Granted, premium options	106,800	93	
Cancelled	(221,015)	88	
Exercised	(702,628)	22	

Outstanding at December 31, 1999	4,830,083	76	1,926,899
=====			

Had compensation expense been determined based on the fair value at the grant dates for stock option awards granted in 1999, 1998 and 1997, consistent with the method of Financial Accounting Standards Board Statement 123 - Accounting for Stock Based Compensation, net income, basic earnings per share, and diluted earnings per share in 1999 would have been lower by \$11 million, seventeen cents and sixteen cents, respectively. For 1998 net income, basic earnings per share and diluted earnings per share would have been lower by \$5 million, seven cents and seven cents, respectively. For 1997 net income, basic earnings per share and diluted earnings per share would have been lower by \$5 million, eight cents, and eight cents, respectively. These amounts were determined using weighted-average per share fair values for premium options granted in 1999 of \$15 and 1998 of \$15 and for market options granted in 1999, 1998 and 1997 of \$18, \$20 and \$25 respectively. The fair value of each option grant was estimated on the date of grant using the Black-Scholes option-pricing model based on an expected life of six years and for 1999, 1998 and 1997, respectively, the following additional assumptions: dividend yield - 2.1 percent, 1.9 percent and 1.9 percent; expected volatility - 29 percent, 27 percent and 22 percent; and risk-free interest rate - 5.8 percent, 4.4 percent and 6.7 percent.

At December 31, 1999 the following stock options were outstanding:

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding at 12/31/99	Weighted-Average Remaining Contractual Life	Weighted-Average Exercise Prices	Number Exercisable at 12/31/99	Weighted-Average Exercise Prices
\$16 to 35	123,458	2.8 years	\$ 25	123,458	\$ 25
36 to 55	580,619	5.0 years	41	552,119	41
56 to 75	1,490,122	7.9 years	68	531,622	59
76 to 95	1,599,459	8.1 years	85	674,700	81
96 to 118	1,036,425	9.0 years	101	45,000	105
	4,830,083			1,926,899	
	=====			=====	

Restricted performance stock rights were granted with weighted-average grant-date fair values per share as follows: 1999 - 75,300 at \$64; 1998 - 794,050 at \$73; and 1997 - 7,700 at \$80.

NORTHROP GRUMMAN CORPORATION

UNAUDITED SELECTED QUARTERLY DATA

Quarterly financial results are set forth in the following tables together with dividend and common stock price data.

1999 Quarters

\$ in millions, except per share	4	3	2	1
Net sales	\$ 2,506	\$ 2,122	\$ 2,274	\$ 2,093
Operating margin	253	262	238	216
Income before cumulative effect of accounting change	138	128	113	104
Net income	138	128	113	88
Basic earnings per share before cumulative effect of accounting change	1.97	1.84	1.65	1.51
Basic earnings per share	1.97	1.84	1.65	1.27
Diluted earnings per share before cumulative effect of accounting change	1.96	1.83	1.64	1.50
Diluted earnings per share	1.96	1.83	1.64	1.26
Dividend per share	.40	.40	.40	.40
Stock price:				
High	62 5/16	75 11/16	73 5/16	73 1/4
Low	49	59 15/16	57 3/4	57

In the fourth quarter of 1999 the company reached a settlement of its contract claims with the U. S. Air Force relating to the remanufacturing of Joint STARS aircraft. The company was able to recognize underlying improved performance on the production phase of the program and recorded upward cumulative margin rate adjustments totaling \$37 million. Operating margin includes positive cumulative margin rate adjustments on the B-2 program of \$23 million, \$11 million and \$36 million in the fourth, third and second quarters, respectively. Charges on Boeing commercial aerostructures work, to reflect increases in cost estimates to complete work on several contracts, of \$27 million in the fourth quarter, \$10 million in the third quarter and \$40 million in the second quarter were also recorded.

NORTHROP GRUMMAN CORPORATION

1998 Quarters

\$ in millions, except per share	4	3	2	1
Net sales	\$ 2,536	\$ 2,213	\$ 2,139	\$ 2,014
Operating margin	103	238	208	207
Net income(loss)	(3)	116	93	(12)
Basic earnings(loss) per share	(.04)	1.68	1.36	(.18)
Diluted earnings(loss) per share	(.04)	1.67	1.34	(.18)
Dividend per share	.40	.40	.40	.40
Stock price:				
High	84	108 5/8	110 3/4	139
Low	68 7/16	59 5/16	97 3/16	102 3/4

Operating margin in the fourth quarter of 1998 includes charges of \$104 million related to the 747 fuselage program and \$21 million due to an increase in the cost estimate to complete work on the test phase of development for the Directional Infrared Countermeasures (DIRCM) program. The Boeing 747 charge resulted from a reduction in future fuselage deliveries that caused an increase in the estimated cost to complete work on the current production block and a charge to operations of certain nonrecurring costs for the Accurate Fuselage Assembly (AFA) precision manufacturing system, which are no longer considered recoverable from sales of future deliveries. Pretax costs of \$16 million and \$42 million are included in the third and fourth quarter, respectively, related to activities to realign operating units, consolidate facilities and exit certain business areas. Cumulative margin rate adjustments on the Joint STARS and E-2C programs reduced operating margin in the second quarter by \$25 million. Charges related to the company's terminated merger with Lockheed Martin Corporation of \$180 million and \$6 million were recorded in the first and second quarter, respectively. Included in the 1998 fourth quarter results is the write off of the company's \$30 million investment comprised of advances on behalf of the Kistler Aerospace Corporation. The write off resulted from the company's assessment that the near-term likelihood of Kistler obtaining additional financing made recovery of the investment uncertain.

The corporation's common stock is traded on the New York and Pacific Stock Exchanges (trading symbol NOC). The approximate number of holders of record of the corporation's common stock at February 14, 2000, was 11,135.

INDEPENDENT AUDITORS' REPORT

Board of Directors and Shareholders
Northrop Grumman Corporation
Los Angeles, California

We have audited the accompanying consolidated statements of financial position of Northrop Grumman Corporation and Subsidiaries as of December 31, 1999 and 1998, and the related consolidated statements of income, comprehensive income, changes in shareholders' equity, and cash flows for each of the three years in the period ended December 31, 1999. Our audit also included the financial statement schedule listed in the Index at Item 14. These financial statements and financial statement schedule are the responsibility of the company's management. Our responsibility is to express an opinion on these financial statements and financial statement schedule based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of Northrop Grumman Corporation and Subsidiaries at December 31, 1999 and 1998, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1999 in conformity with generally accepted accounting principles. Also, in our opinion, such financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

As discussed in the footnotes to the consolidated financial statements, in 1999 the Company changed its method of accounting for start-up activities by adopting Statement of Position 98-5 -- Reporting on the Costs of Start-up Activities.

Deloitte & Touche LLP
Los Angeles, California
January 26, 2000

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

No information is required in response to this Item.

PART III

Item 10. Directors and Executive Officers of the Registrant

The information as to Directors will be incorporated herein by reference to the Proxy Statement for the 2000 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year. Information with respect to Executive Officers is included in Part I under the caption "Executive Officers of the Registrant".

Item 11. Executive Compensation

The information as to Executive Compensation will be incorporated herein by reference to the Proxy Statement for the 2000 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

Item 12. Security Ownership of Certain Beneficial Owners and Management

The information as to Security Ownership of Certain Beneficial Owners and Management will be incorporated herein by reference to the Proxy Statement for the 2000 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

Item 13. Certain Relationships and Related Transactions

The information as to Certain Relationships and Related Transactions will be incorporated herein by reference to the Proxy Statement for the 2000 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

Item 14. Exhibits, Financial Statement Schedules and Reports on Form 8-K

- (a) 1. Financial Statements
 - Consolidated Statements of Financial Position
 - Consolidated Statements of Income
 - Consolidated Statements of Changes in Shareholders' Equity
 - Consolidated Statements of Cash Flows
 - Notes to Consolidated Financial Statements
 - Independent Auditors' Report
- 2. Financial Statement Schedule
 - Schedule II -Valuation and Qualifying Accounts

All other schedules are omitted either because they are not applicable or not required or because the required information is included in the financial statements or notes thereto.

Separate financial statements of the parent company are omitted since it is primarily an operating company and minority equity interests in and/or nonguaranteed long-term debt of subsidiaries held by others than the company are in amounts which together do not exceed 5 percent of the total consolidated assets at December 31, 1999.

(b) No reports on Form 8-K were filed during the last quarter of the period covered by this report.

Exhibits

- 3(a) Certificate of Incorporation, as amended (incorporated by reference to Form S-3 Registration Statement, filed August 18, 1994)
- 3(b) Northrop Grumman Corporation Bylaws, as amended and restated February 16, 2000
- 4(a) Common Stock Purchase Rights Agreement (incorporated by reference to Form 8-A filed November 13, 1998)
- 4(b) Indenture Agreement dated as of October 15, 1994 (incorporated by reference to Form 8-K filed October 25, 1994)
- 4(c) Form of Officer's Certificate (without exhibits) establishing the terms of Northrop Grumman Corporation's 7% Notes Due 2006, 7 3/4% Debentures Due 2016 and 7 7/8% Debentures Due 2026 (incorporated by reference to Form S-4 Registration Statement, filed April 19, 1996)
- 4(d) Form of Northrop Grumman Corporation's 7% Notes Due 2006 (incorporated by reference to Form S-4 Registration Statement, filed April 19, 1996)
- 4(e) Form of Northrop Grumman Corporation's 7 3/4% Debentures Due 2016 (incorporated by reference to Form S-4 Registration Statement, filed April 19, 1996)
- 4(f) Form of Northrop Grumman Corporation's 7 7/8% Debentures Due 2026 (incorporated by reference to Form S-4 Registration Statement, filed April 19, 1996)
- 10(a) Second Amended and Restated Credit Agreement dated as of April 15, 1994, Amended and Restated as of March 1, 1996 among Northrop Grumman Corporation, Bank of America National Trust and Savings Association, as Documentation Agent, Chemical Securities, Inc., as Syndication Agent, the Chase Manhattan Bank (National Association), as Administrative Agent, and the Banks Signatories thereto (incorporated by reference to Form 8-K, filed March 18, 1996), and amended as of November 1, 1996 (incorporated by reference to Form 10-K filed February 25, 1997)
- 10(b) Uncommitted Credit Facility dated October 10, 1994, between Northrop Grumman Corporation and Wachovia Bank of Georgia, N.A., which is substantially identical to facilities between Northrop Grumman Corporation and certain banks some of which are parties to the Credit Agreement filed as Exhibit 10(a) hereto (incorporated by reference to Form 10-K filed February 22, 1996)
- 10(c) 1973 Incentive Compensation Plan as amended December 16, 1998 (incorporated by reference to Form 10-K filed March 23, 1999)
- 10(d) 1973 Performance Achievement Plan (incorporated by reference to Form 8-B filed June 21, 1985)
- 10(e) Northrop Supplement Plan 2 (incorporated by reference to Form 10-K filed February 22, 1996) and amended as of June 19, 1996 (incorporated by reference to Form 10-K filed March 30, 1998)
- 10(f) Northrop Grumman Corporation ERISA Supplemental Plan I (incorporated by reference to Form 10-K filed February 28, 1994)

NORTHROP GRUMMAN CORPORATION

- 10(g) Retirement Plan for Independent Outside Directors as amended April 24, 1998 (incorporated by reference to Form 10-K filed March 23, 1999)
- 10(h) 1987 Long-Term Incentive Plan, as amended (incorporated by reference to Form SE filed March 30, 1989)
- 10(i) Executive Life Insurance Policy (incorporated by reference to Form 10-K filed February 22, 1996)
- 10(j) Executive Accidental Death, Dismemberment and Plegia Insurance Policy (incorporated by reference to Form 10-K filed February 22, 1996)
- 10(k) Executive Long-Term Disability Insurance Policy (incorporated by reference to Form 10-K filed February 22, 1996)
- 10(l) Key Executive Medical Plan Benefit Matrix (incorporated by reference to Form 10-K filed February 22, 1996)
- 10(m) Executive Dental Insurance Policy Group Numbers 5134 and 5135 (incorporated by reference to Form 10-K filed February 22, 1996)
- 10(n) Group Excess Liability Policy (incorporated by reference to Form 10-K filed February 22, 1996)
- 10(o) Northrop Grumman 1993 Long-Term Incentive Stock Plan, as amended and restated (incorporated by reference to Northrop Grumman Corporation Form S-8 Registration Statement filed November 25, 1998)
- 10(p) Northrop Corporation 1993 Stock Plan for Non-Employee Directors (incorporated by reference to Northrop Corporation 1993 Proxy Statement filed March 30, 1993), amended as of September 21, 1994 (incorporated by reference to Form 10-K filed March 21, 1995)
- 10(q) Northrop Grumman Corporation 1995 Stock Option Plan for Non-Employee Directors (incorporated by reference to 1995 Proxy Statement filed March 30, 1995)
- 10(r) Form of Northrop Grumman Corporation March 2000 Special Agreement (effective March 1, 2000) (incorporated by reference to Form 10-Q filed November 4, 1999).
- 10(s) Executive Deferred Compensation Plan (effective December 29, 1994) (incorporated by reference to Form 10-K filed February 25, 1997)
- 10(t) Northrop Grumman Corporation Non-Employee Directors Equity Participation Plan, as amended December 16, 1998 (incorporated by reference to Form 10-K filed March 23, 1999)
- 10(u) CPC Supplemental Executive Retirement Program (incorporated by reference to Form 10-K filed March 30, 1998)
- 10(v) Form of Ownership Retention Agreement and Amendment No. 1 by letter dated April 18, 1998 (incorporated by reference to Form 10-Q filed April 24, 1998)
- 10(w) Master Escrow Agreement and Master Escrow Agreement Clarification dated April 8, 1998 (incorporated by reference to Form 10-Q filed April 24, 1998)

NORTHROP GRUMMAN CORPORATION

- 10(x) Northrop Grumman 1998 Restricted Stock Rights Plan (incorporated by reference to Form S-8 Registration Statement filed November 25, 1998)
- 10(y) Special Officer Retiree Medical Plan as amended August 18, 1999.
- 10(z) Northrop Grumman Corporation March 2000 Change-in-Control Severance Plan (incorporated by reference to Form 10-Q filed November 4, 1999)
- 21 Subsidiaries
- 23 Independent Auditors' Consent
- 24 Power of Attorney
- 27 Financial Data Schedule

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on the 24th day of February 2000.

Northrop Grumman Corporation

By: Richard B. Waugh, Jr.

Richard B. Waugh, Jr.
Corporate Vice President and
Chief Financial Officer
(Principal Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed on behalf of the registrant this the 24th day of February 2000, by the following persons and in the capacities indicated.

Signature -----	Title -----
Kent Kresa*	Chairman of the Board, President and Chief Executive Officer and Director (Principal Executive Officer)
Jack R. Borsting*	Director
John T. Chain, Jr.*	Director
Jack Edwards*	Director
Vic Fazio	Director
Phillip Frost*	Director
Robert A. Lutz*	Director
Aulana L. Peters*	Director
John E. Robson*	Director
Richard R. Rosenberg*	Director
John Brooks Slaughter*	Director
Richard J. Stegemeier*	Director

*By John H. Mullan

John H. Mullan
Attorney-in-Fact
pursuant to a power of attorney

SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS

(Dollars in Thousands)

COL. A -----	COL. B -----	COL. C -----	COL. D -----	COL. E -----
Classification -----	Balance at Beginning of Period -----	Additions At Cost -----	Other Changes-- Add (Deduct)(1) -----	Balance at End of Period -----
Description:				
Year ended December 31, 1997				
Reserves and allowances deducted from asset accounts:				
Allowances for doubtful amounts	\$55,445	\$17,279	\$(17,746)	\$54,978
Year ended December 31, 1998				
Reserves and allowances deducted from asset accounts:				
Allowances for doubtful amounts	\$54,978	\$ 8,076	\$(16,013)	\$47,041
Year ended December 31, 1999				
Reserves and allowances deducted from asset accounts:				
Allowances for doubtful amounts	\$47,041	\$21,088	\$(30,455)	\$37,674

(1) Uncollectible amounts written off, net of recoveries.

NORTHROP GRUMMAN CORPORATION

INDEPENDENT AUDITORS' CONSENT

We consent to the incorporation by reference in Registration Statements Nos. 333-68029 and 333-75363 of Northrop Grumman Corporation on Form S-8 and Registration Statements Nos. 333-78251 and 333-85633 of Northrop Grumman Corporation on Form S-3 of our report dated January 26, 2000 appearing in this Annual Report on Form 10-K of Northrop Grumman Corporation for the year ended December 31, 1999.

DELOITTE & TOUCHE LLP
Los Angeles, California
February 24, 2000

BYLAWS
OF
NORTHROP GRUMMAN CORPORATION
(A Delaware Corporation)

ARTICLE I

OFFICES

Section 1.01. REGISTERED OFFICE. The registered office of Northrop Grumman Corporation (the "Corporation") in the State of Delaware shall be at Corporation Trust Center, 1209 Orange Street, City of Wilmington, County of New Castle, and the name of the registered agent at that address shall be The Corporation Trust Company.

Section 1.02. PRINCIPAL EXECUTIVE OFFICE. The principal executive office of the Corporation shall be located at 1840 Century Park East, Los Angeles, California 90067. The Board of Directors of the Corporation (the "Board of Directors") may change the location of said principal executive office.

Section 1.03. OTHER OFFICES. The Corporation may also have an office or offices at such other place or places, either within or without the State of Delaware, as the Board of Directors may from time to time determine or as the business of the Corporation may require.

ARTICLE II

MEETINGS OF STOCKHOLDERS

Section 2.01. ANNUAL MEETINGS. The annual meeting of stockholders of the Corporation shall be held between May 1 and July 1 of each year on such date and at such time as the Board of Directors shall determine. At each annual meeting of stockholders, directors shall be elected in accordance with the provisions of Section 3.04 hereof and any other proper business may be transacted.

Section 2.02. SPECIAL MEETINGS. Special meetings of stockholders for any purpose or purposes may be called at any time by a majority of the Board of Directors, the Chairman of the Board, or by the President and Chief Executive Officer. Special meetings may not be called by any other person or persons. Each special meeting shall be held at such date and time as is requested by the person or persons calling the meeting, within the limits fixed by law.

Section 2.03. PLACE OF MEETINGS. Each annual or special meeting of stockholders shall be held at such location as may be determined by the Board of Directors or, if no such determination is made, at such place as may be determined by the Chairman of the Board. If no location is so determined, any annual or special meeting shall be held at the principal executive office of the Corporation.

Section 2.04. NOTICE OF MEETINGS. Written notice of each annual or special meeting of stockholders stating the date and time when, and the place where, it is to be held shall be delivered either personally or by mail to stockholders entitled to vote at such meeting not less than ten (10) nor more than sixty (60) days before the date of the meeting. The purpose or purposes for which the meeting is called may, in the case of an annual meeting, and shall, in the case of a special meeting, also be stated. If mailed, such notice shall be directed to a stockholder at his address as it shall appear on the stock books of the Corporation, unless he shall have filed with the Secretary of the Corporation a written request that notices intended for him be mailed to some other address, in which case such notice shall be mailed to the address designated in such request.

Section 2.05. CONDUCT OF MEETINGS. All annual and special meetings of stockholders shall be conducted in accordance with such rules and procedures as the Board of Directors may determine subject to the requirements of applicable law and, as to matters not governed by such rules and procedures, as the chairman of such meeting shall determine. The chairman of any annual or special meeting of stockholders shall be the Chairman of the Board. The Secretary, or in the absence of the Secretary, a person designated by the Chairman of the Board, shall act as secretary of the meeting.

Section 2.06. NOTICE OF STOCKHOLDER BUSINESS AND NOMINATIONS. Nominations of persons for election to the Board and the proposal of business to be transacted by the stockholders may be made at an annual meeting of stockholders (a) pursuant to the Corporation's notice with respect to such meeting, (b) by or at the direction of the Board or (c) by any stockholder of record of the Corporation who was a stockholder of record at the time of the giving of the notice provided for in the following paragraph, who is entitled to vote at the meeting and who has complied with the notice procedures set forth in this section.

For nominations or other business to be properly brought before an annual meeting by a stockholder pursuant to clause (c) of the foregoing paragraph, (1) the stockholder must have given timely notice thereof in writing to the Secretary of the Corporation, (2) such business must be a proper matter for stockholder action under the General Corporation Law of the State of Delaware, (3) if the stockholder, or the beneficial owner on whose behalf any such proposal or nomination is made, has provided the Corporation with a Solicitation Notice, as that term is defined in subclause (c)(iii) of this paragraph, such stockholder or beneficial owner must, in the case of a proposal, have delivered a proxy statement and form of proxy to holders of at least the percentage of the Corporation's voting shares required under applicable law to carry any such proposal, or, in the case of a nomination or nominations, have delivered a proxy statement and form of proxy to holders of a percentage of the Corporation's voting shares reasonably believed by such stockholder or beneficial holder to be sufficient to elect the nominee or nominees proposed to be nominated by such stockholder, and must, in either case, have included in such materials the Solicitation Notice and (4) if no Solicitation Notice relating thereto has been timely provided pursuant to this section, the stockholder or beneficial owner proposing such business or nomination must not have solicited a number of proxies sufficient to have required the delivery of such a Solicitation Notice under this section. To be timely, a stockholder's notice shall be delivered to the Secretary at the principal executive offices of the Corporation not less than 45 or more than 75 days prior to the first anniversary (the "Anniversary") of the date on which the Corporation first mailed its proxy materials for the preceding year's annual meeting of stockholders; provided, however, that if the date of the annual meeting is advanced more than 30 days prior to or delayed by more than 30 days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be more timely must be so delivered not later than the close of business on the later of (i) the 90th/ day prior to such annual meeting or (ii) the 10th/ day following the day on which public announcement of the date of such meeting is first made. In no event shall the public announcement of an adjournment of an annual meeting commence a new time period for the filing of a stockholder's notice as described herein. Such stockholder's notice shall set forth (a) as to each person whom the stockholder proposes to nominate for election or reelection as a director all information relating to such person as would be required to be disclosed in solicitations of proxies for the election of such nominees as directors pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "Exchange Act") and Rule 14a-11 thereunder (including such person's written consent to serve as a director if elected); (b) as to any other business that the stockholder proposes to bring before the meeting, a brief description of such business, the reasons for conducting such business at the meeting and any material interest in such business of such stockholder and the beneficial owner, if any, on whose behalf the proposal is made; (c) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made (i) the name and address of such stockholder, as they appear on the Corporation's books, and of such beneficial owner, (ii) the class and number of shares of the Corporation that are owned beneficially and of record by such stockholder and such beneficial owner, and (iii) whether either such stockholder or beneficial owner intends to deliver a proxy statement and form of proxy to holders of, in the case of a proposal, at least the percentage of the Corporation's voting shares required under applicable law to carry the proposal or, in the case of a nomination or

nominations, a sufficient number of holders of the Corporation's voting shares to elect such nominee or nominees (an affirmative statement of such intent, a "Solicitation Notice").

Notwithstanding anything in the second sentence of the second paragraph of this Section 2.06 to the contrary, in the event that the number of directors to be elected to the Board is increased and there is no public announcement naming all of the nominees for director or specifying the size of the increased Board made by the Corporation at least 55 days prior to the Anniversary, a stockholder's notice required by this Bylaw shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be delivered to the Secretary at the principal executive offices of the Corporation not later than the close of business on the 10/th/ day following the day on which such public announcement is first made by the Corporation.

Only persons nominated in accordance with the procedures set forth in this Section 2.06 shall be eligible to serve as directors and only such business shall be conducted at an annual meeting of stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this section. The chair of the meeting shall have the power and the duty to determine whether a nomination or any business proposed to be brought before the meeting has been made in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, to declare that such defective proposed business or nomination shall not be presented for stockholder action at the meeting and shall be disregarded.

Only such business shall be conducted at a special meeting of stockholders as shall have been brought before the meeting pursuant to the Corporation's notice of meeting. Nominations of persons for election to the Board may be made at a special meeting of stockholders at which directors are to be elected pursuant to the Corporation's notice of meeting (a) by or at the direction of the Board or (b) by any stockholder of record of the Corporation who is a stockholder of record at the time of giving of notice provided for in this paragraph, who shall be entitled to vote at the meeting and who complies with the notice procedures set forth in this Section 2.06. Nominations by stockholders of persons for election to the Board may be made at such a special meeting of stockholders if the stockholder's notice required by the second paragraph of this Section 2.06 shall be delivered to the Secretary at the principal executive offices of the Corporation not later than the close of business on the later of the 90/th/ day prior to such special meeting or the 10/th/ day following on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board to be elected at such meeting.

For purposes of this section, "public announcement" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or a comparable national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the Exchange Act.

Notwithstanding the foregoing provisions of this Section 2.06, a stockholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to matters set forth in this Section 2.06. Nothing in this Section 2.06 shall be deemed to affect any rights of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act.

Section 2.07. QUORUM. At any meeting of stockholders, the presence, in person or by proxy, of the holders of record of a majority of shares then issued and outstanding and entitled to vote at the meeting shall constitute a quorum for the transaction of business; provided, however, that this Section 2.07 shall not affect any different requirement which may exist under statute, pursuant to the rights of any authorized class or series of stock, or under the Certificate of Incorporation of the Corporation (the "Certificate") for the vote necessary for the adoption of any measure governed thereby. In the absence of a quorum, the stockholders present in person or by proxy, by majority vote and without further notice, may adjourn the meeting from time to time until a quorum is attained. At any reconvened meeting following such an adjournment at which a quorum shall be present, any

business may be transacted which might have been transacted at the meeting as originally notified.

Section 2.08. VOTES REQUIRED. A majority of the votes cast at a duly called meeting of stockholders, at which a quorum is present, shall be sufficient to take or authorize action upon any matter which may properly come before the meeting, unless the vote of a greater or different number thereof is required by statute, by the rights of any authorized class of stock or by the Certificate. Unless the Certificate or a resolution of the Board of Directors adopted in connection with the issuance of shares of any class or series of stock provides for a greater or lesser number of votes per share, or limits or denies voting rights, each outstanding share of stock, regardless of class, shall be entitled to one vote on each matter submitted to a vote at a meeting of stockholders.

Section 2.09. PROXIES. A stockholder may vote the shares owned of record by him either in person or by proxy executed in writing (which shall include writings sent by telex, telegraph, cable or facsimile transmission) by the stockholder himself or by his duly authorized attorney-in-fact. No proxy shall be valid after three (3) years from its date, unless the proxy provides for a longer period. Each proxy shall be in writing, subscribed by the stockholder or his duly authorized attorney-in-fact, and dated, but it need not be sealed, witnessed or acknowledged.

Section 2.10. STOCKHOLDER ACTION. Any action required or permitted to be taken by the stockholders of the Corporation must be effected at a duly called annual meeting or special meeting of stockholders of the Corporation, unless such action requiring or permitting shareholder approval is approved by a majority of the Continuing Directors (as defined in the Certificate), in which case such action may be authorized or taken by the written consent of the holders of outstanding shares of stock having not less than the minimum voting power that would be necessary to authorize or take such action at a meeting of stockholders at which all shares entitled to vote thereon were present and voted, provided all other requirements of applicable law and the Certificate have been satisfied.

Section 2.11. LIST OF STOCKHOLDERS. The Secretary of the Corporation shall prepare and make (or cause to be prepared and made), at least ten (10) days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order and showing the address of, and the number of shares registered in the name of, each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, during ordinary business hours, for a period of at least ten (10) days prior to the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting, or, if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the duration thereof, and may be inspected by any stockholder who is present.

Section 2.12. INSPECTORS OF ELECTION. In advance of any meeting of stockholders, the Board of Directors may appoint Inspectors of Election to act at such meeting or at any adjournment or adjournments thereof. If such Inspectors are not so appointed or fail or refuse to act, the chairman of any such meeting may (and, upon the demand of any stockholder or stockholder's proxy, shall) make such an appointment.

The number of Inspectors of Election shall be one (1) or three (3). If there are three (3) Inspectors of Election, the decision, act or certificate of a majority shall be effective and shall represent the decision, act or certificate of all. No such Inspector need be a stockholder of the Corporation.

The Inspectors of Election shall determine the number of shares outstanding, the voting power of each, the shares represented at the meeting, the existence of a quorum and the authenticity, validity and effect of proxies; they shall receive votes, ballots or consents, hear and determine all challenges and questions in any way arising in connection with the right to vote, count and tabulate all votes or consents, determine when the polls shall close and

determine the result; and finally, they shall do such acts as may be proper to conduct the election or vote with fairness to all stockholders. On request, the Inspectors shall make a report in writing to the secretary of the meeting concerning any challenge, question or other matter as may have been determined by them and shall execute and deliver to such secretary a certificate of any fact found by them.

ARTICLE III

DIRECTORS

Section 3.01. POWERS. The business and affairs of the Corporation shall be managed by and be under the direction of the Board of Directors. The Board of Directors shall exercise all the powers of the Corporation, except those that are conferred upon or reserved to the stockholders by statute, the Certificate or these Bylaws.

Section 3.02. NUMBER. Except as otherwise fixed pursuant to the provisions of Section 2 of Article Fourth of the Certificate in connection with rights to elect additional directors under specified circumstances which may be granted to the holders of any class or series of Preferred Stock, par value One Dollar (\$1.00) per share of the Corporation ("Preferred Stock"), the number of directors shall be fixed from time to time by resolution of the Board of Directors but shall not be less than three (3). The Board of Directors, as of May 17, 1989, and thereafter, shall consist of fourteen (14) directors until changed as herein provided.

Section 3.03. INDEPENDENT OUTSIDE DIRECTORS. At least sixty percent (60%) of the members of the Board of Directors of the Corporation shall at all times be "Independent Outside Directors", which term is hereby defined to mean any director who:

1. has not in the last five (5) years been an officer or employee of the Corporation or any of its subsidiaries or affiliates; and

2. is not related to an officer of the Corporation (or an officer of any of the Corporation's parents, subsidiaries or affiliates) by blood, marriage or adoption (except relationships more remote than first cousin); and

3. is not, and has not within the last two (2) years has been, an officer, director or employee of, and does not own, and has not within the last two (2) years owned, directly or indirectly, in excess of one percent (1%) of any firm, corporation or other business or professional entity which has made or proposes to make during either the Corporation's or such entity's last or next fiscal year payments for property or services in excess of one percent (1%) of the gross revenues either of the Corporation for its last fiscal year or of such entity for its last fiscal year, but excluding payments determined by competitive bids, public utility services at rates set by law or government authority, or payments arising solely from the ownership of securities, or to which the Corporation was indebted at any time during the Corporation's last fiscal year in an aggregate amount in excess of one percent (1%) of the Corporation's total assets at the end of such fiscal year or Five Million dollars (\$5,000,000), whichever is less, but excluding debt securities which have been publicly offered or which are publicly traded; and

4. is not a director, partner, officer or employee of an investment banking firm which has performed services for the Corporation in the last two (2) years or which the Corporation proposes to have perform services in the next year other than as a participating underwriter in a syndicate; and

5. is not a control person of the Corporation (other than as a director of the Corporation) as defined by the regulations of the Securities and Exchange Commission.

Section 3.04. ELECTION AND TERM OF OFFICE. Except as provided in Section 3.07 hereof and subject to the right to elect additional directors under specified circumstances which may be granted, pursuant to the provisions of Section 2 of Article Fourth of the Certificate, to the holders of any class or series of Preferred Stock, directors shall be elected by the stockholders of the Corporation. The Board of Directors shall be and is divided into three classes: Class I, Class II and Class III. The number of directors in each class shall be the whole number contained in the quotient obtained by dividing the authorized number of directors (fixed pursuant to Section 3.02 hereof) by three. If a fraction is also contained in such quotient, then additional directors shall be apportioned as follows: if such fraction is one-third, the additional director shall be a member of Class I; and if such fraction is two-thirds, one of the additional directors shall be a member of Class I and the other shall be a member of Class II. Each director shall serve for a term ending on the date of the third annual meeting of stockholders of the Corporation following the annual meeting at which such director was elected; provided, however, that the directors first elected to Class I shall serve for a term ending on the date of the annual meeting next following the end of the calendar year 1985, the directors first elected to Class II shall serve for a term ending on the date of the second annual meeting next following the end of the calendar year 1985 and the directors first elected to Class III shall serve for a term ending on the date of the third annual meeting next following the end of the calendar year 1985.

Notwithstanding the foregoing provisions of this Section 3.04: each director shall serve until his successor is elected and qualified or until his death, resignation or removal; no decrease in the authorized number of directors shall shorten the term of any incumbent director; and additional directors, elected pursuant to Section 2 of Article Fourth of the Certificate in connection with rights to elect such additional directors under specified circumstances which may be granted to the holders of any class or series of Preferred Stock, shall not be included in any class, but shall serve for such term or terms and pursuant to such other provisions as are specified in the resolution of the Board of Directors establishing such class or series.

Nominations for the election of directors may be made by the Board or a committee thereof or by any stockholder entitled to vote in the election of directors; provided, however, that a stockholder may nominate a person for election as a director at a meeting only if written notice of such stockholder's intent to make such nomination has been given by such stockholder to, and received by, the Secretary of the Corporation at the principal executive offices of the Corporation not less than sixty (60) days nor more than ninety (90) days prior to the meeting; provided, however, that (a) in the event that less than seventy (70) days' notice or prior public disclosure of the date of the meeting is given or made to stockholders, notice by the stockholder to be timely must be so received not later than the close of business on the 10th day following the date on which such notice of the date of the meeting was mailed or such public disclosure was made, whichever first occurs; and (b) in the event that less than seventy (70) days shall remain from the date of public disclosure of the adoption of this bylaw provision to the date of any meeting, notice by the stockholder to be timely with respect to such meeting must be so received not later than the close of business on the 10th day following the date on which such public disclosure was made. Each such notice shall set forth: (a) the name and address of the stockholder who intends to make the nomination and of the person or persons to be nominated; (b) the name and address as they appear on the Corporation's books of the stockholder intending to make such nomination; (c) the class and number of shares of capital stock of the Corporation which are beneficially owned by such stockholder (d) a description of all arrangements or understandings between the stockholder and each nominee and any other person or persons (naming such person or persons) pursuant to which the nomination or nominations are to be made by the stockholder; (e) the occupations and business history for the previous five years, other directorships, names of business entities of which the proposed nominee owns a 10 percent or more equity interest, a list of any criminal convictions, including federal and state securities violations and such other information regarding each proposed nominee as may be required by the federal proxy rules in effect at the time the notice is submitted and (f) the consent of each nominee to serve as a director of the Corporation if so elected. No person shall be eligible for election as a director of the Corporation unless nominated in accordance with the procedures set forth in this

Section 3.04. The Chairman of any meeting of stockholders shall direct that any nomination not made in accordance with these procedures be disregarded.

Section 3.05. ELECTION OF CHAIRMAN OF THE BOARD. At the organizational meeting immediately following the annual meeting of stockholders, the directors shall elect a Chairman of the Board from among the directors who shall hold office until the corresponding meeting of the Board of Directors in the next year and until his successor shall have been elected or until his earlier resignation or removal. Any vacancy in such office may be filled for the unexpired portion of the term in the same manner by the Board of Directors at any regular or special meeting.

Section 3.06. REMOVAL. Subject to the right to elect directors under specified circumstances which may be granted pursuant to Section 2 of Article Fourth of the Certificate to the holders of any class or series of Preferred Stock, any director may be removed from office only as provided in Article Tenth of the Certificate.

Section 3.07. VACANCIES AND ADDITIONAL DIRECTORSHIPS. Except as otherwise provided pursuant to Section 2 of Article Fourth of the Certificate in connection with rights to elect additional directors under specified circumstances which may be granted to the holders of any class or series of Preferred Stock, newly created directorships resulting from any increase in the number of directors and any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other cause shall be filled solely by the affirmative vote of a majority of the remaining directors then in office, even though less than a quorum of the Board of Directors. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the class of directors in which the new directorship was created or the vacancy occurred and until such director's successor shall have been elected and qualified. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

Section 3.08. REGULAR AND SPECIAL MEETINGS. Promptly after, and on the same day as, each annual election of directors by the shareholders, the Board shall, if a quorum be present, meet in an organizational meeting to elect a chairman, appoint members of the standing committees of the Board, elect officers of the Corporation and conduct other business as appropriate. Additional notice of such meeting need not be given if such meeting is conducted promptly after the annual meeting to elect directors and if the meeting is held in the same location where the election of directors was conducted. Regular meetings of the Board shall be held at such times and places as the Board shall determine. Notice of regular meetings shall be mailed to each director at least five days before the meeting, addressed to the director's usual place of business or to his or her residence address or to an address specifically designated by the director.

Section 3.09. QUORUM. At all meetings of the Board of Directors, a majority of the fixed number of directors shall constitute a quorum for the transaction of business, except that when the Board of Directors consists of one director, then the one director shall constitute a quorum. In the absence of a quorum, the directors present, by majority vote and without notice other than by announcement, may adjourn the meeting from time to time until a quorum shall be present. At any reconvened meeting following such an adjournment at which a quorum shall be present, any business may be transacted which might have been transacted at the meeting as originally notified.

Section 3.10. VOTES REQUIRED. Except as otherwise provided by applicable law or by the Certificate, the vote of a majority of the directors present at a meeting duly held at which a quorum is present shall be sufficient to pass any measure.

Section 3.11. PLACE AND CONDUCT OF MEETINGS. Each regular meeting and special meeting of the Board of Directors shall be held at a location determined as follows: The Board of Directors may designate any place, within or without the State of Delaware, for the holding of any meeting. If no such designation is made: (i) any meeting called by a majority of the directors shall be held at such location, within the county of the

Corporation's principal executive office, as the directors calling the meeting shall designate; and (ii) any other meeting shall be held at such location, within the county of the Corporation's principal executive office, as the Chairman of the Board may designate or, in the absence of such designation, at the Corporation's principal executive office. Subject to the requirements of applicable law, all regular and special meetings of the Board of Directors shall be conducted in accordance with such rules and procedures as the Board of Directors may approve and, as to matters not governed by such rules and procedures, as the chairman of such meeting shall determine. The chairman of any regular or special meeting shall be the Chairman of the Board, or in his absence a person designated by the Board of Directors. The Secretary, or in the absence of the Secretary a person designated by the chairman of the meeting, shall act as secretary of the meeting.

Section 3.12. FEES AND COMPENSATION. Directors shall be paid such compensation as may be fixed from time to time by resolutions of the Board of Directors (a) for their usual and contemplated services as directors, (b) for their services as members of committees appointed by the Board of Directors, including attendance at committee meetings as well as services which may be required when committee members must consult with management staff, and (c) for extraordinary services as directors or as members of committees appointed by the Board of Directors, over and above those services for which compensation is fixed pursuant to items (a) and (b) in this Section 3.12. Compensation may be in the form of an annual retainer fee or a fee for attendance at meetings, or both, or in such other form or on such basis as the resolutions of the Board of Directors shall fix. Directors shall be reimbursed for all reasonable expenses incurred by them in attending meetings of the Board of Directors and committees appointed by the Board of Directors and in performing compensable extraordinary services. Nothing contained herein shall be construed to preclude any director from serving the Corporation in any other capacity, such as an officer, agent, employee, consultant or otherwise, and receiving compensation therefor.

Section 3.13. COMMITTEES OF THE BOARD OF DIRECTORS. Subject to the requirements of applicable law, the Board of Directors may from time to time establish committees, including standing or special committees, which shall have such duties and powers as are authorized by these Bylaws or by the Board of Directors. Committee members, and the chairman of each committee, shall be appointed by the Board of Directors. The Chairman of the Board, in conjunction with the several committee chairmen, shall make recommendations to the Board of Directors for its final action concerning members to be appointed to the several committees of the Board of Directors. Any member of any committee may be removed at any time with or without cause by the Board of Directors. Vacancies which occur in any committee shall be filled by a resolution of the Board of Directors. If any vacancy shall occur in any committee by reason of death, resignation, disqualification, removal or otherwise, the remaining members of such committee, so long as a quorum is present, may continue to act until such vacancy is filled by the Board of Directors. The Board of Directors may, by resolution, at any time deemed desirable, discontinue any standing or special committee. Members of standing committees, and their chairmen, shall be elected yearly at the organizational meeting of the Board of Directors which is held immediately following the annual meeting of stockholders.

Section 3.14. AUDIT COMMITTEE. There shall be an Audit Committee of the Board of Directors which shall serve at the pleasure of the Board of Directors and be subject to its control. The Committee shall have the following membership and powers:

1. The Committee shall have at least three (3) members. All members of the Committee shall be Independent Directors, which term is hereby defined to mean any director that is "Independent" within the meaning of Rule 303.01 of the New York Stock Exchange Listed Company Manual, as such rule (or any successor rule) may be amended from time to time.

2. The Committee shall recommend to the Board of Directors for its action the appointment or

discharge of the Corporation's independent auditors, based upon the Committee's judgment of the independence of the auditors (taking into account the fees charged both for audit and non-audit services) and the quality of its audit work. Ratification by the stockholders of the Board of Directors' appointment of the Corporation's independent auditors may be sought in conjunction with management's solicitation of proxies for the annual meeting of stockholders, if so determined by the Board of Directors. If the auditors must be replaced, the Committee shall recommend to the Board of Directors for its action the appointment of new auditors until the next annual meeting of stockholders.

3. The Committee shall review and approve the scope and plan of the audit.

4. The Committee shall meet with the independent auditors at appropriate times to review, among other things, the results of the audit and any certification, report or opinion which the auditors propose to render in connection with the Corporation's financial statements.

5. The Committee shall review and approve each professional service of a non-audit nature to be provided by the auditors.

6. The Committee shall meet with the Corporation's chief internal auditor at least once a year to review his comments concerning the adequacy of the Corporation's system of internal controls and such other matters as the Committee may deem appropriate.

7. The Committee shall have the power to direct the auditors and the internal audit staff to inquire into and report to it with respect to any of the Corporation's contracts, transactions or procedures, or the conduct of the Corporate Office, or any division, profit center, subsidiary or other unit, or any other matter having to do with the Corporation's business and affairs. If authorized by the Board of Directors, the Committee may initiate special investigations in these regards.

8. The Committee shall have such other duties as may be lawfully delegated to it from time to time by the Board of Directors.

Section 3.15. COMPENSATION AND MANAGEMENT DEVELOPMENT COMMITTEE.

There shall be a Compensation and Management Development Committee of the Board of Directors which shall serve at the pleasure of the Board of Directors and be subject to its control. The Committee shall have the following membership and powers:

1. The Committee shall be composed of at least three (3) members. All members of the Committee shall be Independent Outside Directors. The principal Human Resources officer of the Corporation shall be a non-voting member of the Committee.

2. The Committee shall recommend to the Board of Directors for its action the amount to be appropriated for awards to be made each year to elected officers under the Corporation's incentive compensation plan.

3. The Committee shall establish the Corporation's annual performance objectives under the Corporation's incentive compensation plans.

4. The Committee shall make recommendations to the Board of Directors with respect to the base salary and incentive compensation of the elected officers. The Committee shall take final action with respect to the base salary and incentive compensation of the ten (10) employees, who are not elected officers, receiving the highest base salaries immediately preceding the date of any such action.

5. The Committee shall review management's recommendations and take final action with respect to all awards to be made under the Corporation's long-term incentive plans or other similar benefit plans which may be adopted by the Board of Directors or the stockholders and in which corporate officers or directors are eligible to participate, provided however that all such awards relative to the five (5) most highly compensated officers must be reported to the Board of Directors.

6. The Committee shall review on a continuing basis the Corporation's general compensation policies and practices, fringe benefits and the Corporation's compliance with its various affirmative action plans and programs. The committee shall also review and recommend to the Board of Directors for its final action all compensation plans in which elected officers or directors are eligible to participate.

7. The Committee shall review from time to time and report to the Board of Directors actions taken by management concerning the Corporation's overall executive structure and the steps being taken to assure the succession of qualified management.

8. The Committee shall have such other duties as may be lawfully delegated to it from time to time by the Board of Directors.

Section 3.16. EXECUTIVE AND PUBLIC POLICY COMMITTEE. There shall be an Executive and Public Policy Committee of the Board of Directors which shall serve at the pleasure of the Board of Directors and be subject to its control. The Committee shall have the following membership and powers:

1. The Committee shall have at least five (5) members. At least sixty percent (60%) of the members shall be Independent Outside Directors.

2. The Committee shall review, approve and monitor the policy, organization, charter and implementation of the Northrop Grumman Employees Political Action Committee.

3. The Committee shall review and approve the policy of the Corporation for engaging the services of Consultants and Commission Agents.

4. The Committee shall review and report to the Board of Directors from time to time concerning the Corporation's compliance with the Corporation's policies, practices and procedures with respect to consultants and commission agents.

5. The Committee shall review and make policy and budget recommendations to the Board of Directors for its actions concerning proposed charitable contributions and aid to higher education to be given by the Corporation each year.

6. The Committee shall have such other duties as lawfully may be delegated to it from time to time by the Board of Directors.

Section 3.17. FINANCE COMMITTEE. There shall be a Finance Committee of the Board of Directors which shall serve at the pleasure of the Board of Directors and be subject to its control. The Committee shall have the following membership and powers:

1. The Committee shall have at least five (5) members. At least fifty percent (50%) of the members of the Committee shall be Independent Outside Directors. The chief financial officer of the

Corporation shall be a non-voting member of the Committee.

2. The Committee shall review and give consideration to management requests for required specific new financing of a long-term nature, whether debt or equity, and make recommendations to the Board of Directors for its final action.

3. The Committee shall review the current financial condition of the Company and planned financial requirements.

4. The Committee shall review periodically the Corporation's dividend policy in connection with dividend declarations and make recommendations to the Board of Directors for its final action.

5. The Committee shall consider management's recommendations concerning acquisitions, mergers or divestments which management has determined to be of an unusual or material nature and shall make recommendations to the Board of Directors for its final action.

6. The Committee shall consider management's recommendations concerning contracts or programs which management has determined to be of an unusual or material nature and shall make recommendations to the Board of Directors for its final action.

7. The Committee shall periodically review the investment performance of the employee benefit plans, capital asset requirements and short-term investment policy when appropriate.

8. The Committee shall have such other duties as lawfully may be delegated to it from time to time by the Board of Directors.

Section 3.18. NOMINATING AND CORPORATE GOVERNANCE COMMITTEE. There shall be a Nominating and Corporate Governance Committee of the Board of Directors which shall serve at the pleasure of the Board of Directors and be subject to its control. The Committee shall have the following membership and powers:

1. The Committee shall have at least three (3) members. All members of the Committee shall be Independent Outside Directors.

2. The Committee shall review candidates to serve as directors and shall recommend nominees to the Board of Directors for election at each annual meeting of stockholders or other special meetings where directors are to be elected and shall recommend persons to serve as proxies to vote proxies solicited by management in connection with such meetings.

3. The Committee shall cause the names of all director candidates that are approved by the Board of Directors to be listed in the Corporation's proxy materials and shall support the election of all candidates so nominated by the Board of Directors to the extent permitted by law.

4. The Committee shall review and make recommendations to the Board of Directors for its final action concerning the composition and size of the Board of Directors, its evaluation of the performance of incumbent directors, its recommendations concerning the compensation of the Directors, its recommendations concerning directors to fill vacancies and its evaluation and recommendations concerning potential candidates to serve in the future on the Board of Directors to assure the Board's continuity and succession and its evaluation and recommendations on matters of corporate governance as appropriate.

5. The Committee shall have such other duties as lawfully may be delegated to it from time to time by the Board of Directors.

Section 3.19. MEETINGS OF COMMITTEES. Each committee of the Board of Directors shall fix its own rules of procedure consistent with the provisions of applicable law and of any resolutions of the Board of Directors governing such committee. Each committee shall meet as provided by such rules or such resolution of the Board of Directors, and shall also meet at the call of its chairman or any two (2) members of such committee. Unless otherwise provided by such rules or by such resolution, the provisions of these Bylaws under Article III entitled "Directors" relating to the place of holding meetings and the notice required for meetings of the Board of Directors shall govern the place of meetings and notice of meetings for committees of the Board of Directors. A majority of the members of each committee shall constitute a quorum thereof, except that when a committee consists of one (1) member, then the one (1) member shall constitute a quorum. In the absence of a quorum, a majority of the members present at the time and place of any meeting may adjourn the meeting from time to time until a quorum shall be present and the meeting may be held as adjourned without further notice or waiver. Except in cases where it is otherwise provided by the rules of such committee or by a resolution of the Board of Directors, the vote of a majority of the members present at a duly constituted meeting at which a quorum is present shall be sufficient to pass any measure by the committee.

ARTICLE IV

OFFICERS

Section 4.01. DESIGNATION, ELECTION AND TERM OF OFFICE. The Corporation shall have a Chairman of the Board and/or a President either of whom may be designated Chief Executive Officer by the Board of Directors, such Vice Presidents (each of whom may be assigned by the Board of Directors or the Chief Executive Officer an additional title descriptive of the functions assigned to him and one or more of whom may be designated Executive, Group or Senior Vice President) as the Board of Directors deems appropriate, a Secretary and a Treasurer. These officers shall be elected annually by the Board of Directors at the organizational meeting immediately following the annual meeting of stockholders, and each such officer shall hold office until the corresponding meeting of the Board of Directors in the next year or until his earlier resignation, death or removal. Any vacancy in any of the above offices may be filled for an unexpired portion of the term by the Board of Directors at any regular special meeting. The Chief Executive Officer may, by a writing filed with the Secretary, designate titles for employees and agents, as, from time to time, may appear necessary or advisable in the conduct of the affairs of the Corporation and, in the same manner, terminate or change such titles.

Section 4.02. CHAIRMAN OF THE BOARD. The Board of Directors shall designate the Chairman of the Board from among its members. The Chairman of the Board of Directors shall preside at all meetings of the Board and the Shareholders, and shall perform such other duties as shall be delegated to him by the Board or the officer designated as chief executive.

Section 4.03. PRESIDENT. The President shall perform such duties and have such responsibilities as may from time to time be delegated or assigned to him by the Board of Directors or the officer designated as chief executive.

Section 4.04. CHIEF EXECUTIVE. The Board of Directors shall designate either the Chairman of the Board or the President to be the chief executive of the Corporation. The officer so designated shall be responsible for the general supervision, direction and control of the business and affairs of the Corporation.

Section 4.05. CHIEF FINANCIAL OFFICER. The Chief Financial Officer of the Corporation shall be responsible to the Chief Executive Officer for the management and supervision of all financial matters and to provide for the financial growth and stability of the Corporation. He shall attend all regular meetings of the Board of Directors and keep the Directors currently informed concerning all significant financial matters that could impact upon the business or affairs of the Corporation. He shall also perform such additional duties as may be assigned to him from time to time by the Board of Directors or the Chief Executive Officer.

Section 4.06. EXECUTIVE VICE PRESIDENTS, SENIOR VICE PRESIDENTS AND VICE PRESIDENTS. Executive vice presidents, senior vice presidents and vice presidents of the Corporation that are elected by the Board of Directors shall perform such duties as may be assigned to them from time to time by the Chief Executive Officer.

Section 4.07. CHIEF LEGAL OFFICER. The chief legal officer of the Corporation shall be the General Counsel who shall be responsible to the Chief Executive Officer for the management and supervision of all legal matters. The General Counsel shall attend all regular meetings of the Board of Directors and shall keep the Directors currently informed concerning all significant legal matters, particularly those involving important business, legal, moral or ethical issues that could impact upon the business or affairs of the Corporation.

Section 4.08. SECRETARY. The Secretary shall keep the minutes of the meetings of the stockholders, the Board of Directors and all committee meetings. The Secretary shall be the custodian of the corporate seal and shall affix it to all documents which he is authorized by law or the Board of Directors to sign and seal. The Secretary also shall perform such other duties as may be assigned from time to time by the Chief Executive Officer.

Section 4.09. TREASURER. The Treasurer shall be accountable to the Senior Vice President, Finance, and shall perform such duties as may be assigned to the Treasurer from time to time by the Senior Vice President, Finance.

Section 4.10. APPOINTED OFFICERS. The Chief Executive Officer may appoint one or more Corporate Staff Vice Presidents, officers of groups or divisions or assistant secretaries, assistant treasurers and such other assistant officers as the business of the Corporation may require, each of whom shall hold office for such period, have such authority and perform such duties as may be specified from time to time by the Chief Executive Officer.

Section 4.11. ABSENCE OR DISABILITY OF AN OFFICER. In the case of the absence or disability of an officer of the Corporation the Board of Directors, or any officer designated by it, or the Chief Executive Officer may, for the time of the absence or disability, delegate such officer's duties and powers to any other officer of the Corporation.

Section 4.12. OFFICERS HOLDING TWO OR MORE OFFICES. The same person may hold any two or more of the above-mentioned offices. However, no officer shall execute, acknowledge or verify any instrument in more than one capacity, if such instrument is required by law, by the Certificate or by these Bylaws, to be executed, acknowledged or verified by any two or more officers.

Section 4.13. COMPENSATION. The Board of Directors shall have the power to fix the compensation of all officers and employees of the Corporation.

Section 4.14. RESIGNATIONS. Any officer may resign at any time by giving written notice to the Board of Directors, to the Chief Executive Officer, or to the Secretary of the Corporation. Any such resignation

shall take effect at the time specified therein unless otherwise determined by the Board of Directors. The acceptance of a resignation by the Corporation shall not be necessary to make it effective.

Section 4.15. REMOVAL. Any officer of the Corporation may be removed, with or without cause, by the affirmative vote of a majority of the entire Board of Directors. Any assistant officer of the Corporation may be removed, with or without cause, by the Chief Executive Officer, or by the Board of Directors.

ARTICLE V

INDEMNIFICATION OF DIRECTORS, OFFICERS, EMPLOYEES AND AGENTS

Section 5.01. RIGHT TO INDEMNIFICATION. Each person who was or is made a party, or is threatened to be made a party, to any actual or threatened action, suit, or proceeding, whether civil, criminal, administrative, or investigative (hereinafter a "proceeding"), by reason of the fact that he or she is or was a director, officer, employee, or agent of the Corporation (hereinafter an "indemnatee") shall be indemnified and held harmless by the Corporation to the fullest extent authorized by the Delaware General Corporation Law, as the same exists or may hereafter be amended, or by other applicable law as then in effect, against all expense, liability, and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties, and amounts paid in settlement) actually and reasonably incurred or suffered by such indemnatee in connection therewith. Any person who was or is made a party, or is threatened to be made a party, to any proceeding by reason of the fact that he or she is or was serving at the request of an executive officer of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan, shall also be considered an indemnatee for the purposes of this Article. The right to indemnification provided by this Article shall apply whether or not the basis of such proceeding is alleged action in an official capacity as such director, officer, employee or agent or in any other capacity while serving as such director, officer, employee or agent. Notwithstanding anything in this Section 5.01 to the contrary, except as provided in Section 5.03 of this Article with respect to proceedings to enforce rights to indemnification, the Corporation shall indemnify any such indemnatee in connection with a proceeding (or part thereof) initiated by such indemnatee only if such proceeding (or part thereof) was authorized by the Corporation.

Section 5.02. ADVANCEMENT OF EXPENSES. (a) The right to indemnification conferred in Section 5.01 shall include the right to have the expenses incurred in defending or preparing for any such proceeding in advance of its final disposition (hereinafter an "advancement of expenses") paid by the Corporation; provided, however, that an advancement of expenses incurred by an indemnatee in his or her capacity as a director or officer (and not in any other capacity in which service was or is to be rendered by such indemnatee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the Corporation of an undertaking containing such terms and conditions, including the requirement of security, as the Board of Directors deems appropriate (hereinafter an "undertaking"), by or on behalf of such indemnatee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that such indemnatee is not entitled to be indemnified for such expenses under this Article or otherwise; and provided, further, that an advancement of expenses shall not be made if the Corporation's Board of Directors makes a good faith determination that such payment would violate any applicable law. The Corporation shall not be obligated to advance fees and expenses to a director, officer, employee or agent in connection with a proceeding instituted by the Corporation against such person. (b) Notwithstanding anything in Section 5.02(a) to the contrary, the right of employees or agents to advancement of expenses shall be at the discretion of the Board of Directors and on such terms and conditions, including the requirement of security, as the Board of Directors deems appropriate. The Corporation may, by action of its Board of Directors, authorize one or more executive officers to grant rights for the advancement of expenses to employees and agents of the Corporation on such terms and conditions as such officers deem appropriate.

Section 5.03. RIGHT OF INDEMNITEE TO BRING SUIT. If a claim under Section 5.01 is not paid in full by the Corporation within sixty (60) calendar days after a written claim has been received by the Corporation, except in the case of a claim for an advancement of expenses under Section 5.02 in which case the applicable period shall be thirty (30) calendar days, the indemnitee may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim. If the indemnitee is successful in whole or in part in any such suit, the indemnitee shall also be entitled to be paid the expense of prosecuting or defending such suit.

Section 5.04. NONEXCLUSIVITY OF RIGHTS. (a) The rights to indemnification and to the advancement of expenses conferred in this Article shall not be exclusive of any other right which any person may have or hereafter acquire under any statute, provisions of the Certificate of Incorporation, Bylaw, agreement, vote of stockholders or disinterested directors, or otherwise. Notwithstanding any amendment to or repeal of this Article, any indemnitee shall be entitled to indemnification in accordance with the provisions hereof with respect to any acts or omissions of such indemnitee occurring prior to such amendment or repeal. (b) The Corporation may maintain insurance, at its expense, to protect itself and any past or present director, officer, employee, or agent of the Corporation or another corporation, partnership, joint venture, trust, or other enterprise against any expense, liability, or loss, whether or not the Corporation would have the power to indemnify such person against such expense, liability, or loss under the Delaware General Corporation Law. The Corporation may enter into contracts with any indemnitee in furtherance of the provisions of this Article and may create a trust fund, grant a security interest or use other means (including, without limitation, a letter of credit) to ensure the payment of such amounts as may be necessary to effect indemnification as provided in this Article. (c) The Corporation may without reference to Sections 5.01 through 5.04 (a) and (b) hereof, pay the expenses, including attorneys fees, incurred by any director, officer, employee or agent of the Corporation who is subpoenaed, interviewed or deposed as a witness or otherwise incurs expenses in connection with any civil, arbitration, criminal, or administrative proceeding or governmental or internal investigation to which the Corporation is a party, target, or potentially a party or target, or of any such individual who appears as a witness at any trial, proceeding or hearing to which the Corporation is a party, if the Corporation determines that such payments will benefit the Corporation and if, at the time such expenses are incurred by such individual and paid by the Corporation, such individual is not a party, and is not threatened to be made a party, to such proceeding or investigation.

ARTICLE VI

STOCK

Section 6.01. CERTIFICATES. Except as otherwise provided by law, each stockholder shall be entitled to a certificate or certificates which shall represent and certify the number and class (and series, if appropriate) of shares of stock owned by him in the Corporation. Each certificate shall be signed in the name of the Corporation by the Chairman of the Board, or the President, or a Vice President, together with the Secretary, or an Assistant Secretary, or the Treasurer or Assistant Treasurer. Any or all of the signatures on any certificate may be facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if such person were an officer, transfer agent or registrar at the date of issue.

Section 6.02. TRANSFER OF SHARES. Shares of stock shall be transferable on the books of the Corporation only by the holder thereof, in person or by his duly authorized attorney, upon the surrender of the certificate representing the shares to be transferred, properly endorsed, to the Corporation's registrar if the Corporation has a registrar. The Board of Directors shall have power and authority to make such other rules and regulations concerning the issue, transfer and registration of certificates of the Corporation's stock as it may deem expedient.

Section 6.03. TRANSFER AGENTS AND REGISTRARS. The Corporation may have one or more transfer agents and one or more registrars of its stock whose respective duties the Board of Directors or the Secretary may, from time to time, define. No certificate of stock shall be valid until countersigned by a transfer agent, if the Corporation has a transfer agent, or until registered by a registrar, if the Corporation has a registrar. The duties of transfer agent and registrar may be combined.

Section 6.04. STOCK LEDGERS. Original or duplicate stock ledgers, containing the names and addresses of the stockholders of the Corporation and the number of shares of each class of stock held by them, shall be kept at the principal executive office of the Corporation or at the office of its transfer agent or registrar.

Section 6.05. RECORD DATES. The Board of Directors shall fix, in advance, a date as the record date for the purpose of determining stockholders entitled to notice of, or to vote at, any meeting of stockholders or any adjournment thereof, or stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock, or in order to make a determination of stockholders for any other proper purpose. Such date in any case shall be not more than sixty (60) days, and in case of a meeting of stockholders, not less than ten (10) days, prior to the date on which the particular action, requiring such determination of stockholders is to be taken. Only those stockholders of record on the date so fixed shall be entitled to any of the foregoing rights, notwithstanding the transfer of any such stock on the books of the Corporation after any such record date fixed by the Board of Directors.

Section 6.06. NEW CERTIFICATES. In case any certificate of stock is lost, stolen, mutilated or destroyed, the Board of Directors may authorize the issuance of a new certificate in place thereof upon such terms and conditions as it may deem advisable; or the Board of Directors may delegate such power to any officer or officers or agents of the Corporation; but the Board of Directors or such officer or officers or agents, in their discretion, may refuse to issue such a new certificate unless the Corporation is ordered to do so by a court of competent jurisdiction.

ARTICLE VII

RESTRICTIONS ON SECURITIES REPURCHASES

Section 7.01. RESTRICTIONS ON SECURITIES REPURCHASES.

1. Vote required for certain acquisition of securities. Except as set forth in Subsection 2 of this Section 7.01, in addition to any affirmative vote of stockholders required by any provision of law, the Certificate of Incorporation or Bylaws of this Corporation, or any policy adopted by the Board of Directors, neither the Corporation nor any Subsidiary shall knowingly effect any direct or indirect purchase or other acquisition of any equity security of a class of securities which is registered pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), issued by the Corporation at a price which is in excess of the highest Market Price of such equity security on the largest principal national securities exchange in the United States on which such security is listed for trading on the date that the understanding to effect such transaction is entered into by the Corporation (whether or not such transaction is concluded or a written agreement relating to such transaction is executed on such date, and such date to be conclusively established by determination of the Board of Directors), from any Interested Person, without the affirmative vote of the holders of the Voting Shares representing at least a majority of the aggregate voting power of all outstanding voting shares, excluding Voting Shares beneficially owned by such Interested Person, voting together as a single class. Such affirmative vote shall

be required notwithstanding the fact that no vote may be required, or that a lesser percentage may be specified, by law or any agreement with any national securities exchange, or otherwise.

2. When A Vote Is Not Required. The provisions of Subsection 1 of this Section 7.01 shall not be applicable with respect to:

a. any purchase, acquisition, redemption or exchange of such equity securities, the purchase, acquisition, redemption or exchange of which is provided for in the Corporation's Certificate of Incorporation;

b. any purchase or other acquisition of equity securities made as part of a tender or exchange offer by the Corporation to purchase securities of the same class made on the same terms to all holders of such securities and complying with the applicable requirements of the Exchange Act of 1934, as amended and the rules and regulations thereunder (or any successor provisions to such Act, rules or regulations);

c. any purchase or acquisition of equity securities made pursuant to an open market purchase program which has been approved by the Board of Directors.

3. Certain definitions. For the purpose of this Section:

a. "Affiliate" and "Associate" shall have their respective meanings ascribed to such terms in Rule 12b-2 of the General Rules and Regulations under the Exchange Act, as in effect on January 1, 1991.

b. "Beneficial Owner" and "Beneficial Ownership" shall have the meanings ascribed to such terms in Rule 13d-3 and Rule 13d-5 of the General Rules and Regulations under the Exchange Act, as in effect on January 1, 1991.

c. "Interested person" shall mean any person (other than the Corporation or any subsidiary) that is the direct or indirect Beneficial Owner of five percent (5%) or more of the aggregate voting power of the Voting Shares, and any Affiliate or Associate of any such person. For the purpose of determining whether a person is an Interested Person, the outstanding Voting Shares include unissued shares of voting stock of the Corporation of which the Interested Person is the Beneficial Owner, but shall not include any other shares of voting stock of the Corporation which may be issuable pursuant to any agreement, arrangement or understanding, or upon exercise or conversion of rights, warrants or options, or otherwise to any person who is not the Interested Person.

d. "Market Price" of shares of the class of equity security of the Corporation on any day shall mean the highest sale price (regular way) of shares of such class of such equity security on such day, or, if that day is not a trading day, on the trading day immediately preceding such day, on the largest principal national securities exchange on which such class of stock is then listed or admitted to trading, or if not listed or admitted to trading on any national securities exchange, then the highest reported sale price for such shares in the over-the-counter market as reported on the NASDAQ National Market System, or if such sale price shall not be reported thereon, the highest bid price so reported, or, of such price shall not be reported thereon, as the same shall be reported by the National Quotation Bureau, Incorporated, or if the price is not determinable as set forth above, as determined in good faith by the Board of Directors.

e. "Person" shall mean any individual, partnership, firm, corporation, association, trust, unincorporated organization or other entity, as well as any syndicate or group deemed to be a person pursuant to Section 13(d)(3) of the Exchange Act, as in effect on January 1, 1991.

f. "Subsidiary" shall mean any company or entity of which the Corporation owns, directly or indirectly, (i) a majority of the outstanding shares of equity securities, or (ii) shares having a majority of the voting power represented by all of the outstanding Voting Stock of such company entitled to vote generally in the election of directors. For the purpose of determining whether a company is a Subsidiary, the outstanding voting stock and shares of equity securities thereof shall include unissued shares of which The Corporation is the beneficial owner but, except for the purpose of determining whether a company is a Subsidiary for the purpose of Subsection 3(c) hereof shall not include any shares which may be issuable pursuant to any agreement, arrangement, or understanding, or upon the exercise of conversion rights, warrants or options, or otherwise to any Person who is not the Corporation.

g. "Voting shares" shall mean the outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors.

ARTICLE VIII

SUNDRY PROVISIONS

Section 8.01. FISCAL YEAR. The fiscal year of the Corporation shall end on the 31/st/ day of December of each year.

Section 8.02. SEAL. The seal of the Corporation shall bear the name of the Corporation and the words "Delaware" and "Incorporated March 12, 1985."

Section 8.03. VOTING OF STOCK IN OTHER CORPORATIONS. Any shares of stock in other corporations or associations, which may from time to time be held by the Corporation, may be represented and voted at any of the stockholders' meetings thereof by the Chief Executive Officer or his designee. The Board of Directors, however, may by resolution appoint some other person or persons to vote such shares, in which case such person or persons shall be entitled to vote such shares upon the production of a certified copy of such resolution.

Section 8.04. AMENDMENTS. These Bylaws may be adopted, repealed, rescinded, altered or amended only as provided in Articles Fifth and Sixth of the Certificate.

February 16, 2000

SPECIAL OFFER RETIREE MEDICAL PLAN

ARTICLE I

Eligibility and Benefits

- 1.01 Purpose. The purpose of the Special Officer Retiree Medical Plan ("Plan")

is to provide lifetime retiree medical benefits to eligible elected officers of Northrop Grumman Corporation ("the Company") and their spouses.
- 1.02 Eligibility. Eligibility for benefits under this Plan will be limited to

those elected officers of the Company listed in Exhibit A. Officers may be added or removed from Exhibit A in accordance with the amendment provision of the Plan.
- (a) An elected officer listed in Exhibit A is a "Participant" under the Plan.
- (b) A Participant will become an "Eligible Participant" under the Plan if he or she has either five years of service as an elected officer or 30 years of total service with the Company and its affiliates.
- 1.03 Benefits. The Company will provide an Eligible Participant with a

continuation of medical benefits.
- (a) The benefits will be provided for the life of the Eligible Participant and the life of his or her surviving spouse, if any. (The only spouse covered will be a surviving spouse who is married to the Eligible participant both at the time of termination of employment with the Company and its affiliates and at the time of the Eligible Participant's death.
- (b) The benefits provided will be a continuation of the medical benefits the Eligible Participant was eligible to receive from the Company as of December 31, 1998. In particular, the following will remain frozen as of that date:
- (1) Participant contributions.
 - (2) Copayments.
 - (3) Deductibles.
 - (4) Medical benefit coverage.
- (c) Following the death of the Eligible Participant or his or her spouse, the participant contributions, copayments and deductibles will be adjusted to what they would have been for the Eligible participant for individual coverage as of December 31, 1998.

- (d) The benefits under the Plan will be coordinated with and paid secondary to any benefits that the Eligible Participant or his or her spouse receives from another plan of the Company or another employer or from Medicare (For this purpose, Medicare benefits are deemed to include any benefits the Eligible Participant and his or her spouse would receive from Medicare if they made proper application for benefits.)

ARTICLE 2

General Provisions

- 2.01 Amendment and Plan Termination. The Company may amend or terminate the

Plan with respect to any Participant only with the consent of the Participant or, after the Participant's death, with the consent of his or her spouse. Otherwise, the Company may amend the Plan at any time.
- 2.02 Assignment of Benefits. An Eligible Participant or surviving spouse may

not, either voluntarily or involuntarily, assign, anticipate, alienate, commute, sell, transfer, pledge or encumber any benefits to which he or she is or may become entitled under the Plan, nor may Plan benefits be subject to attachment or garnishment by any of their creditors or to legal process.
- 2.03 Nonduplication of Benefits. This Section applies if, despite Section

2.02, with respect to any Eligible Participant (or his or her spouse), the Company is required to make payments under this Plan to a person or entity other than the payees described in the Plan. In such a case, any coverage due the Participant (or his or her spouse) under the Plan will be reduced by the actuarial value of the coverage extended or payments made to such other person or entity.
- 2.04 Funding. Participants have the status of general unsecured creditors of

the Company and the Plan constitutes a mere promise by the Company to make benefit payments in the future. Any funding of benefits under this Plan will be in the Company's sole discretion.
- 2.05 Construction. The Company shall have full discretionary authority to

determine eligibility and to construe and interpret the terms of the Plan, including the power to remedy possible ambiguities, inconsistencies or omissions.
- 2.06 Governing Law. This Plan shall be governed by the law of the State of

California, except to the extent superseded by federal law.
- 2.07 Actions By Company. Any powers exercisable by the Company under the Plan

shall be utilized by written resolution adopted by the Board of Directors of the Company or its delegate. The Board may by written resolution delegate any of the Company's powers under the Plan and any such delegations may provide for subdelegations, also by written resolution.

NORTHROP GRUMMAN CORPORATION SUBSIDIARIES

Address for subsidiaries (unless otherwise noted) is:

c/o Northrop Grumman Corporation
Office of the Corporate Secretary
1840 Century Park East
Los Angeles, CA 90067

- . Allied Holdings, Inc.
 - . Allied Transportation Products, Inc.
 - . Grumman Credit Corporation
- . California Microwave, Inc.
- . Data Procurement Corporation, Inc. (d.b.a. DPC Technologies)
- . Grumman International, Inc.
- . Grumman Ohio Corporation
- . Grumman Sensor Systems, Inc.
- . Grumman Systems Support Corporation
- . Iran-Northrop Grumman Programs Service Company
- . Logicon, Inc.
 - . Logicon International, Inc.
 - . International Research Institute, Inc.
 - . INRI, UK LTD*
 - Alpha House
 - Chilworth Research Centre
 - Southampton S016 7NS
 - United Kingdom
 - . Logicon Technical Services, Inc.
 - . Logicon Syscon Services, Inc.
 - . Logicon Syscon (B.V.I.) Limited *
 - . Logicon Canada Limited*
- . MOCIT, Inc.
- . Northrop Grumman Aviation, Inc.
- . Northrop Grumman Commercial Aircraft Company
- . Northrop Grumman Electronic Sensors and Systems International, Inc.
 - . WESCAN Europe Ltd.*
 - 3 Burlington Road,
 - Dublin 4, Ireland
- . Northrop Grumman Electronic Systems International Company
- . Northrop Grumman Electronics Systems Integration International, Inc.
 - . Northrop Grumman Electronic Systems Integration Limited*
 - Senator House
 - 85 Queen Victoria Street
 - London EC4V 4IL

- . Northrop Grumman Field Support Services, Inc.
- . Northrop Grumman Foreign Sales Corporation (Barbados)*
 - c/o Chase Trade, Inc.
 - Stevmar House, Suite 2
 - Rockley, Christ Church, Barbados
- . Northrop Grumman International, Inc.
 - . Northrop Grumman (Singapore) Private Limited (Singapore)*
 - 250 North Bridge Road #15-04
 - Raffles City Tower
 - Singapore 179101
- . Northrop Grumman International Services Company, Inc.
- . Northrop Grumman ISA International, Inc.
- . Northrop Grumman Overseas Holdings, Inc.
 - . Northrop Grumman-Canada, LTD. (Canada)*
 - c/o Gowling, Strathy & Henderson
 - 120 King Street West
 - Suite 600
 - Hamilton, Ontario
 - L8P 4V2
 - . Northrop Grumman Electronics, Inc.
 - . Northrop Grumman Overseas Holdings (UK), Ltd.*
 - c/o Baker & McKenzie
 - 100 New Bridge Street
 - London EC4V 6JA
 - United Kingdom
 - . Park Air Electronics Ltd. (UK)*
 - Northfields
 - Market Deeping
 - Peterborough,
 - PE6 8LG, England
- . Northrop Grumman Overseas Service Corporation
- . Northrop Grumman Space Operations, LP
- . Northrop Grumman Tactical Systems LLC
- . Northrop Grumman Technical Services Corporation
- . Northrop Grumman Technical Services, Inc.
- . Northrop International Aircraft, Inc.
- . Park Air Electronics, Inc.
- . Perceptics Corporation

- . Remotec, Inc. (96% owned)
- . VAC Industries, Inc.
- . Xetron Corporation

* Foreign Subsidiaries

POWER OF ATTORNEY IN CONNECTION WITH THE

1999 ANNUAL REPORT ON FORM 10-K

KNOW ALL MEN BY THESE PRESENTS, that each of the undersigned directors and officers of NORTHROP GRUMMAN CORPORATION, a Delaware corporation, does hereby appoint RICHARD R. MOLLEUR and JOHN H. MULLAN, and each of them as his agents and attorneys-in-fact (the "Agents"), in his or her respective name and in the capacity or capacities indicated below to execute and/or file the Annual Report on Form 10-K for the fiscal year ended December 31, 1999 (the "Report") under the Securities Exchange Act of 1934, as amended (the "Act"), and any one or more amendments to any part of the Report that may be required to be filed under the Act (including the financial statements, schedules and all exhibits and other documents filed therewith or constituting a part thereof) and to any part or all of any amendment(s) to the Report, whether executed and filed by the undersigned or by any of the Agents. Further, each of the undersigned does hereby authorize and direct the Agents to take any and all actions and execute and file any and all documents with the Securities and Exchange Commission (the "Commission"), which they deem necessary or advisable to comply with the Act and the rules and regulations or orders of the Commission adopted or issued pursuant thereto, to the end that the Report shall be properly filed under the Act. Finally, each of the undersigned does hereby ratify each and every act and documents which the Agents may take, execute or file pursuant thereto with the same force and effect as though such action had been taken or such document had been executed or filed by the undersigned, respectively.

This Power of Attorney shall remain in full force and effect until revoked or superseded by written notice filed with the Commission.

IN WITNESS THEREOF, each of the undersigned has subscribed these presents this 16th day of February, 2000.

_____	Chairman of the Board, President and Chief Executive Officer and Director (Principal Executive Officer)
Kent Kresa	
_____	Director
Jack R. Borsting	
_____	Director
John T. Chain, Jr.	
_____	Director
Jack Edwards	
_____	Director
Vic Fazio	
_____	Director
Phillip Frost	
_____	Director
Robert A. Lutz	
_____	Director
Aulana L. Peters	
_____	Director
John E. Robson	
_____	Director
Richard M. Rosenberg	
_____	Director
John Brooks Slaughter	
_____	Director
Richard J. Stegemeier	
_____	Corporate Vice President and Chief Financial Officer (Principal Financial Officer)
Richard B. Waugh, Jr.	

YEAR	DEC-31-1999	DEC-31-1999
		142
	0	
	1,440	
	38	
	1,190	
	2,793	2,895
	1,655	
	9,285	
2,464		2,200
0		0
		1,028
		2,229
9,285		8,995
	8,995	8,026
	8,026	
	(17)	
	0	
	224	
	762	
	279	
483		
	0	
	0	
		(16)
	467	
	6.73	
	6.69	