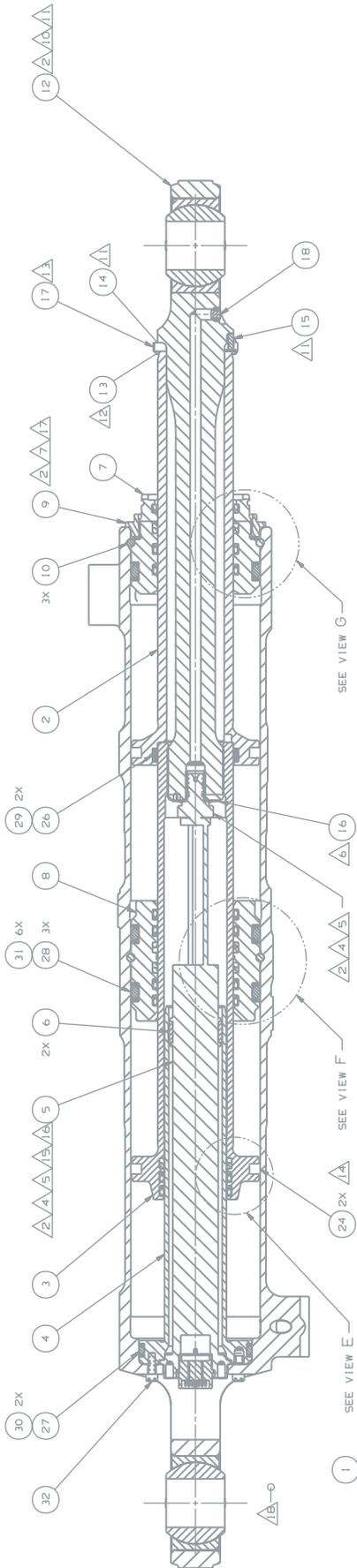


**2003 ANNUAL REPORT**

STATEMENT	CONTENT	DATA
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**Moog is a worldwide manufacturer of precision control components and systems. Moog's high performance actuation products control military and commercial aircraft, satellites and space vehicles, launch vehicles, missiles, and automated industrial machinery.**



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*(dollars in millions except per share)*

**RECENT FINANCIAL PERFORMANCE**

	2003	2002	Change
Net Sales	\$755	\$719	5%
Net Earnings	\$42.7	\$37.6	14%
Diluted Earnings Per Share	\$2.76	\$2.50	10%
Equity Market Cap	\$676	\$451	\$225

**CHAIRMAN'S LETTER**

FY '03

SALES

EARNINGS

OUTLOOK '04

**To Our Shareholders, Employees, and Friends:**

How appropriate that, in the year when we're celebrating the hundredth anniversary of powered flight, our military aircraft product line delivers a performance so outstanding that it carries the company to a successful result. There have been times in our history when commercial airplanes, commercial satellites, and industrial gas turbines were vibrant markets providing robust sales growth. During those periods we continued to support our military aircraft product line with consistent investments in product development and program start-up. Fiscal 2003 was a year when those investments paid off. Our growth in sales to \$755 million and a 14% increase in net earnings, which provided a 10% increase in diluted earnings per share, were all made possible by the strength in our military aircraft product line.

**Aircraft**

In achieving our '03 results, it wasn't enough to simply be in the military business. We had to be on the right platforms. We had to be on the F-18 and the V-22, and we had to have a big role on the F-35 Joint Strike Fighter (JSF). Many years ago, we invested heavily in research and development on the JSF. In fiscal '03, that bet paid off.

Another of the key elements in the equation is our success in the aftermarket. Over one-third of our revenues are generated from spares, repairs, and overhaul of our products on the thousands of aircraft that the U. S. military maintains in flying condition.

Military aircraft sales increased in '03 by almost \$64 million, allowing us to move gracefully through a year when sales of original equipment to Boeing Commercial declined by \$22 million.

All in all, it was a great year for our military aircraft programs. Production on the F/A-18E/F continued its steady growth; and support of the F-18's in service continued as a major focus for our aftermarket activity.

A critical review of the V-22 Osprey Program confirmed both its necessity and viability. Flight testing on the V-22 resumed and is proceeding successfully, with the DoD joining Congress in its support for continuing production.

The F-35 Joint Strike Fighter program is proving to be an extraordinary experience for our company. We're leading a team partnership that includes Parker Hannifin and Hamilton Sundstrand in the development of a completely new technological approach to primary flight controls. Most of the designs are complete, the product is performing well in development tests, and we're supporting the aircraft schedule.

In commercial aircraft, combined sales to Boeing and Airbus in '03 were \$49 million and commercial aircraft aftermarket sales were \$51 million. Revenues on business jets grew 10% to a total of over \$23 million as Raytheon's Hawker Horizon and Bombardier's Challenger 300 moved through development and prepared for production. On both aircraft we developed an entire suite of flight control actuation. Each of these programs represented a major development effort.

**Space**

Historically, sales in our Space segment have included ongoing production of controls for satellites and launch vehicles, both military and commercial, as well as strategic and tactical missiles. In most years, this production has been supplemented by sizable funded design and development projects. Fiscal 2003 was a year without any of these funded development programs and it was made worse by the low level of activity on production products.

The commercial satellite business was at a virtual standstill and the tactical missile business was down by 40% in 2003. The result was a very tough year. Sales of \$84 million were \$23 million lower than the year previous. We responded to this situation by reducing the staffing in this segment by the same percentage as the revenue change. One of the great strengths of our company is that the skills and talent of our engineers and technicians are transferable from one product line to another. As a result, our Space segment provided some of the talent pool needed for our rapid build-up on the JSF. Even having made this adjustment, a 21% sales reduction takes its toll on margins, and recent performance in the Space segment leaves lots of room for improvement.

In spite of these recent difficulties, we continue to believe that our capabilities in the Space business are an asset that will pay off again in the future, as they have in the past. During this current market lull, we've strengthened our product and market position, both in military and commercial satellites. We're also anticipating recovery in our production rate on tactical missile systems and we're optimistic that national missile defense will one day be a major program for us.

**Industrial**

Our Industrial segment had a much better year this year than last. In dollar terms, sales were up 6% to \$267 million, and operating profit was up 21%.

Just as our Aircraft business had to achieve its growth in spite of the decline at Boeing Commercial, our Industrial business had to cope with the shrinking U.S. market for power generating turbines. Our \$14 million sales increase was achieved in spite of a \$17 million reduction in sales of turbine controls. Setting aside what occurred in the turbine control market, we saw a 15% sales increase in our other product lines - over half of which was the result of the much stronger euro. This real growth is a welcome achievement in the context of a generally sluggish global industrial economy. It was achievable because of the particular niches we serve in the industrial equipment markets.

Our strongest Industrial market was plastics forming machinery. Growth was influenced by the demand for machines that mold compact discs and DVD's, machines that produce plastic containers, and equipment required to support the increased use of plastics in automobile manufacturing. Controls used on large metal forming presses and die casting machines are another growth area for us. The automobile industry, in particular, is demanding improved performance in large metal forming equipment, and this provides increasing opportunity for our closed loop controls. We also saw increased sales of controls used in

steel rolling mills, particularly in Asia. The material test market provided a 15% sales increase; and sales increased almost 20% on the industrial equipment we provide for defense control systems used on military vehicles. Another of our specialty areas is servovalves used on Formula 1 race cars.

Of equal importance to our original equipment sales to the Industrial markets are repairs and overhauls, which we continue to cultivate. These efforts resulted in a 14% increase in Industrial's aftermarket revenues.

#### **Acquisition of Poly-Scientific**

The acquisition of the Litton Poly-Scientific Division of Northrop Grumman was a big deal for us. It will be our fourth reporting segment and will be referred to as Components. We've acquired a company with a broad range of products and a similarly broad customer base – some of which is new to us. It is, we believe, the world's largest producer of electrical slip rings. The product lines also include aircraft instrumentation and other electrical components used on aircraft, and a strong concentration of industrial brushless DC motors, many of which are used in medical equipment. This new segment will represent close to 15% of our sales in '04. We look forward to the assimilation of all these assets into the global Moog.

#### **Equity Offering**

All in all, we made a lot of progress in various product lines in '03. But, we shouldn't close the book on '03 without noting the remarkable increase in the valuation of our company. On the sixteenth of September we sold an additional two million Class A shares, bringing our equity base to over

seventeen million shares. Based on the stock price at the end of '03, our market capitalization had grown to \$676 million, an increase of \$225 million over last year. We believe that the market has finally begun to appreciate the consistent performance in earnings and cash flow made possible by our uniquely balanced revenue base.

#### **Outlook for '04**

Given our projections of margin performance, and a further reduction of interest expense in fiscal '04, we expect continued improvement in our company's profitability. Here's how we think our four segments will perform in the upcoming year: Taking into account the extraordinary growth in the military aircraft business in the last two years, we're projecting only a modest increase for Aircraft in '04. We're projecting a similarly modest increase in our Space business. We're more bullish about the growth prospects for Industrial since we think that we're through the down cycle in the U.S. sales of turbine controls. Adding in the contribution of Components, we're projecting sales for '04 of between \$920 million and \$940 million, net earnings in the range of \$54 million to \$58 million, and diluted earnings per share in the range of \$3.10 to \$3.30. Results anywhere in that range will continue our record of double-digit growth in earnings per share.

We have every hope and expectation that the overall results we'll achieve in '04 will validate the judgment of our new investors and the loyalty of our long-term shareholders.

Respectfully submitted,



Back row left to right:

Bob Maskrey  
Chief Operating Officer

Bob Brady  
Chairman, CEO

Bob Banta  
Chief Financial Officer

Joe Green  
Chief Administrative Officer

Steve Huckvale  
Vice President

Dick Aubrecht  
Vice Chairman

Front row left to right:

Phil Hubbell  
Vice President

Jay Hennig  
Vice President

Warren Johnson  
Vice President

Marty Berardi  
Vice President



<b>MOOG</b>	
<b>AIRCRAFT CONTROLS</b>	
FY '03	Sales: \$404 Million
FY '04	Forecast: \$408 Million

Aircraft is our largest segment. We supply controls for military and commercial aircraft, both on an OEM basis and in the aftermarket. Revenues in '03 were \$404 million, up over 12%, providing more than half of the company's total sales.

In the military market, Moog designs and builds primary and secondary flight controls and engine controls for fighter and transport aircraft, and for helicopters. Revenues are driven by the number and type of programs in process, as well as by the number of ship sets ordered. Production programs are typically long-term, offering good visibility as to capacity needs and revenues.

In '03, we worked on three development contracts for the F-35 Joint Strike Fighter, a low-rate initial production and a replacement contract for the V-22, regular production on the F/A-18E/F, continuing development on the RAH-66 Comanche, and legacy production on the F-15 Eagle, in addition to a number of smaller contracts for other military aircraft. In total, '03 military aircraft sales, excluding aftermarket, were \$177 million, up \$63 million from '02, primarily due to increased work on F-35 and V-22.

Our commercial aircraft product line bears many similarities to the military. We design and manufacture high performance flight controls and jet engine controls, both of which are critical to an aircraft's performance and safety. Our customers are chiefly Boeing and Airbus, along with the major builders of business jets, including Raytheon, Cessna, Gulfstream, and Bombardier. Market fundamentals depend upon worldwide travel statistics and firm orders for new aircraft.

In '03, we delivered primary and secondary flight controls for Boeing's 7-series aircraft, servovalves and primary flight controls for Airbus, and primary and secondary flight controls for several business jets. Sales in '03, excluding aftermarket, were \$87 million, down \$20 million, entirely due to Boeing's decreased commercial production rates.

Moog's original equipment heritage on every important military program and all of Boeing's 7-series aircraft has earned the company a strong annuity of aftermarket business. A recent census of active military aircraft counted more than 16,000 aircraft and large commercial transports numbered 7,000.

In '03, Moog's total military and commercial aircraft aftermarket revenues were over \$140 million, up nearly \$2 million.

In '04, the Aircraft segment expects military revenues to be slightly higher. Once again, the F-35, V-22, F/A-18E/F, and F-15 will be significant contributors. Commercial aircraft revenues for '04 are expected to decrease slightly. Aftermarket is expected to continue its strong performance, increasing by approximately 6% due to a number of scheduled military retrofit programs.



Wingfold Actuator



Electric Power Drive Unit

Asymmetry Brake

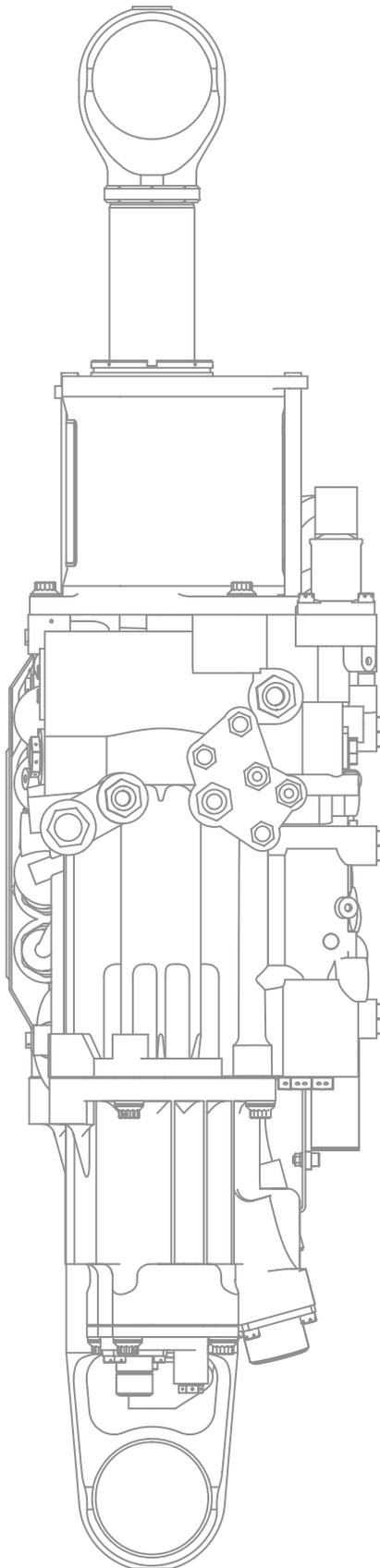
Flaperon Electrohydrostatic Actuator

Horizontal Tail Electrohydrostatic Actuator

Rudder Electrohydrostatic Actuator



Moog is leading teams which include Parker Hannifin, Hamilton Sundstrand and Curtiss-Wright in development of the flight control systems for the Joint Strike Fighter. Separately, we are developing the wingfold actuation for BAE Systems.

**Products**

- Primary and secondary flight control actuation systems using hydraulic, mechanical, electromechanical, and electro-hydrostatic technologies
- Stabilizer trim controls and multi-axis feel and trim systems
- Wingfold and weapons bay actuation systems
- Active vibration control systems
- Engine thrust vector control actuation systems
- Main rotor and tail rotor actuators for helicopters
- Electronic controllers for actuation systems
- Gun turret controls
- Flight control servovalves
- Engine control servovalves and servoactuators
- Hydraulic servomotors and servopumps
- Aircraft braking and steering selector manifolds and servovalves

## Major Programs

### Military Aircraft:

- F-35, F-15, F/A-18E/F, V-22, F-16, F-22, Japanese F-2, Korean T-50, C-27J, C-295, Tornado, Eurofighter-Typhoon, India LCA, Japan CX/MPX

### Large Commercial Airplanes:

- Boeing 737, 747, 757, 767, 777  
Airbus A320, A330, A340, A380

### Regional Aircraft:

- DHC-8-400

### Business Jets:

- Bombardier Challenger 300, 604, and Global Express, Citation X, Gulfstream IV, G400, G450, Hawker Horizon, Premier I

### Military and Commercial Helicopters:

- Black Hawk, Sea Hawk, RAH-66, EH-101, S-92, AH-64, A109, AB139

### Military Engine Controls:

- F-404, F-414, F-110, F-119, EJ200, AE2100, T406, RTM322, T700

### Commercial Engine Controls:

- CF-6, GE90, V2500, RB211 and Trent, Honeywell APU's, PW 901

### Customer Support:

- All above current production programs plus legacy programs including A-6, A-7, A-10, B-1B, B-2, B-52, C-5, C-130, C-141, CH-46, CH-47, CH-53, DC-8, DC-9, DC-10, E-2C, EA-6B, F-4, F-14, F-111, F/A-18C/D, KC-10, KC-135, L-1011, MD-11, MD-80, MD-90, P-3, SR-71, U-2

## Competitive Advantages

- Complete actuation system integration capability
- Unparalleled experience in design of primary and secondary flight control actuation, both in the U. S. and overseas
- State-of-the-art technology in flight controls, engine controls, and active vibration
- World-class manufacturing facilities staffed with skilled, experienced, and team-based work force
- Focused, highly-responsive aftermarket support organization

## Competitors

### Electrohydraulic Actuation:

- Parker Hannifin, Teijin Seiki, Smiths Industries (Dowty), Goodrich (TRW/Lucas), Liebherr, HR Textron

### Mechanical Actuation:

- Curtiss-Wright, Smiths Industries (Dowty), Goodrich (TRW/Lucas), Liebherr, Hamilton Sundstrand

## Strategies and Initiatives

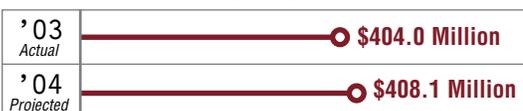
- Offer our customers complete actuation system packages
- Maintain leading-edge technology in flight control, engine control, and active vibration control
- Align business plans with customer objectives
- Partner with prime contractor R&D centers
- Continuously pursue cost and cycle time reductions using lean initiatives in all areas of our business
- Maintain the world's most responsive aftermarket support services
- Expand aftermarket sales by partnering with government depots and commercial maintenance organizations
- Engineer solutions to enhance performance and extend life of mature aircraft

## Market Developments

- System design and development phase continues on F-35 Joint Strike Fighter
- UH-60M Black Hawk active vibration control system under development test at customer
- RAH-66 Comanche engineering manufacture development program proceeding on schedule
- Boeing production rate declines
- Raytheon Premier I production ramps up
- Super-midsize business jets: Challenger 300 is certified and Hawker Horizon in flight test
- V-22 successfully resumes flight testing, production continues

### Aircraft Controls

#### SALES



### Aircraft Controls

#### OPERATING PROFIT



**SPACE CONTROLS**

FY '03	Sales: \$84 Million
FY '04	Forecast: \$89 Million

The company's Space segment includes controls for satellites and space vehicles, military and commercial launch vehicles, and missiles. Revenues from this segment in '03 were \$84 million, down over 21% from the year previous.

For military and commercial satellites, Moog designs and builds steering and propulsion controls and we also provide actuation to position their antennae and to deploy their solar panels. NASA is also a customer on programs such as the Space Shuttle, special vehicles, and the International Space Station. Fundamentals in these markets depend on several factors. Military satellite work is driven primarily by the military's desire for readiness and bandwidth along with the availability of relevant government funding. Customers for commercial satellites are the telecommunications companies. New orders depend on the age of their satellites, which have an average life of seven to ten years, and their need for increased capacity. NASA's science objectives, limited by available funding, drive orders for the Space Shuttle, special vehicles, and work related to the Space Station.

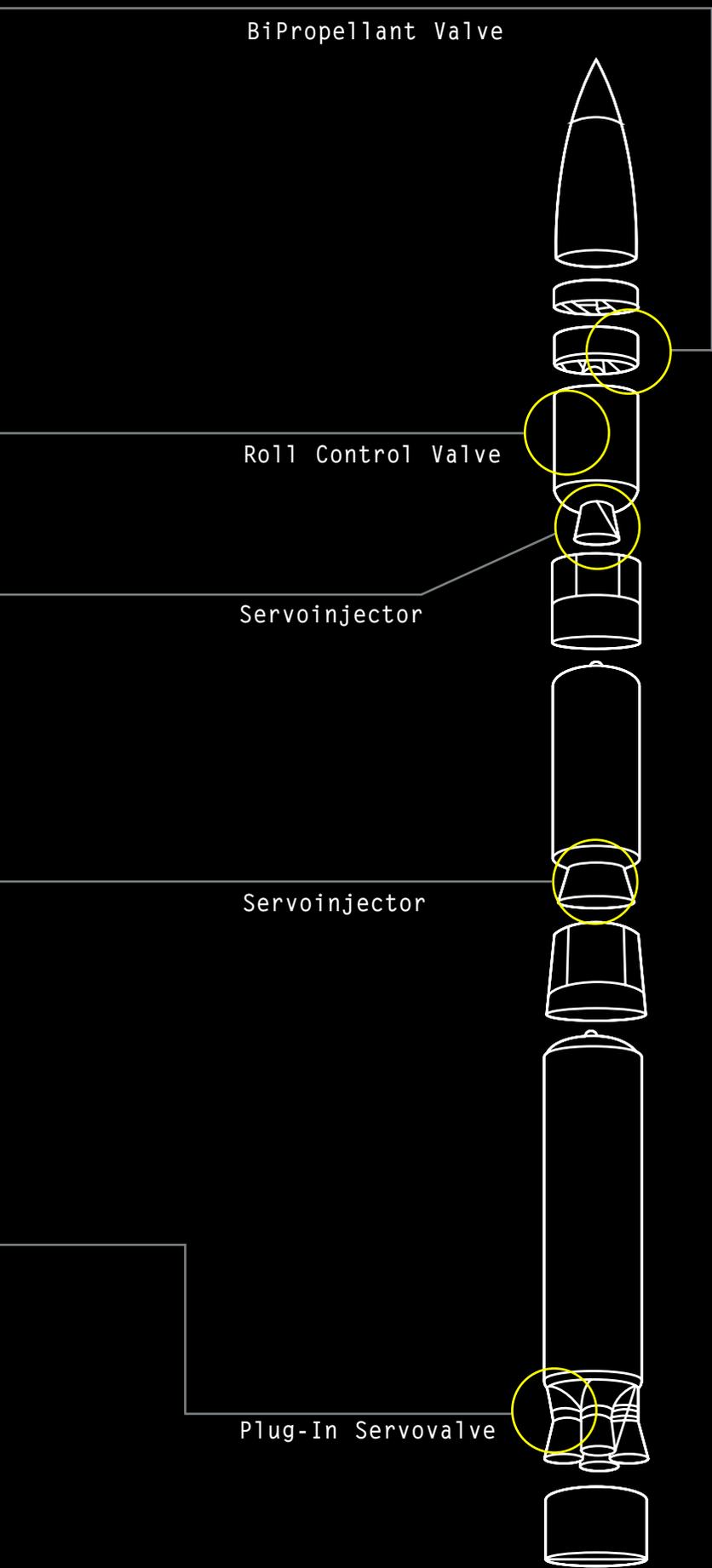
In '03, revenues in the Space market were down sharply for three reasons: over-capacity in the commercial satellite business continued to reduce orders for that type of hardware; in '02, the company finished \$6 million in work on an experimental vehicle for NASA which caused a negative comparison in '03; and, although a large one-time refurbishment program on the Space Shuttle's orbiters continued, revenues from the on-going refurbishment program for booster actuators decreased due to the hiatus in regular launches.

Military and commercial launchers are rockets that deliver satellites to their parking spots in space. Moog supplies hardware for Titan, Ariane, Atlas Centaur, Delta, and the 2nd generation reusable launch vehicle. In '03, revenues remained at the same level as the prior year.

We also design and build hardware for strategic and tactical missiles and missile defense systems. Program funding and inventory levels are the catalysts in this market. In '03, development work on the Ground-based Midcourse Defense System increased slightly, but a break in production on Hellfire and the completion of the AGM-142 caused revenues to decline by \$5 million.

Looking ahead to FY '04, sales for the Space segment are expected to be up slightly as the Shuttle prepares to resume a regular launch schedule and a refurbishment program on Minuteman III adds to revenues.





★ Overhaul and repair opportunities exist throughout Moog's product lines including the Minuteman III life extension program in our strategic missiles market.

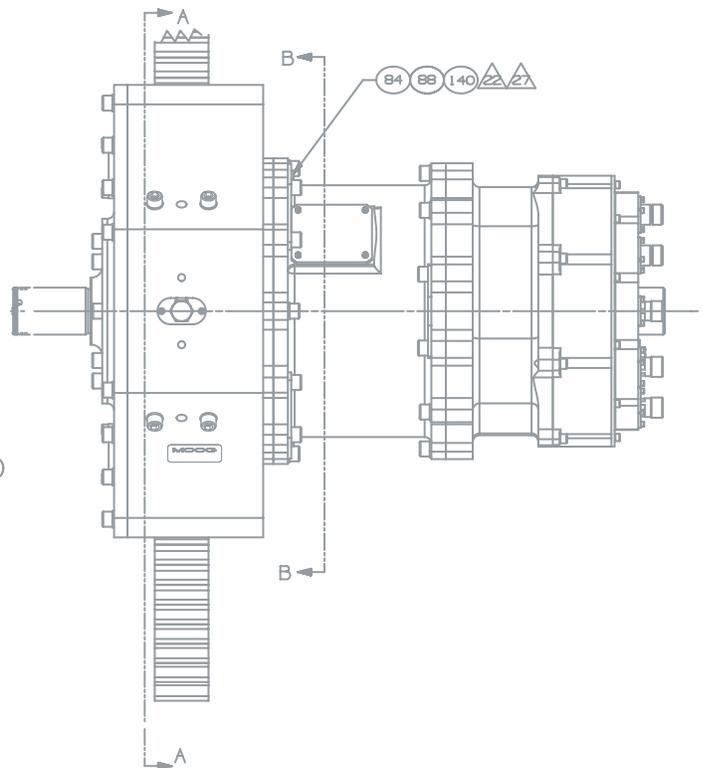
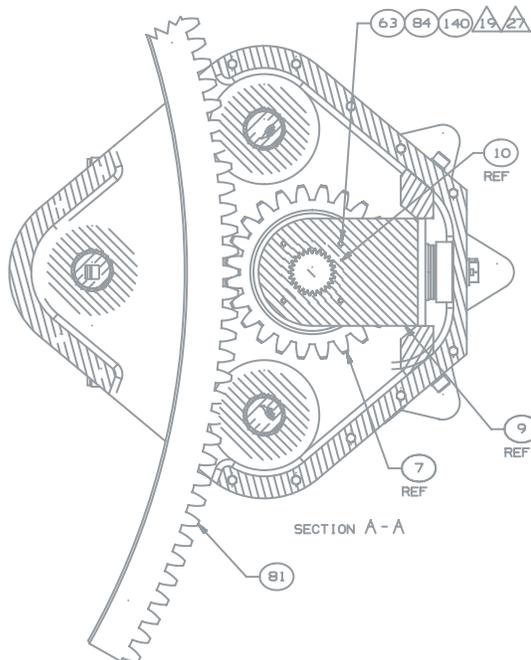
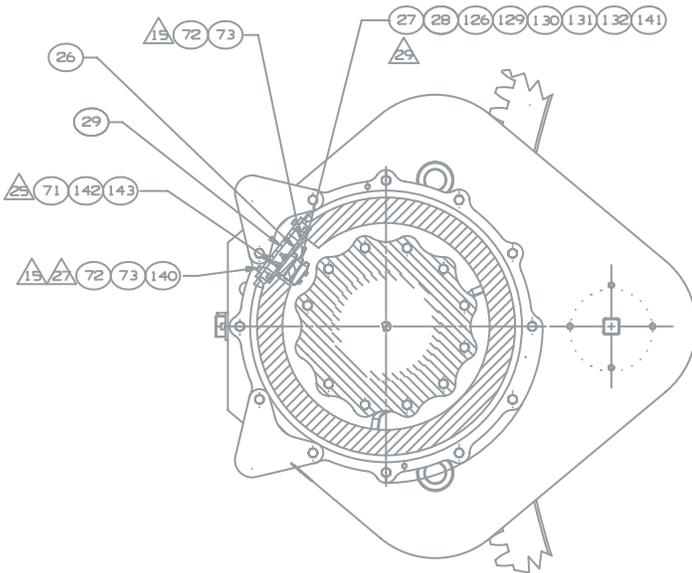
**Minuteman III Life Extension Program**

**SPACE CONTROLS**

SATELLITES	LAUNCH VEHICLES	MISSILES
OVERVIEW	SALES	OPERATING PROFIT

**Products**

- Thrust vector control actuation systems
- Steering control systems for space vehicles
- Thruster valves, isolation valves, regulators, and integrated manifolds for satellite propulsion control
- Electric propulsion propellant management systems for satellites
- Solar array drives, antenna-pointing mechanisms, and precision instruments
- Fin control systems for tactical missiles and guided projectiles, underwater vehicles, decoys, and targets
- Propellant valves for liquid rocket engines
- Divert and attitude control thruster valves for missile interceptors
- Motors (brush, brushless, stepper), eddy current dampers, brakes, clutches, gear head assemblies for space flight mechanisms
- Nanometer step-size actuators that can operate at cryogenic temperatures



## Major Programs

### Satellite Chemical Propulsion:

- Boeing 601 and 702, A2100, LS-1300, Eurostar, SpaceBus thruster and isolation valves

### Satellite Subsystem Integration:

- Gas Management Assembly for NASA Gravity Probe B satellite
- Propellant and helium manifold for A2100 and SBIRS
- Xenon control assembly for NASA DAWN satellite

### Launch Vehicle Steering and Propulsion Controls:

- Titan IV, Atlas II, III, V, Ariane 5, Space Shuttle, Delta II, III, IV, Pegasus, X-38 Crew Return Vehicle, Hyper X Space Plane, 2nd Generation RLV, VEGA

### Space Station Components:

- Fluid quick disconnect couplings, truss assembly actuators, fluid control valves

### Satellite Electric Propulsion:

- Propellant management assembly and thruster gimbal for LS-1300, Xenon flow controller for A2100, Boeing 601/702 Xenon Regulator

### Space Flight Motion Control:

- LS-1300, SpaceBus, AEHF, GPS, A2100, Star-2

### Missile Steering Controls:

- GMD, Patriot, Aspide, Sea Dart, Penguin, Aster 15 and 30, Arbizon, MQM 170-B, C-22 Drone, Hellfire, Longbow, AGM-142, APKWS, NetFires, E-Squared, Tactical Tomahawk, Have Lite, Trident II (D-5), Minuteman III, SM-2 BLK IV, AMSTE, MALD

## Competitive Advantages

- Unparalleled experience in design and manufacture of electric and hydraulic launch vehicle steering controls and satellite propulsion controls
- Leading edge technology in electric propulsion, precision regulation, and propellant management systems
- The most extensive experience in satellite mechanisms for a variety of space flight applications including articulation of satellite solar arrays and antennas
- Most comprehensive thruster valve product line worldwide
- Automatic testing implemented on all new thruster and latch valve programs
- World-class subsystem integration and test facilities including orbital welding, x-ray inspection, and Class 10,000 clean room
- World-class manufacturing facilities staffed with skilled, experienced, and dedicated work force

## Competitors

### Launch Vehicle and Missile Steering Controls:

- Honeywell, HR Textron, Parker, MPC, Goodrich

### Satellite Propulsion Controls:

- Vacco

### Launch Vehicle Propulsion Controls:

- Honeywell, Marotta, Ketema, Valcor, Vacco

### Satellite Motion Controls:

- Aeroflex, Starsys

## Strategies and Initiatives

- Continue the advance of electromechanical controls for launch vehicles and missiles
- Increase use of automated test stands to reduce costs
- Continue implementation of next-generation cleanliness equipment and techniques
- Support satellite and launch vehicle manufacturers on a worldwide basis
- Selective acquisitions of complementary product lines
- Continue to support GEO satellite primes with subsystems
- Increase standardization of products and processes to reduce costs

## Market Developments

- National missile defense testing is a high priority for DoD
- Competition between Delta IV and Atlas V continues – Moog is baselined on both teams
- Long-term supply agreements signed with worldwide satellite thruster manufacturers
- Supporting NASA's 2nd generation RLV program to advance propulsion and vehicle steering control technologies
- Space Shuttle launches temporarily suspended due to the break-up of Columbia

## Space Controls

### SALES

'03 <i>Actual</i>	\$84.5 Million
'04 <i>Projected</i>	\$88.8 Million

## Space Controls

### OPERATING PROFIT

'03 <i>Actual</i>	\$.5 Million
'04 <i>Projected</i>	\$0

<b>MOOG</b>	
<b>INDUSTRIAL CONTROLS</b>	
FY '03	Sales: \$267 Million
FY '04	Forecast Range: \$283 to \$303 Million

The Industrial segment provides more than one-third of our revenues and is our most diverse in terms of geography, customers, and applications. This part of our business generated sales of \$267 million in '03, up nearly 6%.

Moog began selling its Industrial products overseas nearly forty years ago. Today, we have facilities in twenty-four countries around the world. The extent of our geographic reach has brought us valuable exposure to new customers and has resulted in dozens of unique markets ranging from saw mills to bottle-labeling equipment to valves for all the Formula 1 teams in Europe. Among the dozens of markets that we serve, there are four that add up to nearly half of the total revenues. These are controls for plastic making machines, defense control systems, metal forming equipment, and turbines. The drivers for these major product lines in all of our different geographies are as diverse as the segment itself.

Controls for plastics machines are driven, in part, by product innovation. The advent of compact disks and DVD's has created strong demand for our controls on the injection molding machines that make them. Total sales in '03 were \$56 million, up \$12 million. Defense control systems that are used on combat vehicles depend on the military for orders. Fleet modernization in the U.S. and overseas has caused this product line to grow significantly. Sales in '03 were \$30 million, up \$5 million. Sales in the metal forming market increased by \$5 million, reflecting an increased interest in more precise machine performance.

While turbine controls are still one of our four largest Industrial applications, sales declined sharply in '03 due to over-capacity in the U.S. power generation market. Revenues fell \$17 million in '03 to \$24 million.

The Industrial segment differs from the Aircraft and Space segments in two ways. First, Industrial transacts more business in Europe and Asia than in the U.S. Therefore, when an overseas currency is stronger than the dollar, there is a positive effect on our revenues and earnings. The strength of the euro added measurably to our results for '03. Secondly, the orders in this segment tend to come in on relatively short notice, making revenues harder to forecast.

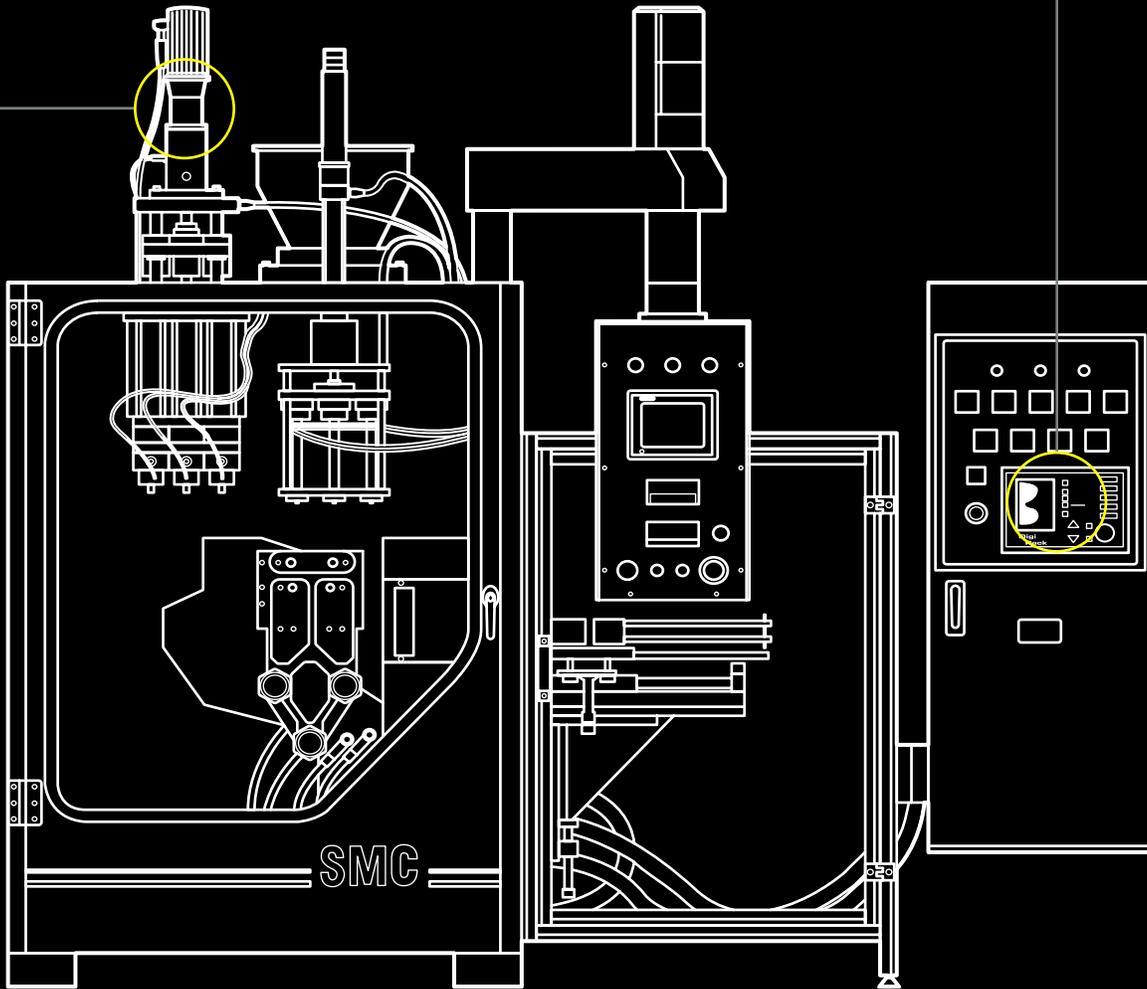
In '04, we expect similar metrics to '03. Sales in many of Industrial's markets are expected to increase, except for turbines and defense systems. Since we're unable to precisely predict the movement of the euro and the yen, we're forecasting a range of Industrial sales between \$283 and \$303 million.



Electromechanical Parison Controller



Electromechanical Parison Actuator



Hydraulic  
Servovalve

Hydraulic Parison Actuator



Hydraulic  
Actuator

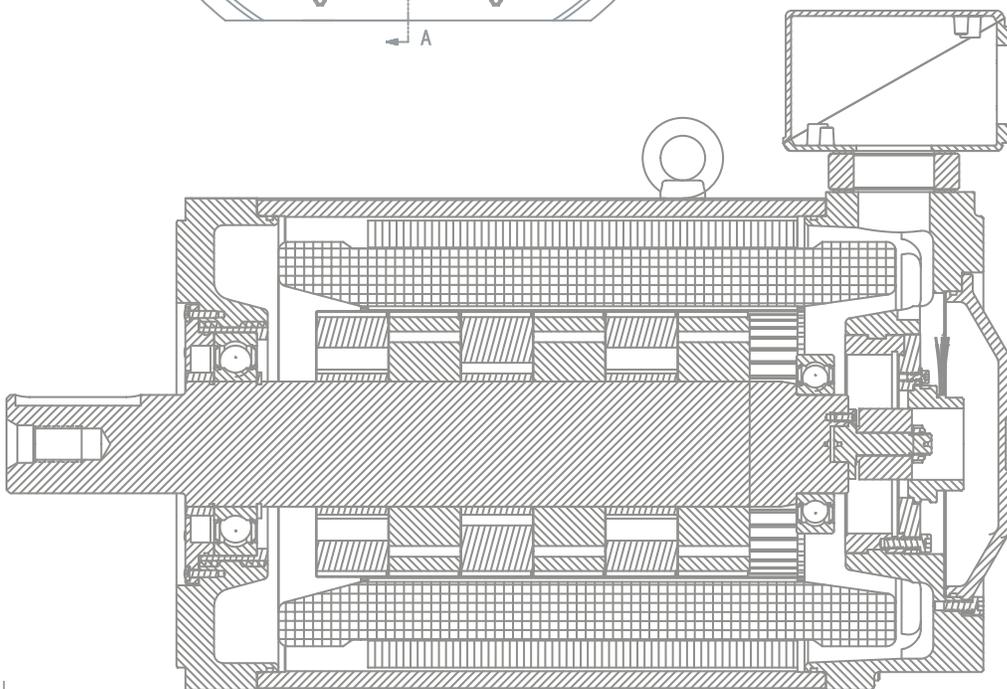
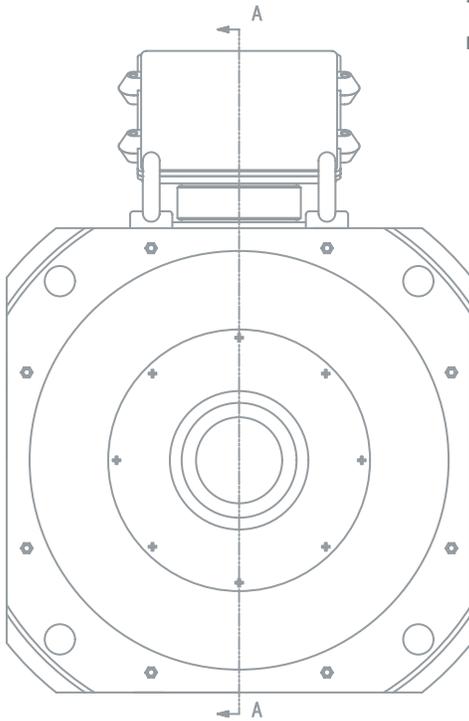


Moog's extensive background in both hydraulic and electric controls enables us to offer our customers a choice for their drive requirements.

**SMC 1000T Blow Molding Machine**

**Products***Hydraulics:*

- Servovalves and proportional valves
- Actuation packages - high performance and application specific
- Customized, integrated hydraulic packages
- Fuel and lube oil pumps
- Fuel, water, and lube oil systems
- Industrial hydraulic pumps

**Products***Electromechanical:*

- Brushless servomotors and programmable servodrives
- Electromechanical servoactuator packages (linear and rotary)
- Electronic controls for specialized automated machinery
- Electrically-actuated motion platforms and flight simulators
- Electrohydrostatic controls: Electrically driven pumps and self-contained hydraulics
- Complete, sealed actuation systems with closed-loop motion controls

**Major Programs***Hydraulics:*

- Electrical feedback servovalves for control of clamp and injection operations on plastic injection molding equipment
- Mechanical feedback and direct drive valves for parison control and electrical feedback valves for motion control in plastic blow molding machines and for control of rolls in paper-making machinery
- Hydraulic actuators and servovalves for fatigue testing systems
- Electrical and mechanical feedback servovalves for coil box, gauge control, mold oscillator, side guide, and down coiler control of steel and aluminum mill equipment
- Formula 1 race car control systems
- Full flight simulation systems for U.S. military training

## Major Programs

### Electromechanical:

- Electric drives for assembly robots, metal forming machines, material handling robots, packaging machines, and injection molding machines
- Custom controls for carpet tufting machines
- Full performance total machine controllers for injection and blow molding machines
- Electric and hydraulic gun-positioning and ammunition-handling actuation for military vehicles, helicopters, and naval systems
- Four and six-degree-of-freedom motion platforms with capacities of 2,000 to 13,000 pounds
- Fuel metering and vane actuation controls for gas turbines
- Control loading and motion platform actuators for flight training simulators
- Digital control valves and electronics for the control of paper-making machines
- Down-hole cutting and grinding high performance motors
- Position control of down-hole tools in the mining industry

## Competitive Advantages

- Innovative technology in industrial automation
- Well-developed application knowledge of motor control in target markets
- Worldwide systems engineering to optimize custom solutions
- Focus on product reliability supported by worldwide service facilities
- World-class manufacturing facilities staffed with skilled, experienced, and dedicated work force

## Competitors

### Servovalves:

- Bosch/Rexroth, Eaton Vickers

### Electric Drives:

- Danaher, Parker

### Simulators:

- Fokker, Hydraudyne

## Strategies and Initiatives

- Continue development of innovative technology
- Pursue system integration of our products in selected market applications
- Consolidate production in global manufacturing centers
- Focus factories and processes to shorten lead times
- Expand global capabilities for support and service
- Initiate market specific electro-mechanical controls packages
- Speed new product introduction through enhanced project systems and skills

## Market Developments

- Plastics machinery market growth increases and electro-mechanical controls gain acceptance especially in high volume smaller machines
- Full flight simulator training market begins to adopt electric actuation
- General global market conditions have rebounded from cyclic lows - business conditions are moving in a positive direction going forward

### Industrial Controls

#### SALES

'03 <i>Actual</i>		\$267.0 Million
'04 <i>Projected</i>		\$293.1 Million

### Industrial Controls

#### OPERATING PROFIT

'03 <i>Actual</i>		\$16.9 Million
'04 <i>Projected</i>		\$25.1 Million

<b>MOOG</b>	
<b>COMPONENTS</b>	
MOOG ACQUIRES POLY-SCIENTIFIC	
FY '04	Sales Forecast: \$140 Million

On the second day of our fiscal '04 we closed on the acquisition of the Litton Poly-Scientific Division of Northrop Grumman. This new segment of our business is expected to contribute to our economic results in the upcoming year, and so we think it's appropriate to introduce it to you now.

Poly-Sci designs and manufactures electrical slip rings and fiber-optic rotary joints, brushless D.C. motors, and electromechanical actuators. Slip rings are electromechanical devices that allow the transmission of electrical power and data across a rotating joint and are used in applications that include industrial and medical equipment, aircraft, spacecraft, military vehicles, ships, instrumentation, and radar platforms.

Poly-Sci, as a company, was very much like Moog. They were founded in 1953, two years after Moog. They are the market leader in many of their products, and the hardware that they design and manufacture is difficult to make and critical to the performance of the system it's used on. In addition, these products are sold into many of the same markets that Moog addresses.

In their fiscal '02, the last full year prior to acquisition, Poly-Sci had sales of approximately \$132 million. Slip rings comprised 42%, motors 39%, and electromechanical actuators and other products totaled approximately 19%. Their revenue breakdown between aircraft, space and missiles, and industrial is very similar to Moog's. Except for their participation in the medical equipment market niche, the fundamentals driving their revenues are also similar to our own.

Poly-Sci has locations in Blacksburg, Virginia, Murphy, North Carolina, and Springfield, Pennsylvania, and employs approximately 1,000 people. Renamed Components, their results will be reported separately, forming our fourth segment.



**Components**

SALES

'03 <i>Actual</i>	n/a
'04 <i>Projected</i>	\$140.0 Million

**Components**

OPERATING PROFIT

'03 <i>Actual</i>	n/a
'04 <i>Projected</i>	\$14.8 Million

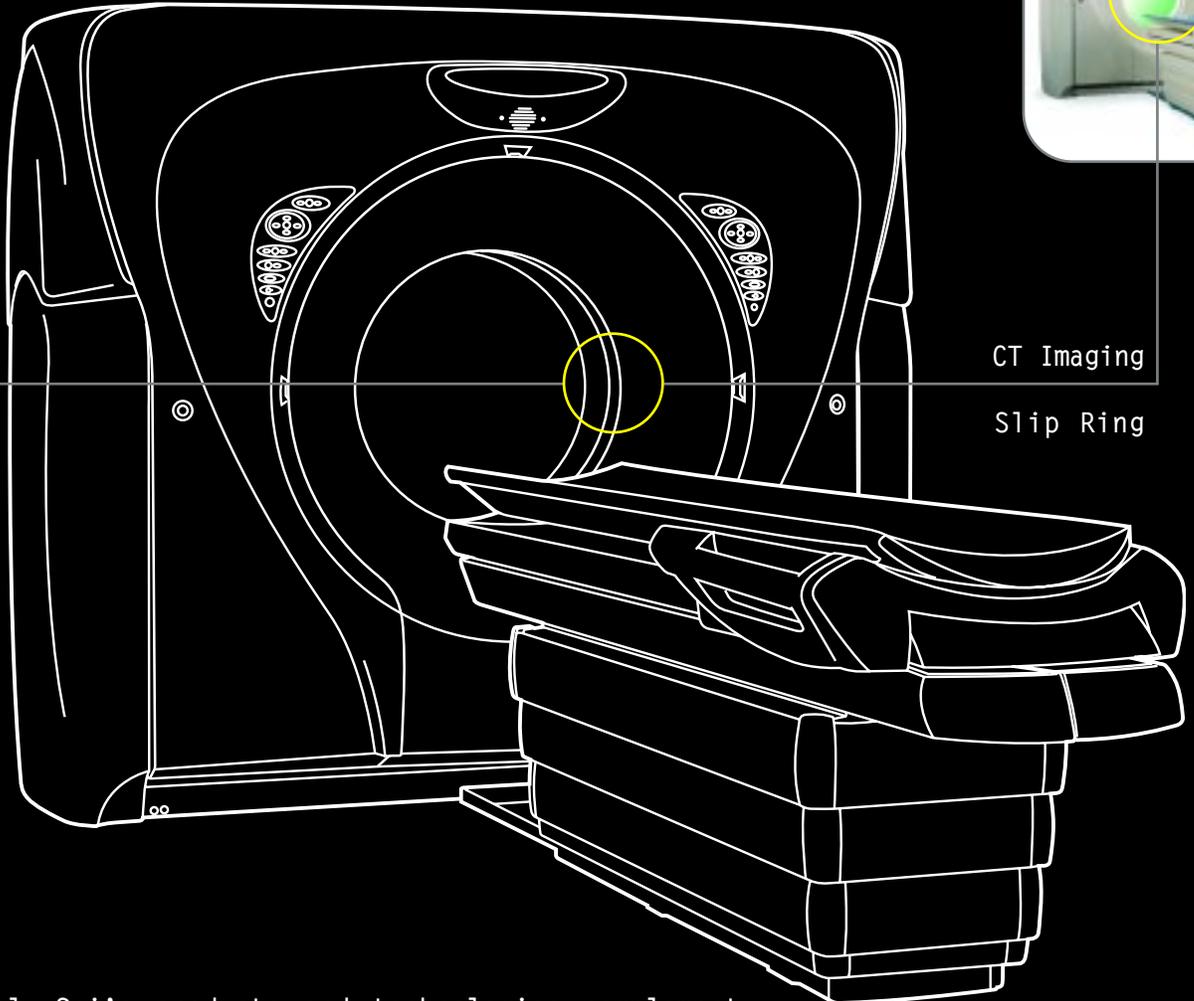
Continuous Positive Airway Pressure device to treat Sleep Apnea

DC Brushless Motors



Sniper Advanced Targeting Pod

Actuator



CT Imaging

Slip Ring

Computed Tomography Scanner



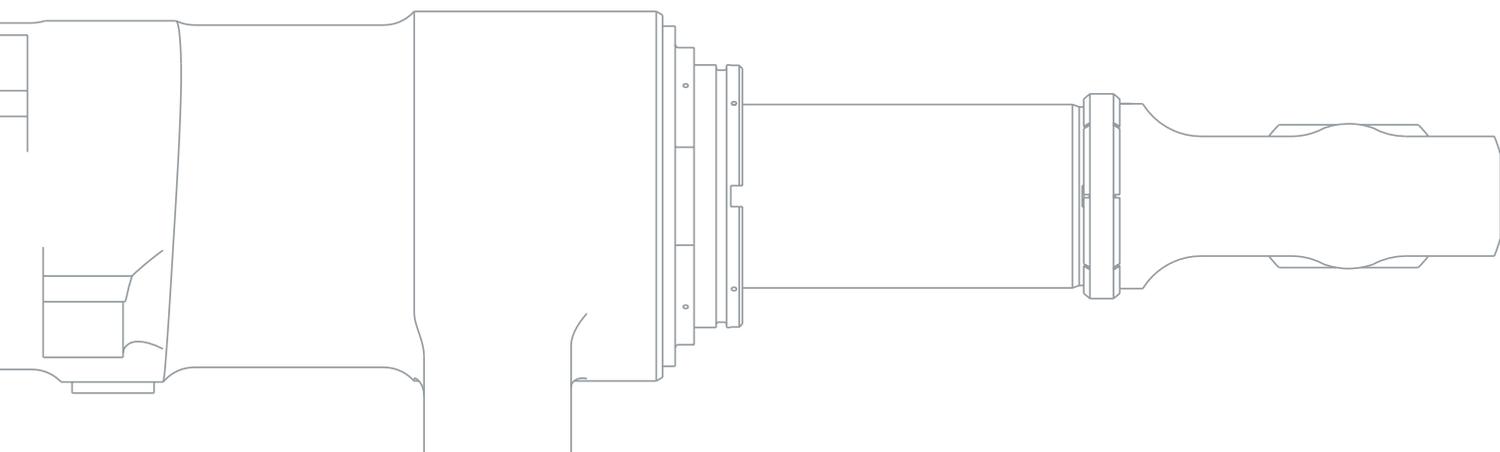
Poly-Sci's products and technologies complement Moog's historic markets and simultaneously expand our horizons into the medical equipment markets.

**SELECTED FINANCIAL DATA**

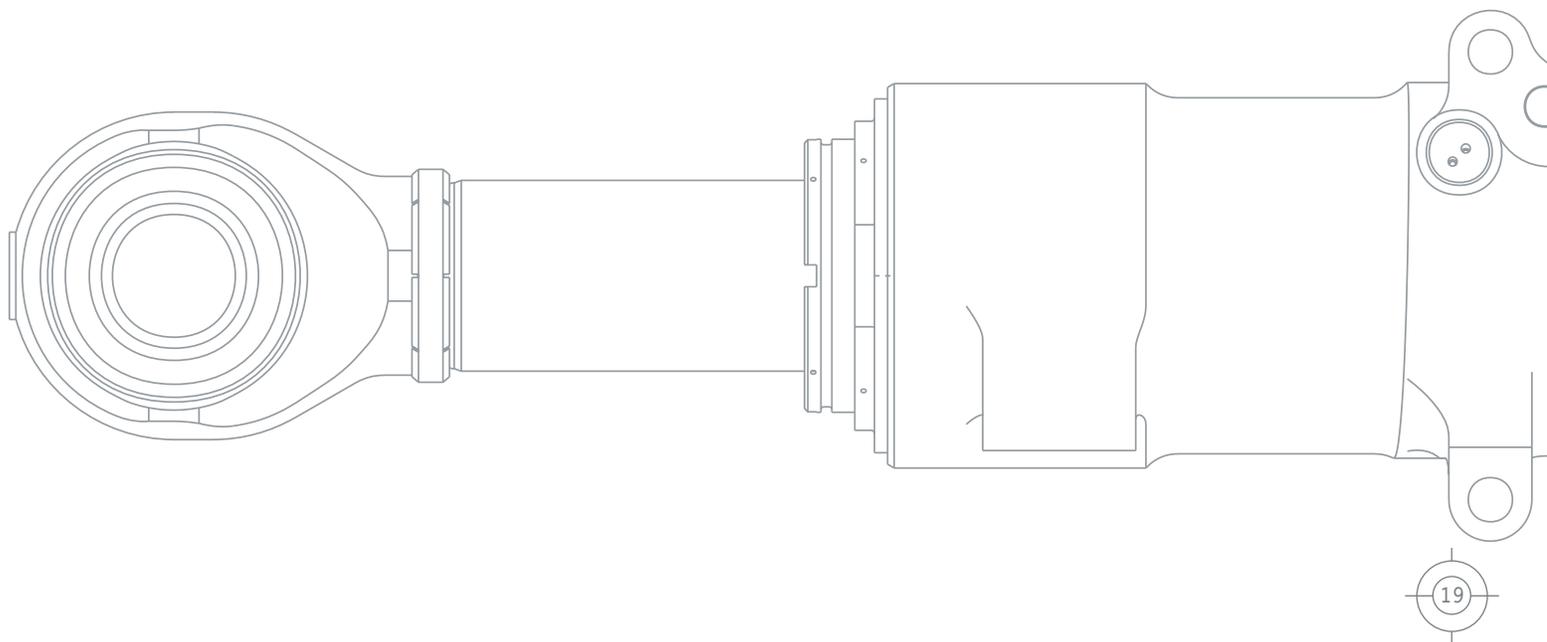
**TEN YEAR REVIEW**

DOLLARS IN MILLIONS EXCEPT PER SHARE DATA

	<b>2003</b>	<b>2002</b>	<b>2001</b>	<b>2000</b>
Net sales	\$755	\$719	\$704	\$644
Net earnings	\$43	\$38	\$28	\$25
Net return on sales	5.7%	5.2%	4.0%	3.9%
Earnings per share:				
Basic	\$2.80	\$2.54	\$2.13	\$1.92
Diluted	\$2.76	\$2.50	\$2.11	\$1.90
Diluted weighted-average shares outstanding (in millions)	15.5	15	13	13
Return on shareholders' equity	12.5%	13.3%	12.2%	11.7%
Segment sales:				
Aircraft Controls	\$404	\$359	\$340	\$312
Space Controls	\$84	\$107	\$103	\$112
Industrial Controls	\$267	\$253	\$261	\$220
At year end:				
Total assets	\$992	\$886	\$857	\$792
Shareholders' equity	\$424	\$300	\$236	\$223
Working capital	\$341	\$276	\$257	\$248
Indebtedness	\$257	\$316	\$373	\$366
Shareholders' equity per common share outstanding	\$24.60	\$19.81	\$18.04	\$16.97
Backlog (12 month)	\$368	\$365	\$364	\$345
Number of full time employees	4,744	4,817	4,901	4,463



1999	1998	1997	1996	1995	1994
\$630	\$537	\$456	\$407	\$374	\$307
\$24	\$19	\$14	\$11	\$8	\$2
3.9%	3.6%	3.0%	2.6%	2.1%	0.7%
\$1.82	\$1.55	\$1.30	\$0.96	\$0.67	\$0.18
\$1.80	\$1.51	\$1.25	\$0.93	\$0.66	\$0.18
14	13	11	11	12	12
12.2%	12.3%	12.4%	10.0%	7.4%	2.2%
\$302	\$254	\$226	<i>segment data not available</i>	<i>segment data not available</i>	<i>segment data not available</i>
\$110	\$93	\$66	-	-	-
\$218	\$189	\$164	-	-	-
\$798	\$559	\$491	\$450	\$425	\$424
\$212	\$191	\$114	\$105	\$109	\$102
\$225	\$226	\$188	\$188	\$167	\$151
\$376	\$206	\$238	\$211	\$190	\$204
\$15.85	\$14.25	\$10.79	\$10.01	\$9.37	\$8.83
\$337	\$314	\$280	\$243	\$238	\$217
4,699	4,073	3,657	3,229	3,003	3,140



Business News

## **Fiscal '02 Net Earnings up 16%**

*Moog Receives \$113 Million Contract for Joint Strike Fighter*

Business News

## **1st Quarter Fiscal '03 EPS up 10%**

*Moog Receives Aircraft Contracts Worth \$36 Million*

Business News

## **2nd Quarter EPS up 10%**

*Net Profit \$10.3 Million*

Business News

## **3rd Quarter Earnings up 10%**

*Work on Joint Strike Fighter Drives Revenue Growth*

Business News

## **4th Quarter Earnings up 15%**

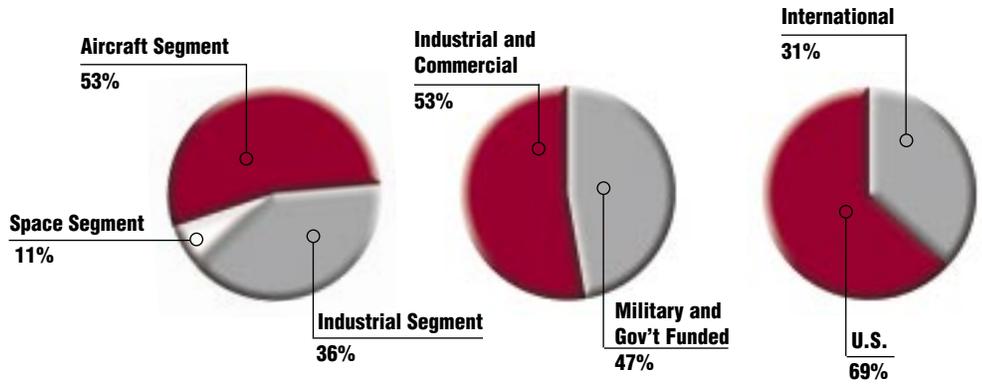
*Moog Signs Agreement to Purchase Assets of  
Northrop Grumman's Poly-Scientific Division*

*Moog Closes Sale on Two Million Class A Shares*

*FY '04 Earnings Forecast between \$3.10 and \$3.30 per share*

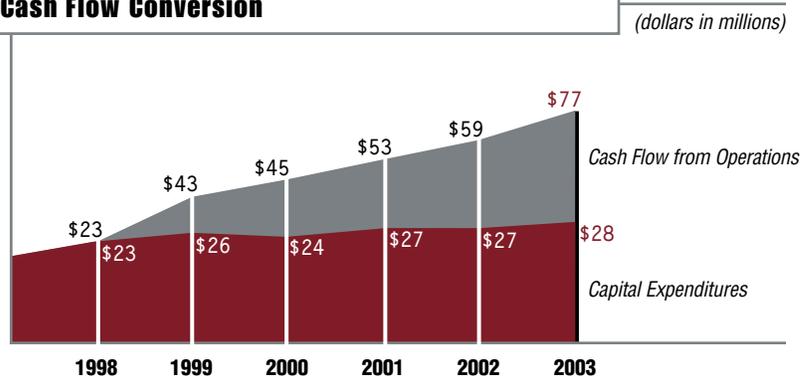
### Balanced and Diversified Revenues - 2003

Our market diversification began nearly fifty years ago and our international diversification began more than thirty-five years ago. Just as investors balance their portfolios of stocks, so do we balance our portfolio of businesses to benefit both the company and its shareholders.



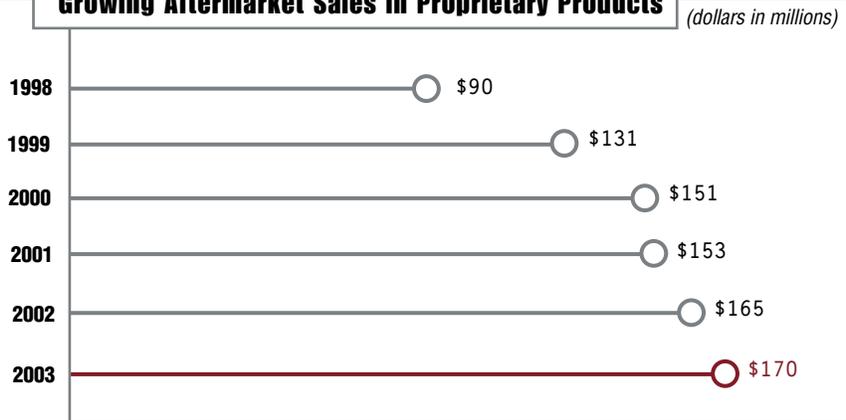
### Cash Flow Conversion

Strong earnings and better working capital management have resulted in improved cash flow from operations.



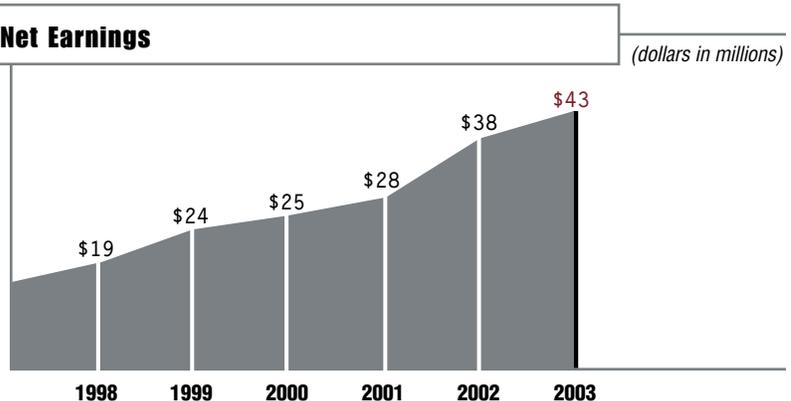
### Growing Aftermarket Sales in Proprietary Products

One of our strategies for the past nine years has been to vigorously pursue aftermarket sales for our proprietary products.



### Net Earnings

Our ongoing improvement in net earnings is primarily the result of increased sales volume. Other contributing factors include lean initiatives, low cost manufacturing centers, and favorable interest rates.



MOOG		
<b>GLOSSARY OF TERMS</b>		
MOOG TECHNOLOGY		
2001	2002	2003

In 2001, Moog began providing a glossary of selected terms relevant to our technology and markets. This year we're providing several new terms in the same in-depth fashion as well as abbreviated definitions from the prior years.

**2001 - 2002 TERMS:**

**Aftermarket:**  
Spares, repairs, and overhaul of original equipment hardware.

**Primary flight controls:**  
Flight-critical controls including ailerons, elevators, and rudders.

**Secondary flight controls:**  
Supplemental controls that refine an aircraft's performance including trim tabs, wingflaps, spoilers, speed brakes, and slats.

**Thrust vector control:**  
Steering launch vehicles and satellites by directing the thrust of their rocket engines and booster nozzles. Also used in high performance fighter aircraft.

**Electrohydrostatic actuation (EHA):**  
New technology eliminating hydraulic connections and providing electrical power directly to the actuators.

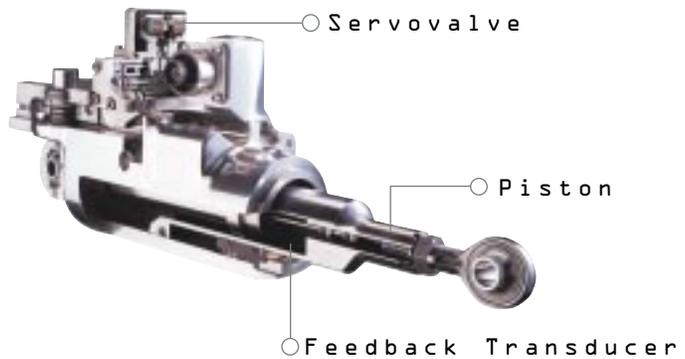
**Swashplate assembly:**  
Provides adjustability of the angle of any of the rotor blades simultaneously, allowing the craft to gain or lose altitude, or control attitude.

**Six degrees of freedom:**  
Defines six motions: vertical, lateral, longitudinal, pitch, roll, and yaw.

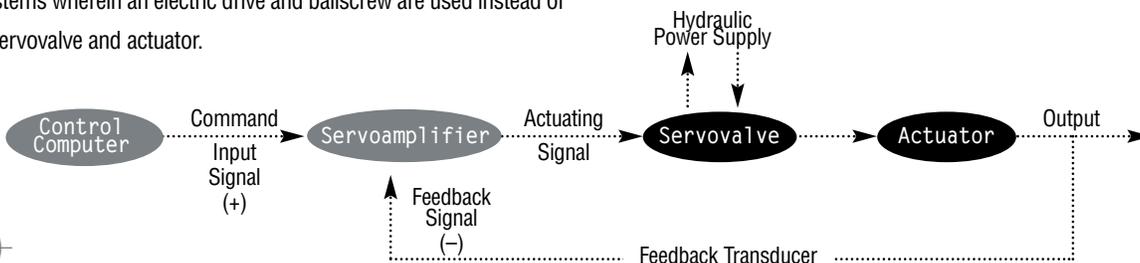
**Digital interface valve:**  
An Industrial servovalve with an embedded digital micro-processor enabling users to define dynamic performance.

**Electrohydraulic Servocontrol Actuation:**

An electrohydraulic servocontrol system consists of six elements indicated in the diagram below: control electronics which may be a computer, microprocessor or guidance system and which create a command input signal; a servoamplifier which provides a low power electrical actuating signal which is the difference between the command input signal and the feedback signal generated by the feedback transducer; a servovalve which responds to this low power electrical signal and controls the high power flow of hydraulic fluid to an actuation element such as a piston and cylinder which positions the device being controlled; and a power supply, generally an electric motor and pump, which provides the flow of hydraulic fluid under high pressure. The feedback transducer measures the output of the system and converts this measurement into a proportional signal which is sent to the servoamplifier. The concepts are similar in electromechanical systems wherein an electric drive and ballscrew are used instead of a servovalve and actuator.



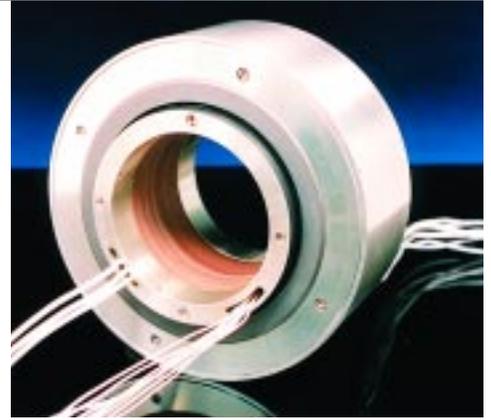
This cutaway of an actuator shows the piston which moves inside the cylinder in response to the pressure and flow control of the servovalve. The piston extends and retracts, providing the motion or force commanded by the computer.



## 2003 TERMS:

### Slip Rings:

Electromechanical and fiber-optic interface devices that transmit either electrical power or electronic data between a stationary element and a rotary element, allowing unencumbered 360-degree rotation. Applications are in aircraft, satellites and space vehicles, and in many types of industrial equipment including medical machinery.

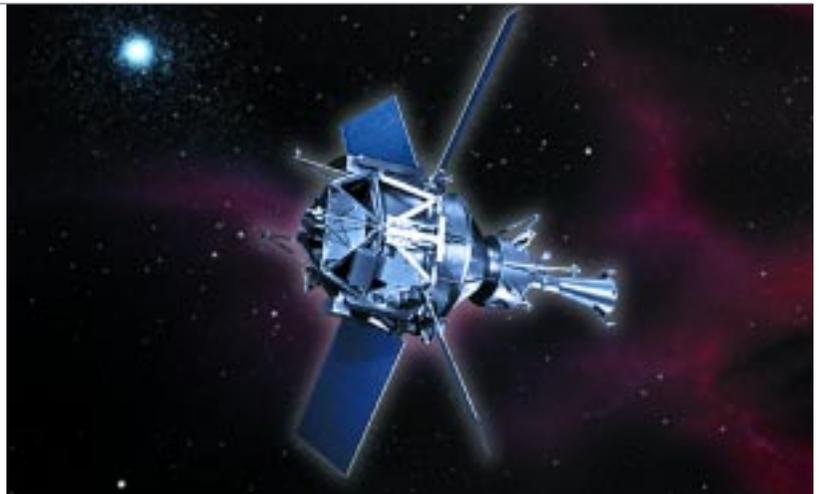


### Plastics Market:

Moog provides hardware for two types of plastic processing machinery. The first type is injection molding in which hot molten plastic is injected into cold molds using a hydraulic piston. After the part cools and solidifies, the mold is opened and the part is ejected. The second type is blow molding which begins by using heat to soften a plastic so that it can be extruded (pushed out) into a hollow tube called a parison. While the tube is still soft, a mold closes around the tube, pinching the top and bottom of the tube. Then, a pin is introduced and air is forced through the pin blowing the tube into the shape of the mold cavity.

### Gravity Probe B:

Gravity Probe B is a satellite being built by Stanford University and Lockheed Martin Missiles and Space to test two unverified predictions of Albert Einstein's general theory of relativity. The experiment will check minute changes in the direction of spin of four gyroscopes orbiting at a 400 mile altitude directly over the poles of the Earth. The gyros will measure how space and time are warped by the presence of the Earth and how the Earth's rotation drags space-time around with it.



### Aircraft Aftermarket:

Moog's aircraft actuators are designed to provide flawless performance over time measured in decades. Periodically, the actuators need overhauling to bring them back to their original specifications. Moog's overhauls and repairs guarantee the use of original factory parts and assembly and testing by expert technicians.

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Chief Operating Officer  
Director

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Executive Vice President  
Chief Administrative Officer  
Director

Robert R. Banta  
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Chief Financial Officer  
Director

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VP - Strategy and Technology  
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