

# ADVANCED ENERGY INDUSTRIES INC

## FORM 10-K405

(Annual Report (Regulation S-K, item 405))

Filed 3/24/1998 For Period Ending 12/31/1997

Address	1625 SHARP POINT DR FT COLLINS, Colorado 80525
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CIK	0000927003
Industry	Electronic Instr. & Controls
Sector	Technology
Fiscal Year	12/31

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# SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

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## FORM 10-K

(MARK ONE)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE  
ACT OF 1934 (FEE REQUIRED).

For the fiscal year ended December 31, 1997.

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES  
EXCHANGE ACT OF 1934 (NO FEE REQUIRED).

For the transition period from \_\_\_\_\_ to \_\_\_\_\_.

*Commission file number: 0-26966*

## ADVANCED ENERGY INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

DELAWARE  
(State or other jurisdiction of incorporation  
or organization)

84-0846841  
(I.R.S. Employer  
Identification No.)

1625 SHARP POINT DRIVE, FORT COLLINS, CO  
(Address of principal executive offices)

80525  
(Zip Code)

Registrant's telephone number, including area code: (970) 221-4670

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

NONE

**Securities registered pursuant to section 12(g) of the Act:**

**COMMON STOCK, \$0.001 PAR VALUE**

(Title of Class)

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 for 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 (Section 229.405 of this chapter) 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 [X].

As of January 31, 1998, there were 22,500,007 shares of the Registrant's Common Stock outstanding and the aggregate market value of such stock held by non-affiliates of the Registrant was \$101,827,588 (based on the closing price on the Nasdaq Stock Market).

#### **DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the annual shareholders report for the year ended December 31, 1997, are incorporated by reference into Parts I and II of this Form 10-K.

Portions of the Company's definitive proxy statement for the annual shareholders meeting to be held May 6, 1998, are incorporated by reference into Part III of this Form 10-K.

**ADVANCED ENERGY INDUSTRIES, INC.**  
**FORM 10-K**

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## **PART I**

### **ITEM 1. BUSINESS**

#### **GENERAL**

Advanced Energy is a leading supplier of power conversion and control systems most of which are incorporated in plasma-based thin film production equipment. The Company's systems are key elements of semiconductor, data storage, flat panel display, and a range of other industrial manufacturing equipment that utilizes gaseous plasmas to deposit or etch thin film layers on materials or substrates such as silicon, glass and metals. As a result of a recent acquisition, the Company now provides power supplies for non-plasma-based processes. The effectiveness of plasma-based production processes depends in large part on the characteristics of the electrical power used to ignite and maintain the plasma. The Company's power conversion and control systems refine, modify and control the raw power from a utility and produce the power required to obtain predictable and repeatable film characteristics. The Company's systems are used in an array of thin film processes such as physical vapor deposition, etch, chemical vapor deposition, plasma-enhanced chemical vapor deposition and ion implantation, as well as a broad range of thin film applications such as the production of semiconductors, magnetic hard disks, CD-ROMs, audio and video discs, thin film heads, liquid crystal displays and optical, glass and automobile coatings. The Company's customers for thin film applications include Applied Materials, Lam Research, Balzers/Leybold, Materials Research, Multi-Arc, and Ulvac.

In recent years, significant technological advances in thin film processes have enabled the manipulation of materials on the atomic and molecular level. Manufacturers can now both deposit and etch layers of materials that are less than one-hundredth of a micron in thickness. By using modern thin film production processes, manufacturers are better able to control and alter the electrical, magnetic, optical and mechanical characteristics of materials. Thin film processes have been employed most extensively in the semiconductor industry, where multiple thin film layers of insulating or conductive material are deposited on a wafer or substrate. These processes are now used in a growing range of diverse industries. Thin film production was initially accomplished using either liquid chemical or thermal processes. Plasma-based process technology was developed to address the limitations of wet chemistry and thermal technologies in certain applications requiring thinner, more precise film, and to enable new applications.

The Company is seeking, as part of its long-term strategy, opportunities that will allow it to diversify and generate business in growth sectors that are not related to the thin film applications that the Company has historically served. The first step in achieving that objective was the acquisition of Tower Electronics in August 1997. Tower designs and manufactures products for non-thin film applications including power supplies for use in modems, non-impact printers, night vision goggles and laser devices. The acquisition of Tower expands the Company's technology and customer base. Representative customers

of Tower include U.S. Robotics, Videojet International and ITT.

The Company has achieved its market leadership position by providing systems which convert externally supplied power, operate over a wide range of power levels, control utility instabilities such as brownouts and surges created by raw utility power sources, and control intense localized electrical discharges known as arcs and control system instabilities which arise from the use of exotic gases and inherently unstable electrode arrangements. Most of the Company's products employ sophisticated switchmode technology that affords plasma-based systems the ability to minimize arc energy, which can slow down the throughput of a plasma process and may even destroy the substrate or the power conversion and control system. The Company believes the combination of its in-depth knowledge of plasma physics, its unique approach to product customization and its reusable engineering product design methodology have enabled it to develop the widest range of power conversion and control systems in the industry.

Since inception, the Company, excluding Tower, has sold over 100,000 power conversion and control systems. Approximately 64% of the Company's sales in 1996 and 58% in 1997 were to the semiconductor equipment industry. Advanced Energy sells its systems primarily through direct sales personnel to customers in the United States, Japan and Europe. The Company also sells through distributors in Singapore, China, Japan, France, Italy, Israel, South Korea and Taiwan. International sales represented 24% and 25% of the Company's sales in 1996 and 1997, respectively.

## **DEVELOPMENT OF COMPANY BUSINESS**

Advanced Energy was incorporated in Colorado in 1981 and reincorporated in Delaware in September 1995. In November 1995, the company effected the initial public offering of its common stock, \$0.001 par value ("Common Stock"), pursuant to a registration statement on Form S-1 under the Securities Act of 1933, as amended (the "Securities Act"). In October 1997, the Company effected a second public offering of its Common Stock pursuant to a registration statement on Form S-3 under the Securities Act. As used in this Form 10-K, references to "Advanced Energy" refer to Advanced Energy Industries, Inc. and references to the "Company" refer to Advanced Energy and its consolidated subsidiaries. The Company's principal executive offices are located at 1625 Sharp Point Drive, Fort Collins, Colorado 80525, and its telephone number is (970) 221-4670.

## **PRODUCTS**

The Company's switchmode power conversion and control technology products have enabled its customers to develop new plasma processing applications. In 1982, the Company introduced its first low-frequency switchmode power conversion and control system specifically designed for use in plasma processes. In 1983, the Company

introduced its first direct current (DC) system designed for use in PVD sputtering applications. This DC-based system is a compact, cost-effective power solution, which greatly reduced stored energy, a major limitation in PVD systems. In the early 1990's the Company introduced the first fully switchmode radio frequency (RF) power conversion and control systems for use in semiconductor etch applications. This product achieved significant design wins because of its smaller size and precise control. The Company introduced a family of accessories for the DC product line in 1993; these pulsed DC products provide major improvements in arc prevention and suppression. The Company is currently extending the power range of its systems to much higher power levels to enable it to supply products for emerging industrial applications. The Company's products currently range in price from \$2,880 to \$80,000, with an average price of approximately \$10,000. As a result of an acquisition in August 1997, the Company expanded its product line to include low-power DC power supplies for use in telecommunications and other industrial applications. These power supplies range in power from 50 watts to 600 watts and have an average selling price of about \$500.

The following chart sets forth the Company's principal product lines and related basic information:

	PRODUCT PLATFORM	DESCRIPTION	POWER/CURRENT LEVEL	MAJOR PROCESS APPLICATIONS
	MDX	Power control and conversion system	500W-80kW	PVD - Metal sputtering - Reactive sputtering
DIRECT	MDX-II	Power control and conversion system	15kW-120kW	PVD - Metal sputtering - Reactive sputtering
CURRENT				
PRODUCTS	Pinnacle -TM-	Power control and conversion system	6kW-120kW	PVD - Metal sputtering - Reactive sputtering
	Sparc-le -Registered Trademark-	Arc management accessory	1kW-60kW	For use with MDX systems -- permits precise control of reactive sputtering of insulating films
	E-Chuck	Electrostatic chuck power system	< 100W	General wafer handling in semiconductor PVD, CVD, and etch applications
HIGH-POWER	Astral-TM- - 20	Pulsed DC power system	20kW	PVD - Metal sputtering - Reactive sputtering
PRODUCTS	Astral-TM- - 120	Pulsed DC power system	120kW	PVD - Metal sputtering - Reactive sputtering
	Crystal-TM-	Multizone induction heating power system	120kW	Semiconductor epitaxy
LOW- AND MID-	PE	Low-frequency power control and conversion system	1.25kW-30kW	CVD PVD - Reactive sputtering Surface modification
FREQUENCY				
PRODUCTS	PD	Mid-frequency power control and conversion system	1.25kW-8kW	CVD PVD - Reactive sputtering Surface modification
	HFV/HFG	Power control and conversion system	3kW-8kW	PVD  Etch
RADIO	RFX	Power control and conversion system	600W	General R&D
FREQUENCY	RFG	Power control and conversion system	600W-5.5kW	Etch  CVD



PRODUCTS	RFXII	Power control and conversion system	600W-5.5kW	Etch  CVD
	AZX	Tuner	100W-5kW	Impedance matching network
OTHER	RFZ	Probe	50W-5kW	Impedance measurement tool
PRODUCTS	ID	Ion-beam conversion and control system	500W-5kW	Ion-beam deposition Ion implantation Ion-beam etching/ milling

### DIRECT CURRENT PRODUCTS

THE MDX SERIES. The Company's MDX series of products was introduced in 1983. These products are most commonly used as DC power supplies for PVD sputtering where precise control, superior arc prevention and suppression and low stored energy characteristics are required. They are also used as bias supplies for RF sputtering, tool coating and some etching systems. The MDX series consists of six different product lines that provide a range of power levels from 500W to 120kW. The Company's second generation product, the MDX II, was introduced in 1991 to support higher power levels,

to provide wider output range, and to meet strict European regulatory requirements. A model in the MDX series, the MDX-L, was designed for especially high reliability and was introduced in 1992.

**THE PINNACLE SERIES-TM-.** The Pinnacle series, introduced in 1995, is the most recent platform in the DC product line. Pinnacle was developed primarily for use in DC PVD sputtering processes and provides substantial improvements in arc prevention, arc suppression capability, reduced size, higher precision and expanded control capability. The low stored energy of Pinnacle, a basic feature of AE power conversion equipment, is the lowest ever achieved in a switchmode power supply, and is due to the patented basic circuit topology.

**SPARC-LE-Registered Trademark- ACCESSORIES.** The Company's Sparc-le line of DC accessories, introduced in 1993, is designed both to reduce the number of arcs that occur in plasma-based processes and to reduce the energy delivered if arcs do occur. The Sparc-le accessories are especially effective in applications involving the deposition of insulative materials where the reaction between the plasma and target is likely to produce more severe arc conditions. The Sparc-le accessories are most commonly used with the MDX product lines. The Sparc-le arc prevention and suppression technology has been incorporated directly into the Pinnacle systems.

**ELECTROSTATIC CHUCK POWER SYSTEMS.** This system of power conversion units was designed for a specific customer to be used in wafer handling systems for the semiconductor fabrication market. The electrostatic chuck is a device which uses electric fields to hold (or "chuck") a wafer in a vacuum environment without mechanical holding force. This permits more gentle handling of the wafer and its simultaneous heating or cooling during processing. The electric fields used to hold the wafer are created by applying to the wafer a voltage produced by the Advanced Energy power system. Exact control and careful ramping of the voltage permits the wafer to be picked and placed with precision. The system permits multiple power units to be held in a single chassis for ease of integration into the customer's system.

## **HIGH-POWER PRODUCTS**

These products are designed for use in heavy industrial processes such as architectural glass and other large area coating applications. The Astral-TM-products, made in both 20kW and 120kW versions, offer a new technology, called "current pulsed dual magnetron sputtering," heretofore unavailable. The first of these units are in experimental use in development of coatings for CRT displays, automotive applications, and new types of glass coatings.

The Crystal-TM- 120kW power conversion unit was developed for multizone induction heating in heating systems for semiconductor processing equipment in which layers are formed on heated semiconductor wafers by chemical vapor deposition, producing

epitaxial growth (the growth of a single crystal film as determined by the underlying wafer). One of the problems in forming such layers on a semiconductor wafer is ensuring that the temperature of the semiconductor wafer is kept uniform across the wafer during the deposition process, i.e., during heat-up, processing and cool-down. Since the deposition rate of a layer of material upon the wafer is dependent on the temperature of the wafer, any temperature variations between the center and edge of a wafer will undesirably result in the deposition of a layer of non-uniform thickness on the wafer. The multizone capability of the Crystal 120kW power conversion unit permits the furnace system to divide the wafer heater into up to six zones, and control power to each zone independently.

## **LOW- AND MID-FREQUENCY PRODUCTS**

**THE PE AND PD SERIES.** The PE low-frequency power systems were introduced in 1982. The PE series systems are air cooled and primarily intended for use in certain PVD, CVD and industrial surface modification applications, including dual cathode sputtering and printed circuit board de-smearing. The PE series systems range in frequency from 25kHz to 100kHz. The low-frequency PE systems and the PD series of mid-frequency power conversion and control systems, introduced in 1990, represented significant technological advancements by applying switchmode techniques to higher frequencies. The water-cooled PD systems are used primarily in semiconductor etch and CVD applications. The PD series range in frequency from 275kHz to 400kHz. Both the PE and PD series systems have single-stage power generation, and include systems that incorporate pulsed power technology.

## **RADIO FREQUENCY PRODUCTS**

**THE HFV AND HFG POWER GENERATORS.** The HFV unit produces 3, 5, or 8kW of power at a variable frequency of about 2MHz for powering of inductively coupled plasma (ICP) systems. It is water cooled and ultra compact, providing up to 8kW of power in a 5-1/4 inch rack mount enclosure 20-1/4 inches deep, thereby representing the highest power density in the industry. The HFG unit is similar but produces 8kW at a fixed frequency of 4MHz.

**THE RF SERIES.** The RFX system is a 13.56MHz, 600W, air-cooled platform introduced in 1985. This low-power system is used primarily in research and development applications. The RFG and RFXII, introduced in 1991 and 1992, respectively, are water-cooled power conversion and control systems utilizing a new hybrid switchmode technology. The RFG and RFXII systems operate at frequencies ranging from 4MHz to 13.56MHz. These systems were the first entirely switchmode RF designs. These RF systems are most commonly used in semiconductor processes, including RF sputtering, plasma etching/deposition, and reactive ion etching applications. The Company also produces the RFXII in a compact version which incorporates new Fixed Match-TM- impedance matching technology. This technology eliminates certain previously required motors, gear trains, variable capacitors and inductors and

servomechanism circuitry, which results in cost savings and improvements in reliability.

**THE AZX SERIES.** The AZX series tuners are RF matching networks designed as accessories to match the complex electrical characteristics of a plasma to the requirements of the Company's RF series of power conversion and control systems. AZX tuners, introduced in 1989, are also sold separately for incorporation into other vendors' power conversion and control systems. The AZX tuners typically operate at a 13.56MHz frequency range. The need for these tuner products is reduced with the advent of the Fixed Match technology designed as part of the RFXII product line.

## **OTHER PRODUCTS**

**THE RFZ IMPEDANCE PROBE.** The RF impedance probe, introduced in 1993, is used for measuring the RF properties of a plasma. The sensing technology incorporated in the RF impedance probe allows accurate, real-time measurement of power, voltage, current and impedance levels under actual powered process conditions.

**THE ID SERIES.** The ID power conversion and control systems, introduced in 1981, were the first products designed by the Company. These systems were specifically designed to power broad-beam ion sources. ID series systems are composed of a coordinated set of multiple special purpose power supplies that are used for ion-beam deposition and sputtering, implantation and etching and milling.

## **MARKETS AND CUSTOMERS**

### **MARKETS**

Approximately 64% of the Company's sales in 1996 and 58% in 1997 were to the semiconductor equipment industry. Increasingly, the Company's power conversion and control systems are also being used in other markets, including flat panel display, data storage and various industrial applications. The following is a discussion of the major markets for the Company's systems:

**SEMICONDUCTOR MANUFACTURING EQUIPMENT MARKET.** The Company's products are sold primarily to semiconductor equipment manufacturers for incorporation into equipment used to make integrated circuits. The Company's products are currently employed in a variety of applications including deposition, etch, ion implantation and megasonic cleaning. The precision control over plasma processes that use the Company's power conversion and control systems enables the production of integrated circuits with reduced feature sizes and increased speed and performance. The Company anticipates that the semiconductor equipment industry will continue to be a substantial part of its business for the foreseeable future.

**FLAT PANEL DISPLAY MANUFACTURING EQUIPMENT MARKET.** The Company also sells its systems to manufacturers of flat panel displays (FPDs) and flat panel projection devices (FPPs) which have fabrication processes similar to those employed in manufacturing integrated circuits. FPDs produce bright, sharp, large, color-rich images on flat, lightweight screens such as portable computer monitors. Currently there are three major types of FPDs: liquid crystal displays, field emitter displays and gas plasma displays. Two types of FPP, another emerging display technology, are currently in production: liquid crystal projection and digital micro-mirror displays. The Company sells its products to all three of the active FPD markets, as well as to each of the FPP markets.

**DATA STORAGE MANUFACTURING EQUIPMENT MARKETS.** The Company's products are sold to data storage equipment manufacturers and to data storage device manufacturers for use in producing a variety of products, including compact discs, computer hard disks (both media and thin film heads), CD-ROMs and digital video discs (DVD). These products use a PVD sputtering process to produce optical and magnetic thin film layers, as well as a protective wear layer. In this market the trend towards higher recording densities is driving the demand for increasingly dense, thinner and more precise films. The use of equipment incorporating magnetic media to store analog and digital data continues to expand with the growth of the laptop, desktop, and workstation computer markets.

**THIN FILM INDUSTRIAL MARKETS.** The Company sells its products to both OEMs and producers of end products in a variety of industrial markets. Thin film optical coatings are used in the manufacture of many industrial products including solar panels, architectural glass, eyeglasses, lens coatings, bar-code readers and front surface mirrors. Thin films of diamond coatings and other materials are now being applied to products in plasma-based processes to strengthen and harden surfaces on such diverse products as tools, automotive parts and hip joint replacements. A variety of industrial packaging applications, such as decorative wrapping and food packaging, are also enabled by thin film processes utilizing the Company's products. The advanced thin film production processes allow precise control of various optical and physical properties, including color, transparency and electrical and thermal conductivity. The improved adhesion and high film quality resulting from plasma processing makes it the preferred method of applying the thin films. Many of these thin film industrial applications require power levels substantially greater than those used in the Company's other markets.

**OTHER INDUSTRIAL MARKETS.** Tower Electronics sells low-wattage power supplies to OEMs in the telecommunications, non-impact printing and laser markets. As an example, Tower provides U.S. Robotics, a subsidiary of 3Com, with three models of power supplies that are used in modems for Internet service providers. They also provide products to the largest manufacturer of non-impact printers used for printing date codes and lot information on beverage cans.

## APPLICATIONS

The Company's products have been sold for use in connection with the following processes and applications:

SEMICONDUCTOR -----	DATA STORAGE -----	FLAT PANEL DISPLAY -----	INDUSTRIAL/RESEARCH -----
Physical vapor deposition	Thin film heads	Liquid crystal displays	Optical coatings
Etching	CD-ROMs	Active matrix LCDs	Automobile coatings
Ion implantation	Audio discs	Digital micro-mirror	Food package coatings
Chemical vapor deposition (metal and dielectric)	Recordable CDs	Plasma displays	Glass coatings
Plasma-enhanced CVD	Hard disk magnetic media	Large flat panel displays	Consumer products coatings
Magnet field controls	Hard disk carbon wear coatings	Field emission displays	Circuit board etch-back and de-smear
Photo-resist stripping	Magneto-optic CDs	LCD projection	Photovoltaics
Megasonic cleaning	Digital video discs (DVD)		Medical applications
Etch (post-treatment)			Superconductors Diamond coatings Chemical, physical and materials research Telecommunications Non-impact printing

## CUSTOMERS

The Company has sold its systems worldwide to more than 100 OEMs and directly to more than 500 end-user customers. Since inception, the Company has sold more than 100,000 power conversion and control systems. The Company's largest customers are involved principally in the semiconductor equipment market. The Company also has significant customers in the data storage equipment, flat panel display equipment and industrial markets. Sales to Applied Materials and Lam Research in 1995, 1996 and 1997 accounted in the aggregate for approximately 41%, 47% and 44% of total sales, respectively. The Company expects that sales of its products to Applied Materials and Lam Research will continue to account for a high percentage of its sales in the foreseeable future. Representative customers of the Company include:

Applied Materials	Lam Research
Balzers/Leybold	Materials Research division of Tokyo Electron
CVC Products	Motorola
First Light Technology	Novellus
Fujitsu	Optical Coating Laboratory
Hewlett-Packard	Sony
IBM	Sputtered Films
Intevac	Texas Instruments
Komag	Ulvac
	U.S. Robotics
	Verteq
	Videojet International

## MARKETING, SALES AND SERVICE

The Company sells its systems primarily through direct sales personnel to customers

in the United States, Japan and Europe. The Company's sales personnel are located at the Company's headquarters in Fort Collins, Colorado, and in regional sales offices in Milpitas, California; Concord, Massachusetts; and Austin, Texas. To serve customers in Asia and Europe, the Company has offices in Tokyo, Japan; Filderstadt, Germany; Bicester, United Kingdom; and Seoul, South Korea; which have primary responsibility for sales in their respective markets. The Company also sells to customers in Japan through Landmark Technology Corporation and has distributors and sales representatives in Singapore, China, France, Italy, Israel, South Korea and Taiwan. The Company's Tower Electronics subsidiary, located in Fridley, Minnesota, sells through manufacturer's representatives.

Sales outside the United States represented approximately 29%, 24% and 25% of the Company's total sales during 1995, 1996 and 1997, respectively. The Company expects sales outside the United States to continue to represent a significant portion of future sales. Although the Company has not experienced any significant difficulties in connection with its international sales, such sales are subject to certain risks, including exposure to currency fluctuations, the imposition of governmental controls, political and economic instability, trade restrictions, changes in tariffs and taxes, and longer payment cycles typically associated with international sales. The future performance of the Company will depend, in part, upon its ability to compete successfully in Japan, one of the largest markets for semiconductor fabrication equipment and flat panel display equipment, and a major market for data storage and other industrial equipment utilizing the Company's systems. The Japanese market has historically been difficult for non-Japanese companies to penetrate. Although the Company and a number of its significant non-Japanese customers have begun to establish operations in Japan, there can be no assurance that the Company or its customers will be able to maintain or improve their competitive positions in Japan.

The Company believes that customer service and technical support are important competitive factors and are essential to building and maintaining close, long-term relationships with its customers. The Company maintains customer service offices in Fort Collins, Colorado; Milpitas, California; Tokyo, Japan; Filderstadt, Germany; Seoul, South Korea; and Tower Electronics in Fridley, Minnesota.

The Company offers warranty coverage for its systems for periods ranging from 12 to 24 months after shipment against defects in design, materials and workmanship.

## **MANUFACTURING**

The Company's manufacturing facilities are located in Fort Collins, Colorado and Fridley, Minnesota. The Company's manufacturing activities consist of the assembly and testing of components and subassemblies which are then integrated into final products. Once final testing of all electrical and electro-mechanical subassemblies is completed, the final product is subjected to a series of reliability enhancing operations prior to shipment

to customers. The Company purchases a wide range of electronic, mechanical and electrical components, some of which are designed to the Company's specifications. The Company does outsource some of its subassembly work.

The Company relies on sole and limited source suppliers for certain parts and subassemblies. This reliance creates a potential inability to obtain an adequate supply of required components, and reduced control over pricing and time of delivery of components. An inability to obtain adequate supplies would require the Company to seek alternative sources of supply or might require the Company to redesign its systems to accommodate different components or subassemblies. This could prevent the Company from shipping its systems to its customers on a timely basis. However, if the Company were forced to seek alternative sources of supply, manufacture such components or subassemblies internally, or redesign its systems, this could prevent the Company from shipping its systems to its customers on a timely basis.

## **INTELLECTUAL PROPERTY**

The Company has a policy of seeking patents on inventions governing new products or technologies as part of its ongoing research, development, and manufacturing activities. The Company currently holds twelve United States patents and two foreign patents covering various aspects of its products, and has other applications pending in the U.S., Europe and Japan. The Company believes the duration of its patents generally exceeds the life cycles of the technologies disclosed and claimed therein. No assurance can be given that the Company's patents will be sufficiently broad to protect the Company's technology, nor that any existing or future patents will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide meaningful competitive advantages to the Company. Any of such events could have a material adverse effect on the Company's business, financial condition and results of operations.

Although the Company is not aware of any infringement by its products of any patents or proprietary rights of others, there can be no assurance that such infringements do not exist or will not occur in the future. Litigation may be necessary in the future to enforce patents issued to the Company, to protect trade secrets or know-how owned by the Company, to defend the Company against claimed infringement of the rights of others or to determine the scope and validity of the proprietary rights of others. Any such litigation could result in substantial cost and diversion of effort by the Company, which could have a material adverse effect on the Company's business, financial condition and results of operations. Moreover, adverse determinations in such litigation could result in the Company's loss of proprietary rights, subject the Company to significant liabilities to third parties, require the Company to seek licenses from third parties or prevent the Company from manufacturing or selling its products, any of which could have a material adverse effect on the Company's business, financial condition and results of operations.



## **COMPETITION**

The markets the Company serves are highly competitive and characterized by rapidly evolving technology. Significant competitive factors in the Company's markets include product performance, price, quality and reliability and level of customer service and support. The Company believes that it currently competes effectively with respect to these factors, although there can be no assurance that the Company will be able to compete effectively in the future.

The markets in which the Company competes have seen an increase in global competition, especially from Japanese- and European-based equipment vendors. The Company has several foreign and domestic competitors for each of the DC, low-frequency and mid-frequency alternating current (AC), and radio frequency AC lines of products. Some of these competitors are larger and have greater resources than the Company. The Company's ability to continue to compete successfully in these markets will depend upon its ability to introduce product enhancements and new products on a timely basis. The Company's primary competitors are ENI, a subsidiary of Astec (BSR) PLC, Huttinger, Shindengen, Kyosan, RF Power Products, Comdel and Daihen. The Company's competitors in each product area are expected to continue to improve the design and performance of their systems and to introduce new systems with competitive performance characteristics. To remain competitive, the Company believes it will be required to maintain a high level of investment in research and development and sales and marketing. No assurance can be given that the Company will continue to be competitive in the future.

## **INDUSTRY SEGMENTS**

The Company operates entirely within one industry sector.

## **RESEARCH AND DEVELOPMENT**

The market for power conversion and control systems and related accessories is characterized by rapid technological changes. The Company believes that continued and timely development of new products and enhancements to existing products to support OEM requirements is necessary for the Company to maintain a competitive position in the markets the Company serves. Accordingly, the Company devotes a significant portion of its personnel and financial resources to research and development projects and seeks to maintain close relationships with its customers and other industry leaders to remain responsive to their product requirements.

Research and development expenses were approximately \$10.5 million, \$13.8 million and \$14.8 million in fiscal 1995, 1996 and 1997, respectively. These amounts represented

11.1%, 13.9% and 10.4% of total sales for those periods. From 1995 to 1997, the Company introduced more than forty-five new products. The Company believes that continued research and development investment and ongoing development of new products is essential to the expansion of its markets and does not expect any significant decline in spending as a percentage of sales.

## **NUMBER OF EMPLOYEES**

At December 31, 1997, the Company had a total of 1,059 employees, of whom 853 are full-time continuous employees. None of the Company's employees is represented by a union, and the Company has never experienced a work stoppage. The Company utilizes temporary employees as a means to provide additional staff while reviewing the performance of the temporary employee. The Company considers its employee relations to be good.

## **EFFECTS OF ENVIRONMENTAL LAWS**

The Company is subject to federal, state and local environmental laws and regulations. The Company is in compliance with all such laws and regulations.

## **CAUTIONARY STATEMENTS - RISK FACTORS**

In the interest of providing the Company's shareholders and potential investors with certain Company information, including management's assessment of the Company's future potential, certain statements set forth herein contain or are based on projections of revenue, income, earnings per share and other financial items or relate to management's future plans and objectives or to the Company's future economic performance. Such statements are "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended.

Although any forward-looking statements contained herein or otherwise expressed by or on behalf of the Company are to the knowledge and in the judgment of the officers and directors of the Company, expected to prove true and to come to pass, management is not able to predict the future with absolute certainty. Accordingly, shareholders and potential investors are hereby cautioned that certain events or circumstances could cause actual results to differ materially from those projected or predicted herein. In addition, the forward-looking statements herein are based on management's knowledge and judgment as of the date hereof, and the Company does not intend to update any forward-looking statements to reflect events occurring or circumstances existing hereafter.

In particular, the Company believes that the following factors could impact forward-

looking statements made herein or in future written or oral releases and by hindsight, prove such statements to be overly optimistic and unachievable.

## **QUARTERLY OPERATING RESULTS ARE SUBJECT TO SIGNIFICANT FLUCTUATIONS**

The Company has experienced and expects to continue to experience significant fluctuations in its quarterly operating results. As a supplier of subsystems to equipment manufacturers, the Company's sales often are subject to its customers' production schedules. A substantial and increasing proportion of the Company's shipments are made on a just-in-time basis in which the shipment of systems occurs within a few days or hours after an order is received. Due to the short time between receipt of orders and shipments, the Company operates with a low level of backlog. Moreover, this backlog at any point in time is not sufficient to meet the Company's revenue expectations for a particular quarter and orders generally are subject to cancellation or delay at the customer's option without penalty. As a result of these factors, it is difficult for the Company to predict accurately the timing and level of revenues for a particular quarter. The Company's quarterly revenues are also affected by a variety of other factors, including specific economic conditions in the industries in which the Company's customers operate, particularly the semiconductor industry; the timing of the receipt of orders from major customers; customer cancellations or shipment delays; pricing competition; component shortages resulting in manufacturing delays; changes in customers' inventory management practices; exchange rate fluctuations and the introduction of new products by the Company or its competitors. In addition, electronics companies, including companies in the semiconductor capital equipment industry, are subject to ongoing pressure to reduce costs. This has in the past caused and is continuing to cause the Company's current and prospective customers to exert pricing pressure and make other demands on the Company, which may include faster delivery times and longer payment terms, which could lead to significant changes in revenue and operating margins from quarter to quarter.

The Company's gross profit and operating income in a particular quarter are affected by a number of factors, including product mix, price changes, outsourcing costs, manufacturing efficiencies and costs incurred to respond to specific feature requests by customers. Generally, the Company's gross profit and operating income have fluctuated significantly as a result of these factors in the past, and such fluctuations may continue. In particular, as the Company expands manufacturing capacity, manufacturing overhead and other costs may be incurred prior to full utilization of the additional facilities. As a result, the Company may incur significant development and other expenses without realizing corresponding revenue in the same quarter. In addition, many of the Company's expenses, which are based in part on expectations of future revenue, are fixed. Accordingly, if revenue levels in a particular quarter do not meet expectations, operating results will be disproportionately adversely affected. The Company has recently gone through a period of increasing production and capacity to meet anticipated demand for its products, which has involved substantial expenditures and commitments by the Company. If the Company does not generate the revenue it anticipated when it began these production and capacity increases, its operating results will be adversely affected. This dynamic negatively impacted the Company

throughout 1996 and the first half of 1997. In late 1995, the Company was in a growth mode and when the semiconductor capital equipment market went through the major downturn of 1996, the Company's operating results were severely impacted, which in turn had a material adverse effect on the market price of the Company's Common Stock. Further fluctuations in operating results on a quarterly basis could have a material adverse effect on the market price of the Common Stock.

### **THE SEMICONDUCTOR AND SEMICONDUCTOR EQUIPMENT INDUSTRIES ARE HIGHLY VOLATILE**

Approximately 61%, 64% and 58% of the Company's sales in 1995, 1996, and 1997, respectively, were made to customers in the semiconductor equipment industry. The Company expects that its business will continue to depend in significant part on the semiconductor and semiconductor equipment industries for the foreseeable future. The Company's business depends in large part upon capital expenditures by manufacturers of semiconductor devices, which in turn depend upon the current and anticipated market demand for semiconductor devices and products utilizing such devices. The semiconductor industry historically has been highly volatile and has experienced periods of oversupply, resulting in significantly reduced demand for semiconductor fabrication equipment. In 1996, the semiconductor industry experienced a significant downturn, which caused a number of the Company's customers, including Applied Materials and Lam Research, to drastically reduce and, in some cases cancel, their orders from the Company. Applied Materials and Lam Research together accounted for approximately 47% and 44% of the Company's revenues during 1996 and 1997, respectively.

### **SIGNIFICANT SALES ARE CONCENTRATED AMONG A FEW CUSTOMERS**

The Company's sales generally are concentrated among a small number of customers. Sales to the Company's ten largest customers accounted for approximately 73% and 75% of the Company's sales in 1996 and 1997, respectively. The loss of any of its major customers, particularly Applied Materials or Lam Research, or a reduction in orders from any of such customers, including reductions caused by changes in a customer's competitive position or economic conditions in the industries in which the Company's customers compete, could have a material adverse effect on the Company's business, financial condition and results of operations. None of the Company's customers has entered into a long-term agreement requiring it to purchase the Company's systems. Similarly, Tower's sales historically have been concentrated among a small number of customers. Tower's sales to U.S. Robotics (recently acquired by 3Com Corporation) and its contract manufacturer accounted for approximately 73% of Tower's total sales in 1997. The success of the Company's acquisition of Tower will depend in large part on retention of Tower's major customers, including U.S. Robotics and its contract manufacturer, and the level of orders received from such customers.

### **RISKS ASSOCIATED WITH MANUFACTURING FACILITY**

All of the Company's manufacturing is conducted at its facility in Fort Collins, Colorado

except for the manufacturing conducted by its subsidiary Tower Electronics in Fridley, Minnesota. In July 1997, the Company sustained substantial damage to its facilities and certain equipment and inventory due to excess surface water caused by a severe rainstorm in Fort Collins. The Company was forced to cease manufacturing temporarily and did not resume full production until mid-September 1997. The Company's insurance policies will not cover all of the costs incurred by the Company in connection with the rainstorm. Because substantially all of the Company's manufacturing is conducted in one location, there can be no assurance that future natural or other occurrences, out of the Company's control, will not have a material adverse effect on the Company's operations. Cessation of manufacturing or the Company's inability to operate the Fort Collins facility at full capacity for any extended period could have a material adverse effect on the Company's business, financial condition and results of operations.

## **RISKS ASSOCIATED WITH RECENT AND POTENTIAL FUTURE ACQUISITIONS**

The Company intends to expand its product offerings and customer base in part by acquiring other businesses, products and technologies that are complementary to those of the Company. In 1997, the Company acquired Tower and, in a separate transaction, acquired all of the assets of MIK Physics, Inc. ("MIK"). The assets acquired from MIK consisted predominantly of inventory, and the purchase price paid by the Company was immaterial. Tower designs and manufactures custom, high performance switchmode power supplies for use principally in the telecommunications, medical and non-impact printing industries, and MIK has developed technology to design and manufacture high power systems for certain industrial uses. The Company continues to operate Tower's business out of Tower's existing facilities in Fridley, Minnesota, and, accordingly, is required to manage two geographically separated manufacturing locations. Failure to integrate Tower, or any future acquisitions, without substantial costs, delays or other operational or financial problems could have a material adverse effect on the Company's business, financial condition and results of operations. Further, future acquisitions by the Company may result in dilutive issuances of equity securities, the incurrence of debt, large one-time expenses and the creation of goodwill or other intangible assets that could result in significant amortization expense. In addition, there can be no assurance that the Company will be able to identify, negotiate and consummate acquisitions that it considers advantageous to its business plans.

## **MANAGEMENT OF GROWTH**

The Company has been experiencing a period of rapid growth and expansion. Such growth and expansion has placed, and is expected to continue to place, significant demands on the Company's resources. The management of such growth will require the Company to continue to improve and expand its management, operational and financial systems, procedures and controls, including accounting and other internal management systems, quality control, delivery and service capabilities. To accommodate its recent growth, the Company started to implement in 1997 a new comprehensive, integrated information management system that will incorporate substantially all of the Company's internal

financial and business systems, procedures and controls. The implementation is progressing well but the system is still prone to problems which can introduce severe disruptions in the Company's daily operations.

The Company has postponed implementation of the new system at its international locations, due primarily to a shortage of trained personnel and other resources. In addition, the Company intends to continue to operate Tower's business out of Tower's existing facilities in Fridley, Minnesota and has retained all of Tower's employees. The failure to manage growth effectively, including delays or difficulties implementing new systems, procedures and controls or integrating acquisitions in a timely manner and without disruption of the Company's operations, could have a material adverse effect on the Company's business, financial condition and results of operations.

#### **SUPPLY CONSTRAINTS AND DEPENDENCE ON SOLE AND LIMITED SOURCE SUPPLIERS**

Manufacture of the Company's power conversion and control systems requires numerous electronic components. Growth in the electronics industry has significantly increased demand for such components. This demand can result in periodic shortages and allocations, which the Company has experienced from time to time. The Company expects that shortages and allocations of electronic components and subassemblies will continue in the foreseeable future and could result in shipment delays. Such delays could damage the Company's relationships with current and prospective customers, which in turn could have a material adverse effect on the Company's business, financial condition and results of operations. In this regard, the Company experienced a temporary delay in replacing certain key components that had been lost or damaged in the July 1997 rainstorm in Fort Collins.

The Company relies on sole and limited source suppliers for certain parts and subassemblies. Such reliance involves several risks, including a potential inability to obtain an adequate supply of required components, reduced control over pricing and timing of delivery of components and suppliers' potential inability to develop technologically advanced products to support the Company's growth and development of new systems. The Company believes that alternative sources could be obtained and qualified, if necessary, for most sole and limited source parts.

#### **DEPENDENCE ON DESIGN WINS; BARRIERS TO OBTAINING NEW CUSTOMERS; HIGH LEVEL OF CUSTOMIZED SYSTEMS**

Equipment manufacturers begin new system design projects periodically due to the constantly changing nature of semiconductor fabrication technology. It is important for the Company to work with these manufacturers early in their design cycle because it is common for modifications to the Company's equipment to be required to meet the requirements of the new system. As the design cycle nears completion, one or two vendors are chosen by the equipment manufacturer to provide the power conversion equipment to be used with the early system shipments. Being selected as one of these vendors is called a "design win." The Company believes that achieving these "design wins" is critical to

retaining existing customers and to obtaining new customers. In order to achieve design wins, the Company typically must customize its systems for use in particular equipment and for particular customers. Such customization increases the Company's research and development expenses and can strain its engineering and management resources. In addition, there can be no assurance that such investment will result in design wins for the Company. Because a substantial proportion of the Company's business involves the just-in-time shipment of systems, the Company must keep a relatively large number and variety of customized systems in inventory. As the Company develops new systems and as its customers develop new products, systems in inventory may become obsolete. There can be no assurance that such inventory obsolescence will not have a material adverse effect on the Company's business, financial condition and results of operations.

## **RAPID TECHNOLOGICAL CHANGE AND DEPENDENCE ON NEW SYSTEM INTRODUCTIONS**

The market for power conversion and control systems is characterized by ongoing technological developments and changing customer requirements. The markets in which the Company's customers compete are also characterized by continually evolving technology. The Company's success depends upon its ability to continue to improve existing systems and to develop and introduce new systems that keep pace with technological advances and adapt to support its customers' changing needs. There can be no assurance that the Company will continue to be able to improve its existing systems or develop new systems that will adequately address the changing needs of its customers and the marketplace. Development and introduction of new systems may involve significant costs that are difficult to forecast. Failure of the Company to develop or introduce improved systems and new systems in a timely manner could have a material adverse effect on the Company's business, financial condition and results of operations, as well as on its customer relationships.

## **COMPETITION**

The Company faces substantial competition, primarily from established companies, some of which have greater financial, marketing and technical resources than the Company. The trend toward consolidation in the semiconductor equipment industry has made it increasingly important to have the resources necessary to compete effectively across a broad range of product offerings, to fund customer service and support on a worldwide basis and to invest in research and development. The Company expects its competitors to continue to develop new products aimed at applications currently served by the Company, to continue to improve the design and performance of their systems, and to introduce new systems with competitive performance characteristics. To remain competitive, the Company believes it will be required to maintain a high level of investment in research and development and sales and marketing. In addition, new products developed by competitors could make pricing more competitive, which may necessitate significant price reductions by the Company or result in lost orders. In addition, electronics companies, including companies in the semiconductor capital equipment industry, have been characterized by ongoing pressure to reduce costs.

## **RISKS ASSOCIATED WITH INTERNATIONAL SALES**

The markets in which the Company competes are becoming increasingly globalized. As a result, the Company's customers increasingly require service and support on a worldwide basis. The Company has invested substantial financial and management resources to develop an international infrastructure to meet the needs of its customers worldwide. The Company maintains sales and service offices outside the United States in Tokyo, Japan; Filderstadt, Germany; Bicester, United Kingdom; and Seoul, South Korea. There can be no assurance that the Company's investments will enable it to compete successfully in the international market or to meet the service and support needs of such customers. Approximately 29%, 24% and 25% of the Company's sales in 1995, 1996 and 1997, respectively, were attributable to customers outside the United States. The Company expects sales outside the United States to continue to represent a significant portion of future sales. Sales to customers outside the United States are subject to various risks, including exposure to currency fluctuations, the imposition of governmental controls, political and economic instability, trade restrictions, changes in tariffs and taxes, and longer payment cycles typically associated with international sales. The Company has entered into various forward foreign exchange contracts to mitigate the effect of depreciation of the Japanese yen; however, there can be no assurance that this or other hedging techniques can successfully protect the Company against substantial currency fluctuations. The Company has not employed hedging techniques with respect to any other currencies.

## **THE ASIAN FINANCIAL CRISIS**

In the third quarter of 1997 the economic conditions in several Asian countries began to deteriorate and those conditions were exacerbated in the fourth quarter. The Company realized approximately 10% of its 1997 revenue from sales to customers in Asia, including Japan. Many of the Company's key customers had a much greater concentration of their revenue in Asia. Until such time as the uncertainty is resolved the Company, directly and through its customers, could suffer material reductions in revenue.

## **INTELLECTUAL PROPERTY RIGHTS**

The Company's success depends in large part on the technical innovation of its products. While the Company attempts to protect its intellectual property rights through patents and non-disclosure agreements, it believes that its success will depend to a greater degree upon innovation, technological expertise and its ability to adapt its products to new technology. There can be no assurance that the Company will be able to protect its technology or that competitors will not be able to develop similar technology independently.

Although the Company is not aware of any infringement by its products of any patents or proprietary rights of others, there can be no assurance that such infringements do not exist or will not occur in the future. Litigation may be necessary in the future to enforce patents issued to the Company, to protect trade secrets or know-how owned by the Company, to



defend the Company against claimed infringement of the rights of others or to determine the scope and validity of the proprietary rights of others. Adverse determinations in such litigation could result in the Company's loss of proprietary rights, subject the Company to significant liabilities to third parties, require the Company to seek licenses from third parties or prevent the Company from manufacturing or selling its products, any of which could have a material adverse effect on the Company's business, financial condition and results of operations.

## **VOLATILITY OF MARKET PRICE OF COMMON STOCK**

The stock market generally, and the market for technology stocks in particular, have experienced significant price and volume fluctuations, which have often been unrelated or disproportionate to the operating performance of such companies. From the initial public offering of the Common Stock in November 1995 through December 31, 1997, the closing price of the Common Stock on the Nasdaq National Market has ranged from \$3.50 to \$38.125. There can be no assurance that the market for the Common Stock will not be subject to similar fluctuations. Many factors, including future announcements concerning the Company or its competitors, variations in operating results, announcements of technological innovations, the introduction of new products or changes in product pricing policies by the Company or its competitors, changes in earnings estimates by securities analysts and general stock market trends, could cause the market price of the Common Stock to fluctuate substantially.

## **EXECUTIVE OFFICERS OF THE REGISTRANT**

The executive officers of the Company and their ages as of February 28, 1998 are as follows:

NAME ----	AGE ---	POSITION -----
Douglas S. Schatz	52	President, Chief Executive Officer and Chairman of the Board
G. Brent Backman	57	Vice President, Special Projects, Assistant Secretary and Director
Eric A. Balzer	49	Vice President, Operations
Richard P. Beck	64	Vice President, Chief Financial Officer and Director
Hollis L. Caswell, Ph.D.	66	Chief Operating Officer and Director
James F. Gentilcore	45	Vice President, Sales and Marketing
Timothy A. Kerr	37	Vice President, Engineering
Susan C. Schell	48	Vice President, Quality and Human Resources
Richard A. Scholl	58	Vice President and Chief Technology Officer

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DOUGLAS S. SCHATZ is a co-founder of the Company and has been its President and Chief Executive Officer and a director since its incorporation in 1981. Mr. Schatz also co-founded Energy Research Associates, Inc. and served as its Vice President of Engineering from 1977 through 1980. Prior to co-founding Energy Research Associates, Mr. Schatz held various engineering and management positions at Applied Materials.

G. BRENT BACKMAN is a co-founder of the Company and has been a Vice President and a director of the Company since its incorporation in 1981. Mr. Backman became Vice President, Special Projects in 1994. Prior to co-founding the Company, Mr. Backman was a Business Manager at Ion Tech, Inc. and a Laboratory Administrator at Hughes Aircraft Company.

ERIC A. BALZER joined the Company in 1990 as Vice President, Operations. Prior to joining the Company, Mr. Balzer was Materials and Manufacturing Manager for the Systems Technology Division of IBM Corporation.

RICHARD P. BECK joined the Company in 1992 as Vice President and Chief Financial Officer. He became a director of the Company in 1995. From 1987 to 1992, Mr. Beck served as Executive Vice President and Chief Financial Officer of Cimage Corporation, a computer software company. Mr. Beck is also a director of Target Financial, Inc., a privately-held computer rental company.

HOLLIS L. CASWELL, PH.D. joined the Board of Directors of the Company in February 1997 and joined the Company as Chief Operating Officer in May 1997. Dr. Caswell was Chairman of the Board and Chief Executive Officer of HYPRES, Inc., a manufacturer of superconducting electronics, from 1990 to 1994. From 1984 to 1990, Dr. Caswell served as Senior Vice President of Unisys Corporation and President of such company's Computer Systems Group. He is a director of Thomas Group, Inc., a publicly traded consulting company.

JAMES F. GENTILCORE joined the Company in 1996 as Vice President, Sales and Marketing. Prior to joining the Company, Mr. Gentilcore was Vice President, Marketing at MKS Instruments, Inc.

TIMOTHY A. KERR joined the Company in 1987 as an engineer. In 1995, he became Director of Engineering and in August 1996, Vice President, Engineering. Prior to joining the Company, Mr. Kerr was a member of the technical staff at Hughes Aircraft Company.

SUSAN C. SCHELL joined the Company in 1984 as Human Resources Manager and became Vice President, Quality and Human Resources in 1991. Prior to joining the Company, Ms. Schell was a Management Advisory Services Consultant with Cady and Company, P.C.

RICHARD A. SCHOLL joined the Company in 1988 as Vice President, Engineering. Mr. Scholl became Chief Technology Officer of the Company in 1995. Prior to joining the Company, Mr. Scholl was General Manager, Vacuum Products Division at Varian Associates, Inc.

## **ITEM 2. PROPERTIES**

The Company's headquarters and manufacturing facility are located in Fort Collins, Colorado, in approximately 190,000 square feet of leased space. The Company also maintains sales and service offices in Milpitas, California; Tokyo, Japan; Filderstadt, Germany; and Seoul, South Korea; and sales offices in Concord, Massachusetts; Austin, Texas; and Bicester, United Kingdom.

In August 1997, the Company acquired 100% of the common stock of Tower Electronics, Inc. The headquarters, sales and service offices and manufacturing facilities of Tower are in Fridley, Minnesota.

## **ITEM 3. LEGAL PROCEEDINGS**

The Company is not a party to any legal proceedings in the ordinary course of its business to the best of its knowledge.

## **ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS**

Not applicable.

## PART II

### ITEM 5. MARKET PRICE FOR REGISTRANT'S COMMON STOCK AND RELATED STOCKHOLDER MATTERS

Prior to November 17, 1995, there had been no public market for the Company's Common Stock. The Common Stock was approved for quotation on the Nasdaq Stock Market under the symbol AEIS, beginning November 17, 1995. At January 31, 1998, the number of common stockholders of record was 421.

The range of high and low bid quotations for the Company's Common Stock as quoted (without retail markup or markdown and without commissions) on the Nasdaq Stock Market since its initial public offering is provided below. They do not necessarily represent actual transactions:

	High Bid	Low Bid
	-----	-----
1995 Fiscal Year		
-----		
Fourth Quarter		
(from November 17)	11	8-1/4
1996 Fiscal Year		
-----		
First Quarter	10	6-1/2
Second Quarter	9-1/8	5-3/4
Third Quarter	7-3/4	4-1/2
Fourth Quarter	7-1/4	2-7/8
1997 Fiscal Year		
-----		
First Quarter	8-3/8	5-1/4
Second Quarter	15-3/8	7-1/8
Third Quarter	33-3/8	14-1/2
Fourth Quarter	38-1/8	12-1/4

The Company has not declared or paid any cash dividends on its capital stock since it terminated its election to be treated as an S corporation for tax purposes, effective January 1, 1994. The Company currently intends to retain all future earnings to finance its business. Accordingly, the Company does not anticipate paying cash or other dividends on its Common Stock in the foreseeable future. Furthermore, the Company's revolving credit facility prohibits the declaration or payment of any cash dividends on the Common Stock.

## ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA

The following selected consolidated financial data is qualified by reference to, and should be read in conjunction with, the Company's 1997 Consolidated Financial Statements and notes thereto and the discussion thereof included elsewhere in this Form 10-K. The selected consolidated statements of operations for the years ended December 31, 1995, 1996 and 1997 and the related consolidated balance sheet data as of and for the years ended December 31, 1996 and 1997 derived from consolidated financial statements have been audited by Arthur Andersen LLP, independent accountants, whose report with respect thereto is included elsewhere in this Form 10-K. The selected consolidated statements of operations data for the years ended December 31, 1993 and 1994, and the related consolidated balance sheet data as of December 31, 1993, 1994 and 1995 have been derived from audited consolidated financial statements of the Company not included in this Form 10-K.

	YEARS ENDED DECEMBER 31,				
	1997	1996	1995	1994	1993
	----	----	----	----	----
	(IN THOUSANDS, EXCEPT SHARE DATA)				
STATEMENT OF OPERATIONS DATA:					
Sales	\$141,923	\$98,852	\$94,708	\$51,857	\$31,577
Gross profit	54,385	36,814	45,394	25,814	15,248
Total operating expenses	37,380	28,603	23,916	15,811	11,547
Income from operations	17,005	8,211	21,478	10,003	3,701
Net income	\$ 10,362	\$ 5,144	\$13,281	\$ 5,963	\$ 3,417
	-----	-----	-----	-----	-----
Diluted earnings per share	\$ 0.47	\$ 0.24	\$ 0.69	\$ 0.32	
Pro forma net income(1)					\$ 2,054
					-----
					-----
	DECEMBER 31,				
	1997	1996	1995	1994	1993
	----	----	----	----	----
	(IN THOUSANDS)				
BALANCE SHEET DATA:					
Working capital	\$ 66,708	\$35,179	\$33,749	\$ 7,773	\$ 3,587
Total assets	112,243	56,031	55,319	23,149	13,389
Total debt	3,320	2,051	2,484	9,946	8,459
Stockholders' equity	87,348	46,496	41,087	7,218	1,011

(1) In 1993, the Company was treated as an S corporation for tax purposes. The Company terminated its election to be treated as an S corporation effective as of January 1, 1994. Pro forma information assumes federal, state and foreign income tax rates aggregating 40.0%. See Note 10 of Notes to Consolidated Financial Statements.

## **ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

The following discussion contains, in addition to historical information, forward-looking statements, within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Such forward-looking statements involve risks and uncertainties. As a result, the Company's actual results may differ materially from the results discussed in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed below.

In particular, the Company believes that the following factors could impact forward-looking statements made herein or in future written or oral releases and by hindsight, prove such statements to be overly optimistic and unachievable: volatility of the semiconductor and semiconductor equipment industries, customer concentration, dependence on design wins, rapid technological change and dependence on new system introduction, competition, and management of growth.

### **OVERVIEW**

The Company designs, manufactures, markets and supports power conversion and control systems used in industrial processes. The Company's systems are key elements in products that utilize gaseous plasmas to deposit or etch thin film layers on materials or substrates such as silicon, glass and metals. The Company commenced operations in 1981 and has been profitable each year since its inception. The Company markets and sells its systems primarily to original equipment manufacturers (OEMs) of semiconductor, flat panel display, data storage and other industrial thin film manufacturing equipment, and OEMs of the telecommunications, medical and non-impact printing industries. A substantial and increasing proportion of the Company's sales are made on a "just-in-time" basis in which the shipment of systems occurs within a few days or hours after an order is received. The Company recognizes revenues, which are derived from the sales of power conversion and control systems, upon shipment of its systems.

The semiconductor equipment industry accounted for approximately 64% of the Company's sales in 1996 and 58% in 1997. The Company has benefited from strong growth in the semiconductor equipment industry in recent years until the industry growth stopped in mid-1996, but recovered in the second half of 1997. The largest customer of the Company is also the largest semiconductor equipment manufacturer. Sales to the data storage market increased significantly in 1997 when compared to 1996, but sales to industrial markets were flat during this same period. The Company experienced a decline in sales to the flat panel display market in 1996, primarily in Japan, but recovered in 1997 to a level higher than 1995. In connection with the acquisition of Tower Electronics, Inc. ("Tower") the Company now has products manufactured for use in the

telecommunications, laser and non-impact printing industries. The future success of the Company depends primarily on continued growth of the semiconductor equipment industry, data storage industry, and flat panel display industry. To date, the Company has been successful in achieving a number of "design wins" which have resulted in the Company obtaining new customers and solidifying relationships with its existing customers. The Company believes that its ability to continue to achieve design wins with existing and new customers will be critical to its future success.

In response to the high rate of growth in 1995 and anticipated growth during 1996, the Company made substantial investments in infrastructure such as information technology, facilities, and in worldwide sales and support in 1996, which caused operating expenses to increase. This, combined with the slower growth in the semiconductor equipment industry, resulted in reduced operating margins in 1996. Margins improved in 1997 when the semiconductor equipment industry rebounded and returned to growth more in line with historical experience.

Several events occurred during 1997 that affected and may continue to influence the Company's operations into 1998. The Company sustained damage to its manufacturing facilities and certain equipment during a severe rainstorm on July 29, 1997, which reduced production capacity during the following several months. On August 15, 1997, the Company purchased all of the outstanding stock of Tower Electronics, Inc. ("Tower"), a privately-held Minnesota-based manufacturer of custom, low-power power supplies used principally in the telecommunications, medical and non-impact printing markets. In October 1997, the Company completed an underwritten public offering of 1,000,000 shares of common stock at a price of \$31 per share, for aggregate net proceeds of approximately \$28.7 million. In October 1997, the Company completed formation of its 100%-owned sales and service subsidiary in South Korea.

## **YEAR 2000**

Computer programs that rely on two-digit date codes to perform computations and decision-making functions may cause computer systems to malfunction due to an inability of such programs to interpret the date code "00" as the year 2000. Advanced Energy has conducted an initial assessment of its internal exposure to the Year 2000 problem and believes that its recently installed enterprise-wide software system is Year 2000 compliant. Such belief is based significantly on discussions with and representations by the vendor of such software. The Company intends to conduct its own evaluations and testing of such software system and is currently involved in a project to ensure that its ancillary software and hardware are Year 2000 compliant. The Company expects to complete these projects during the second and third quarters of 1998. The Company does not expect the costs associated with such projects to have a material effect on the Company's financial results.

Advanced Energy also may be vulnerable to other companies' Year 2000 issues. The Company's current estimates of the impact of the Year 2000 problem on its operations

and financial results do not include costs and time that may be incurred as a result of any vendors' or customers' failures to become Year 2000 compliant on a timely basis. The Company has initiated formal communications with all of its significant vendors and customers with respect to such persons' Year 2000 compliance programs and status. However, there can be no assurance that such other companies will achieve Year 2000 compliance or that any conversions by such companies to become Year 2000 compliant will be compatible with the Company's computer systems.

The inability of the Company or any of its principal vendors or customers to become Year 2000 compliant in a timely manner could have a material adverse effect on the Company's financial condition or results of operations.

The foregoing beliefs and expectations are forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, and are based in large part on certain statements and representations made by persons outside the Company, any of which statements or representations ultimately could prove to be inaccurate.

## RESULTS OF OPERATIONS

The following table sets forth certain statement of operations data of the Company expressed as a percentage of sales:

	YEARS ENDED DECEMBER 31,		
	1997	1996	1995
Sales	100.0%	100.0%	100.0%
Cost of sales	61.7	62.8	52.1
Gross margin	38.3	37.2	47.9
Operating expenses:			
Research and development	10.4	13.9	11.1
Sales and marketing	6.7	8.7	6.5
General and administrative	5.1	6.3	7.6
Storm damage, net of insurance reimbursement	1.9	0.0	0.0
Purchased in-process research and development	2.2	0.0	0.0
Total operating expenses	26.3	28.9	25.2
Income from operations	12.0	8.3	22.7
Other income (expense)	0.0	0.1	(0.4)
Net income before income taxes	12.0	8.4	22.3
Provision for income taxes	4.7	3.2	8.3
Net income	7.3%	5.2%	14.0%

## SALES

Sales were \$94.7 million, \$98.9 million and \$141.9 million in 1995, 1996 and 1997, respectively, representing an increase of 4% from 1995 to 1996 and 44% from 1996 to 1997. The Company's sales growth during all periods presented has resulted from the increased unit sales of the Company's systems. A significant part of this growth during 1996 is attributable to increased sales to domestic customers and to customers in Europe,



offset by a 46% decrease in Japan sales when compared to 1995, which were primarily to the flat panel display market. In 1995 the Company sold subsystems in Japan to replace subsystems originally provided by competitors. That retrofit program was completed in 1995. A substantial portion of the Company's sales growth since 1995 is attributable to higher system sales to the Company's two largest customers, both of whom are primarily semiconductor equipment OEMs. Sales to this industry increased 35% from 1996 to 1997, while sales to data storage equipment OEMs increased 53% during the same period.

Sales to international customers, primarily in Japan, Asia and Europe, were approximately \$27.3 million, \$24.0 million, and \$36.0 million in 1995, 1996 and 1997, respectively. These amounts represented 29%, 24% and 25% of sales for those periods. During these periods, sales in Japan were primarily to flat panel display and data storage equipment manufacturers and sales in Europe were primarily to data storage equipment manufacturers.

## **GROSS MARGIN**

The Company's gross margins were 47.9%, 37.2% and 38.3% for 1995, 1996 and 1997, respectively. Major factors causing the decrease in gross margin from 1995 to 1996 were generally higher material costs and other costs associated with continued outsourcing efforts in the first half of 1996, and underabsorption of manufacturing overhead due to lower sales in the second half of 1996. Sales for the first six months of 1996 were \$57.0 million versus sales of \$43.0 million in the comparable period in 1995, an increase of 33%, while sales in the last six months of 1996 were \$41.9 million versus sales of \$51.7 million for the comparable period in 1995, a decrease of 19%. Additionally, gross margin was negatively impacted throughout 1996 by a shift in product mix toward products on which material costs increased as a percentage of sales and by increased customer service costs. The increase in gross margin from 1996 to 1997 was primarily due to lower infrastructure costs associated with cost of goods sold and decreased material costs as a percentage of sales. Other cost improvements, as a percentage of sales, were achieved to a lesser extent in labor and customer support costs largely because of the higher 1997 base resulting from the recovery in the semiconductor equipment industry in the second quarter of 1997. These improvements were partially offset by a less favorable absorption of manufacturing overhead costs. The underabsorption of manufacturing overhead may continue to negatively impact gross margin should future sales levels decline.

During the periods presented, the average selling price per unit has remained relatively constant. Historically, price competition has not had a material effect on margins. However, competitive pressures may produce a decline in average selling prices for certain products. Any material decline in average selling prices not offset by reduced costs could result in a material decline in the Company's gross margins.

The Company provides warranty coverage for its systems ranging from 12 to 24

months. The Company estimates the anticipated costs of repairing its systems under such warranties based on the historical average costs of the repairs. To date, the Company has not experienced significant warranty costs in excess of its recorded reserves.

## **RESEARCH AND DEVELOPMENT**

The Company's research and development costs are associated with researching new technologies, developing new products and improving existing product designs. Research and development expenses were \$10.5 million, \$13.8 million and \$14.8 million for 1995, 1996 and 1997, respectively, representing an increase of 31% from 1995 to 1996 and 7% from 1996 to 1997. As a percentage of sales, research and development expenses increased from 11.1% in 1995 to 13.9% in 1996, but decreased to 10.4% in 1997 as a result of the higher sales base. The increase in expenses from 1995 to 1997 is primarily associated with increases in payroll and outside service costs incurred for new product development.

In connection with the acquisition of Tower on August 15, 1997, the Company recorded a one-time charge of \$3.1 million in 1997 for the portion of the purchase price attributable to in-process research and development, not included in the \$14.8 million reported for research and development expense.

The Company believes that continued research and development investment is essential to ongoing development of new products. Since inception, all research and development costs have been internally funded and expensed when incurred.

## **SALES AND MARKETING**

Sales and marketing expenses support domestic and international sales and marketing activities which include personnel, trade shows, advertising, and other marketing activities. Sales and marketing expenses were \$6.2 million, \$8.6 million and \$9.6 million for 1995, 1996 and 1997, respectively. This represented a 39% increase from 1995 to 1996 and an 11% increase from 1996 to 1997. The increases are attributable to higher payroll, promotional materials, depreciation and travel costs associated with expansion to support the increase in sales volume. As a percentage of sales, these expenses increased from 6.5% in 1995 to 8.7% in 1996, but decreased to 6.7% in 1997 as a result of the higher sales base.

The Company continues to reorganize its sales and marketing team to better address the specific needs of its customers. Sales and marketing expenses are expected to continue to increase in future periods.

## **GENERAL AND ADMINISTRATIVE**

General and administrative expenses support the worldwide financial, administrative, information systems and human resources functions of the Company. General and

administrative expenses were \$7.2 million, \$6.3 million and \$7.3 million for 1995, 1996 and 1997, respectively. The decrease in general and administrative expenses from 1995 to 1996 was due primarily to a reduction in accrued bonuses and other employee benefits made in 1996 as part of the Company's cost reduction efforts, which were one-time reductions. Of the increase from 1996 to 1997 of \$1.0 million, \$0.7 million was due to the inclusion of Tower, of which \$0.4 million was for amortization of goodwill resulting from the purchase. As a percentage of sales, general and administrative expenses were 7.6%, 6.3% and 5.1% for 1995, 1996 and 1997, respectively. The overall decrease as a percentage of sales from 1995 to 1997 is attributable to the Company's effort to maintain a level of general and administrative costs that do not increase at the same rate as sales.

The Company continues to implement its new information management system software throughout the Company, including the replacement of existing systems in its foreign locations. The Company expects that charges related to training and implementation of the new software will continue through 1998, particularly for the foreign locations.

### **ONE-TIME CHARGES**

The Company took one-time net charges totaling \$5.8 million in 1997. A net charge of \$2.7 million was taken for storm damage to the Company's headquarters and main manufacturing facilities that resulted from heavy rains in the Fort Collins area on July 29, 1997. The final extent of insurance coverage, if any, is unresolved, although the Company has received and recorded \$0.3 million of proceeds to date. Any additional recoveries from the Company's insurance will likewise be recorded when received.

As discussed above in "Research and Development," the acquisition of Tower resulted in a charge of \$3.1 million for purchased in-process research and development, which is non-deductible for income tax purposes.

### **OTHER INCOME (EXPENSE)**

Other income consists primarily of interest income and expense, foreign exchange gains and losses and other miscellaneous income and expense items. Interest income was approximately \$0.1 million, \$0.5 million and \$0.5 million for the years 1995, 1996 and 1997, respectively. The higher amounts in 1996 and 1997 were due primarily to earnings on investments made from the proceeds of the initial public offering in November 1995 and the underwritten public offering in October 1997.

Interest expense consists principally of borrowings under the Company's bank credit and capital lease facilities and was approximately \$0.6 million, \$0.2 million and \$0.3 million for the years 1995, 1996 and 1997, respectively. The decrease of interest expense from 1995 to 1996 was primarily a result of repayments of equipment loans and less borrowing due to the availability of working capital provided from the proceeds of the Company's initial public offering in November 1995. The increase of interest expense

from 1996 to 1997 was primarily due to a short-term loan used to finance the acquisition of Tower, which was repaid with the proceeds from the underwritten public offering in October 1997.

Approximately 91% of the Company's foreign subsidiaries' sales are denominated in currencies other than the U.S. dollar. An increase in the value of the German deutsche mark of 7% and a decrease in the value of the Japanese yen of 4% resulted in essentially no foreign exchange gain or loss in 1995. During 1996 the Company recorded a net foreign exchange loss of \$0.4 million primarily as a result of a 12% decrease in the value of the yen. During the second half of 1996 the Company began to enter into various forward foreign exchange contracts to mitigate the effect in depreciation in the yen. During 1997, the Company recorded a net foreign currency gain of \$0.1 million. The Company continues to evaluate various policies to minimize the effect of foreign currency fluctuations.

### **PROVISION FOR INCOME TAXES**

The income tax provision of \$7.8 million in 1995 represented a 37.0% effective tax rate. The income tax provision of \$3.2 million for 1996 represented an effective rate of 38.1%. The increase in the Company's tax rate from 1995 to 1996 is primarily attributed to a higher effective state tax rate resulting from a larger proportion of the Company's sales being shipped to higher tax rate jurisdictions, particularly California. The income tax provision of \$6.7 million for 1997 represented an effective rate of 39.2%. The increase in the Company's tax rate from 1996 to 1997 is primarily attributed to certain one-time charges in 1997 which were not deductible, including the \$3.1 million one-time charge for purchased in-process research and development associated with the acquisition of Tower. Changes in the relative earnings of the Company and its foreign subsidiaries affect the Company's consolidated effective tax rate. To the extent that a larger percentage of taxable earnings are derived from the Company's foreign subsidiaries whose tax rates are higher than domestic tax rates, the Company could experience a higher consolidated effective tax rate than the historical rates the Company experienced before 1997. The Company adjusts its income taxes periodically based upon the anticipated tax status of all foreign and domestic entities.

### **QUARTERLY RESULTS OF OPERATIONS**

The following table presents unaudited quarterly results in dollars and as a percentage of sales for the eight quarters ended December 31, 1997. The Company believes that all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts stated below to present fairly such quarterly information. The operating results for any quarter are not necessarily indicative of results for any subsequent period.

	QUARTERS ENDED							
	MAR. 31, 1996	JUNE 30, 1996	SEPT. 30, 1996	DEC. 31, 1996	MAR. 31, 1997	JUNE 30, 1997	SEPT. 30, 1997	DEC. 31, 1997
	(IN THOUSANDS, EXCEPT PER SHARE DATA)							
Sales	\$27,166	\$29,831	\$21,639	\$20,216	\$20,667	\$32,690	\$42,571	\$45,995
Cost of sales	17,035	17,204	15,047	12,752	13,158	20,139	25,538	28,703
Gross profit	10,131	12,627	6,592	7,464	7,509	12,551	17,033	17,292
Operating expenses:								
Research and development	3,498	3,645	3,349	3,268	2,821	3,513	4,072	4,345
Sales and marketing	2,083	2,248	2,201	2,058	1,799	2,336	2,329	3,101
General and administrative	1,725	2,330	933	1,265	1,248	1,702	1,943	2,391
Storm damage	--	--	--	--	--	--	3,000	(300)
Purchased in-process research and development	--	--	--	--	--	--	3,080	--
Total operating expenses	7,306	8,223	6,483	6,591	5,868	7,551	14,424	9,537
Income from operations	2,825	4,404	109	873	1,641	5,000	2,609	7,755
Other (expense) income	(170)	(66)	97	232	(387)	286	54	73
Net income before income taxes	2,655	4,338	206	1,105	1,254	5,286	2,663	7,828
Provision for income taxes	982	1,676	83	419	489	1,996	2,146	2,038
Net income	\$ 1,673	\$ 2,662	\$ 123	\$ 686	\$ 765	\$ 3,290	\$ 517	\$ 5,790
Diluted earnings per share	\$ 0.08	\$ 0.12	\$ 0.01	\$ 0.03	\$ 0.04	\$ 0.15	\$ 0.02	\$ 0.25
Weighted-average number of shares and share equivalents	21,794	21,653	21,622	21,728	21,735	21,877	22,372	23,112
	QUARTERS ENDED							
	MAR. 31, 1996	JUNE 30, 1996	SEPT. 30, 1996	DEC. 31, 1996	MAR. 31, 1997	JUNE 30, 1997	SEPT. 30, 1997	DEC. 31, 1997
PERCENTAGE OF SALES:								
Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales	62.7	57.7	69.5	63.1	63.7	61.6	60.0	62.4
Gross margin	37.3	42.3	30.5	36.9	36.3	38.4	40.0	37.6
Operating expenses:								
Research and development	12.9	12.2	15.5	16.2	13.7	10.8	9.6	9.4
Sales and marketing	7.7	7.5	10.2	10.2	8.7	7.1	5.5	6.7
General and administrative	6.3	7.8	4.3	6.2	6.0	5.2	4.6	5.2
Storm damage	--	--	--	--	--	--	7.0	(0.6)
Purchased in-process research and development	--	--	--	--	--	--	7.2	--
Total operating expenses	26.9	27.5	30.0	32.6	28.4	23.1	33.9	20.7
Income from operations	10.4	14.8	0.5	4.3	7.9	15.3	6.1	16.9
Other (expense) income	(0.6)	(0.3)	0.5	1.2	(1.8)	0.9	0.2	0.1
Net income before income taxes	9.8	14.5	1.0	5.5	6.1	16.2	6.3	17.0
Provision for income taxes	3.6	5.6	0.4	2.1	2.4	6.1	5.1	4.4
Net income	6.2%	8.9%	0.6%	3.4%	3.7%	10.1%	1.2%	12.6%

The Company has experienced and expects to continue to experience significant fluctuations in its quarterly operating results. The Company's expense levels are based, in part, on expectations of future revenues. If revenue levels in a particular quarter do not meet expectations, operating results may be adversely affected. A variety of factors have an influence on the level of the Company's revenues in a particular quarter. These factors include general economic conditions, specific economic conditions in the industries the Company serves, the timing of the receipt of orders from major customers, customer cancellations or delay of shipments, specific feature requests by customers, production delays or manufacturing inefficiencies, exchange rate fluctuations, management decisions to commence or discontinue product lines, the Company's ability to design, introduce and manufacture new products on a cost effective and timely basis, the introduction of new products by the Company or its competitors, the timing of research and development expenditures, and expenses related to acquisitions, strategic alliances, and the further

development of marketing and service capabilities.

A substantial portion of the Company's shipments are made on a "just-in-time" basis in which shipment of systems occurs within a few days or hours after an order is received. The Company's backlog is not meaningful because of the importance of "just-in-time" shipments. The Company is dependent on obtaining orders for shipment in a particular quarter to achieve its revenue objectives for that quarter. Accordingly, it is difficult for the Company to predict accurately the timing and level of sales in a particular quarter. Due to its "just-in-time" program, the Company anticipates quarterly fluctuations in sales will continue to occur.

The Company's quarterly operating results in 1996 and 1997 reflect the changing demand for the Company's products during this period, principally from manufacturers of semiconductor equipment and data storage equipment, and the Company's ability to quickly adjust its manufacturing capacity to meet this demand. Demand from the semiconductor equipment companies was significantly lower from the third quarter of 1996 until the second quarter of 1997. In the second quarter of 1997, the semiconductor equipment market began a major recovery which continued throughout 1997, and sales to the data storage equipment market also experienced significant growth. Sales during the fourth quarter of 1997 increased 8% from the third quarter of 1997 primarily as a result of the inclusion of revenues from Tower. This increase was offset by a significant drop in sales in Japan from the third quarter of 1997 to the fourth quarter of 1997.

The Company's gross margin fluctuated significantly on a quarterly basis in 1996 and 1997, primarily reflecting utilization of manufacturing capacity. Average selling prices remained relatively constant throughout the periods presented. The increase in gross margin from 37.3% in the first quarter of 1996 to 42.3% in the second quarter of 1996 resulted from a number of factors which resulted in decreased component costs. The reduction in gross margin to 30.5% in the third quarter of 1996 was primarily the result of underabsorbed fixed manufacturing costs from reduced revenue, as revenues in the third quarter of 1996 were \$8.2 million lower than in the second quarter of 1996. Additionally, gross margin was negatively impacted by a shift in product mix toward products on which material costs as a percentage of sales were higher than the previous quarter. Increased customer service costs, as a percentage of sales, also contributed to the lower gross margin. The improvement in gross margin to 36.9% in the fourth quarter of 1996 was attributable primarily to a favorable product mix, decreased direct material costs and decreased customer service costs. The improvement in gross margin to 38.4% in the second quarter of 1997 and 40.0% in the third quarter of 1997 was primarily the result of a more favorable absorption of manufacturing overhead resulting from a 58% increase in sales from the first quarter of 1997 to the second quarter of 1997. Beginning August 15, 1997, the Company's operating results included Tower. The Company returned to full production in the fourth quarter of 1997, during which time gross margin declined to 37.6%. This decrease was primarily attributed to higher customer service costs and higher cost of goods sold as a percentage of sales for Tower.

The Company's operating expenses increased on a quarterly basis through the first half of 1996. Since the fourth quarter of 1995, operating expenses have included additional legal and administrative expenses as a result of being a publicly held company. Additionally, the Company has expensed costs incurred for consultants used in the implementation of a new information management system software. The Company expects expenses related to the implementation of the software to continue through 1998 as additional phases are implemented, including integration of the information systems of the Company's international subsidiaries. Quarterly decreases of operating expenses in the second half of 1996 and the first quarter of 1997 reflected a companywide restructuring and the implementation of cost containment measures started in the third quarter of 1996 to react to the significant decrease in demand, primarily from semiconductor equipment companies. The increases in operating expenses during the remaining quarters of 1997 reflected costs in support of higher sales resulting from the recovery in the semiconductor equipment industry and increases in sales to the data storage industry in the second and third quarters of 1997. Operating expenses of \$14.4 million in the third quarter of 1997 would have been \$8.3 million if not for the one-time charges of \$6.1 million. As a percentage of sales, operating expenses have declined during periods of rapid sales growth, when sales increased at a rate faster than the Company's ability to add personnel and facilities to support the growth, and increased during periods of flat or decreased sales, when the Company's infrastructure is retained to support anticipated future growth or from non-recurring charges associated with downsizing.

Other income (expense) consists primarily of interest income and expense and foreign currency gain and loss. The net foreign exchange loss of \$0.4 million in 1996 was recognized during the first and fourth quarters of 1996, with essentially no gain or loss in the second and third quarter. During 1997, the Company recorded a net foreign exchange gain of \$0.1 million. The Company continues to utilize forward foreign exchange contracts in Japan to mitigate the effects of foreign currency fluctuations.

The Company's provision for income taxes remained relatively stable in 1996, ranging from 37.0% to 40.3%, but fluctuated significantly in 1997. An effective income tax rate of 80.6% in the third quarter of 1997 was due primarily to the one-time non-deductible charge of \$3.1 million for the purchased in-process research and development associated with the acquisition of Tower. An effective income tax rate of 26.0% in the fourth quarter of 1997 was due primarily to a revised estimate resulting in a favorable adjustment to previously-accrued income taxes in Japan. The first and second quarters of 1997 had effective income tax rates of 39.0% and 37.8%, respectively, closer to historical rates.

## **LIQUIDITY AND CAPITAL RESOURCES**

Since its inception, the Company has financed its operations, acquired equipment and met its working capital requirements through borrowings under its revolving line of credit, long-term loans secured by property and equipment and cash flow from

operations, and, from November 1995, proceeds from underwritten public offerings.

Cash provided by operations totaled \$3.3 million in 1996. In 1996, net income, depreciation, amortization and decreases in inventory were partially offset by increases in accounts receivable and decreases in accounts payable. Cash provided by operations totaled \$8.1 million in 1997, of which major factors were net income, depreciation, amortization, purchased in-process research and development, and increases in accounts payable, offset by increases in accounts receivable and inventories. The Company expects future receivable and inventory balances to fluctuate with net sales. The Company provides "just-in-time" deliveries to certain of its customers and may be required to maintain higher levels of inventory to satisfy its customers' delivery requirements.

Investing activities in 1996 used cash of \$5.1 million and consisted of equipment acquisitions. Investing activities in 1997 used cash of \$38.2 million and consisted of the acquisition of Tower for \$13.0 million, the purchase of marketable securities of \$20.0 million and the purchase of property and equipment of \$5.2 million.

Financing activities used cash of \$0.3 million in 1996, and consisted primarily of net proceeds of notes payable to finance equipment of \$1.6 million, offset by repayments of notes payable and capital lease obligations.

In October 1997, the Company completed an underwritten public offering of 1,000,000 shares of common stock at a price of \$31 per share, for aggregate net proceeds of approximately \$28.7 million. The Company used \$12.0 million of the net proceeds to repay a \$12.0 million term loan used to finance the acquisition of Tower, and incurred a prepayment penalty of approximately \$90,000. The remaining proceeds were added to the Company's working capital to finance future business needs.

In 1997, financing activities provided cash of \$30.5 million and consisted primarily of the net proceeds of \$28.7 million from the underwritten public offering. Long-term loans secured by property and equipment were \$1.5 million in 1996 and were paid off in 1997.

The Company plans to spend approximately \$6.0 million through 1998 for the acquisition of equipment, leasehold improvements and furnishings.

As of December 31, 1997, the Company had working capital of \$66.7 million. The Company's principal sources of liquidity consisted of \$11.5 million of cash and cash equivalents, \$20.2 million of marketable securities, and a credit facility consisting of a \$30.0 million revolving line of credit which replaced the Company's prior line of credit, with options to convert up to \$10.0 million to a three-year term loan. Advances under the new revolving line of credit bear interest at either the prime rate (8.5% at January 31, 1998) minus 1.25% or the LIBOR 360-day rate (5.65625% at January 31, 1998) plus 150 basis points, at the Company's option. All advances under the revolving line of credit will be due and payable in December 2000; however, there were no advances outstanding as of December 31, 1997.



The Company believes that its cash and cash equivalents, cash flow from operations and available borrowings, will be sufficient to meet the Company's working capital needs through at least the end of 1998. After that time, the Company may require additional equity or debt financing to address its working capital, capital equipment, or expansion needs. In addition, any significant acquisitions by the Company may require additional equity or debt financings to fund the purchase price, if paid in cash. There can be no assurance that additional funding will be available when required or that it will be available on terms acceptable to the Company.

## ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

### INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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42	Consolidated Balance Sheets as of December 31, 1997 and 1996
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## **REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS**

### **To Advanced Energy Industries, Inc.:**

We have audited the accompanying consolidated balance sheets of Advanced Energy Industries, Inc. (a Delaware corporation) and subsidiaries as of December 31, 1997 and 1996, and the related consolidated statements of income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 1997. These consolidated financial statements and the schedule referred to below are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and 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, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 1997 and 1996, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1997 in conformity with generally accepted accounting principles.

Our audits were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The schedule listed in the index of the consolidated financial statements is presented for purposes of complying with the Securities and Exchange Commission's rules and is not part of the basic financial statements. This schedule has been subjected to the auditing procedures applied in our audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

**Denver, Colorado ARTHUR ANDERSEN LLP**

February 6, 1998.

**ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES**

**CONSOLIDATED BALANCE SHEETS**  
(IN THOUSANDS)

	DECEMBER 31,	
	1997	1996
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$ 11,470	\$11,231
Marketable securities - trading	20,174	--
Accounts receivable --		
Trade (less allowances for doubtful accounts		
of approximately \$428 and \$242 at		
December 31, 1997 and 1996, respectively)	26,150	15,287
Related parties	893	541
Other	1,343	288
Inventories	26,243	13,976
Other current assets	2,472	1,013
Deferred income tax assets, net	2,836	1,223
	-----	-----
Total current assets	91,581	43,559
	-----	-----
PROPERTY AND EQUIPMENT, at cost, net of accumulated		
depreciation of \$7,017 and \$5,779 at December 31,		
1997 and 1996, respectively		
	11,331	9,500
	-----	-----
OTHER ASSETS:		
Deposits and other	500	1,139
Goodwill, net of accumulated amortization of		
\$378 at December 31, 1997	7,112	--
Demonstration and customer service equipment,		
net of accumulated depreciation of \$1,673 and		
\$1,276 at December 31, 1997 and 1996,		
respectively	1,719	1,833
	-----	-----
	9,331	2,972
	-----	-----
Total assets	\$112,243	\$56,031
	-----	-----

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

**ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES**

**CONSOLIDATED BALANCE SHEETS**  
(IN THOUSANDS)

	DECEMBER 31,	
	1997	1996
<hr/>		
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Accounts payable trade	\$ 12,045	\$ 2,253
Accrued payroll and employee benefits	5,243	2,396
Other accrued expenses	1,327	1,156
Customer deposits	226	166
Accrued income taxes payable	2,734	1,485
Capital lease obligations, current portion	147	315
Notes payable, current portion	3,151	609
	<hr/>	<hr/>
Total current liabilities	24,873	8,380
	<hr/>	<hr/>
LONG-TERM LIABILITIES:		
Capital lease obligations, net of current portion	22	169
Notes payable, net of current portion	--	958
Deferred income taxes	--	28
	<hr/>	<hr/>
	22	1,155
	<hr/>	<hr/>
Total liabilities	24,895	9,535
	<hr/>	<hr/>
COMMITMENTS AND CONTINGENCIES (Note 12)		
STOCKHOLDERS' EQUITY (Note 1):		
Preferred stock, \$0.001 par value, 1,000 shares		
authorized, none issued and outstanding	--	--
Common stock, \$0.001 par value, 30,000 shares		
authorized; 22,493 and 21,268 shares issued		
and outstanding, respectively	22	21
Additional paid-in capital	52,625	23,075
Retained earnings	35,427	25,065
Stockholders' notes receivable	--	(1,083)
Deferred compensation	(34)	(82)
Cumulative translation adjustment	(692)	(500)
	<hr/>	<hr/>
Total stockholders' equity	87,348	46,496
	<hr/>	<hr/>
Total liabilities and stockholders' equity	\$112,243	\$56,031
	<hr/>	<hr/>

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

**ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES**

**CONSOLIDATED STATEMENTS OF INCOME**  
(IN THOUSANDS, EXCEPT PER SHARE AMOUNTS)

	YEARS ENDED DECEMBER 31,		
	1997	1996	1995
SALES	\$141,923	\$98,852	\$94,708
COST OF SALES	87,538	62,038	49,314
Gross profit	54,385	36,814	45,394
OPERATING EXPENSES:			
Research and development	14,751	13,760	10,522
Sales and marketing	9,565	8,590	6,201
General and administrative	7,284	6,253	7,193
Storm damage, net of \$300 insurance reimbursement	2,700	--	--
Purchased in-process research and development	3,080	--	--
Total operating expenses	37,380	28,603	23,916
INCOME FROM OPERATIONS	17,005	8,211	21,478
OTHER INCOME (EXPENSE):			
Interest income	543	455	71
Interest expense	(329)	(168)	(612)
Foreign currency gain (loss)	97	(351)	(7)
Other (expense) income, net	(285)	157	155
Total other income (expense)	26	93	(393)
Net income before income taxes	17,031	8,304	21,085
PROVISION FOR INCOME TAXES	6,669	3,160	7,804
NET INCOME	\$ 10,362	\$ 5,144	\$13,281
BASIC EARNINGS PER SHARE	\$ 0.48	\$ 0.24	\$ 0.73
DILUTED EARNINGS PER SHARE	\$ 0.47	\$ 0.24	\$ 0.69
BASIC WEIGHTED-AVERAGE COMMON SHARES OUTSTANDING	21,544	21,242	18,216
DILUTED WEIGHTED-AVERAGE COMMON SHARES OUTSTANDING	22,274	21,666	19,310

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

**ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES**

**CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY  
(IN THOUSANDS)**

**FOR THE YEARS ENDED DECEMBER 31, 1997, 1996 AND 1995**

	COMMON STOCK		ADDITIONAL	RETAINED	STOCKHOLDERS'		CUMULATIVE	TOTAL
	SHARES	AMOUNT	PAID-IN CAPITAL	EARNINGS	NOTES RECEIVABLE	DEFERRED COMPENSATION	TRANSLATION ADJUSTMENT	STOCKHOLDERS' EQUITY
BALANCES, December 31, 1994	17,293	\$17	\$ 367	\$ 6,640	\$ --	\$ --	\$ 194	\$ 7,218
Equity adjustment from foreign currency translation	--	--	--	--	--	--	(761)	(761)
Exercise of stock options for cash	140	1	124	--	--	--	--	125
Exercise of stock options in exchange for stockholders' notes receivable	1,236	1	1,082	--	(1,083)	--	--	--
Deferred compensation on stock options issued	--	--	142	--	--	(142)	--	--
Amortization of deferred compensation	--	--	--	--	--	12	--	12
Sale of common stock through public offering, net of approximately \$2,790 of expenses	2,400	2	21,210	--	--	--	--	21,212
Net income	--	--	--	13,281	--	--	--	13,281
BALANCES, December 31, 1995	21,069	21	22,925	19,921	(1,083)	(130)	(567)	41,087
Equity adjustment from foreign currency translation	--	--	--	--	--	--	67	67
Exercise of stock options for cash	199	--	150	--	--	--	--	150
Amortization of deferred compensation	--	--	--	--	--	48	--	48
Net income	--	--	--	5,144	--	--	--	5,144
BALANCES, December 31, 1996	21,268	21	23,075	25,065	(1,083)	(82)	(500)	46,496
Equity adjustment from foreign currency translation	--	--	--	--	--	--	(192)	(192)
Exercise of stock options for cash	127	--	255	--	--	--	--	255
Exercise of stock options in exchange for stockholders' notes receivable	90	--	470	--	(470)	--	--	--
Proceeds from stockholders' notes receivable	--	--	--	--	1,553	--	--	1,553
Sale of common stock through employee stock purchase plan	8	--	102	--	--	--	--	102
Amortization of deferred compensation	--	--	--	--	--	48	--	48
Sale of common stock through public offering, net of approximately \$2,276 of expenses	1,000	1	28,723	--	--	--	--	28,724
Net income	--	--	--	10,362	--	--	--	10,362
BALANCES, December 31, 1997	22,493	\$22	\$52,625	\$35,427	\$ --	\$ (34)	\$ (692)	\$87,348

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

**ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES**

**CONSOLIDATED STATEMENTS OF CASH FLOWS**  
(IN THOUSANDS)

	YEARS ENDED DECEMBER 31,		
	1997	1996	1995
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net income	\$10,362	\$ 5,144	\$13,281
Adjustments to reconcile net income to net cash provided by operating activities -			
Depreciation and amortization	3,710	2,609	1,543
Provision for deferred income taxes	(1,584)	(286)	(252)
Amortization of deferred compensation	48	48	12
Purchased in-process research and development	3,080	--	--
Loss on disposal of property and equipment	1,046	41	66
Earnings from marketable securities, net	(174)	--	--
Changes in operating assets and liabilities -			
Accounts receivable-trade, net	(9,213)	(1,747)	(5,477)
Related parties and other receivables	(502)	803	(889)
Inventories	(9,576)	2,128	(8,907)
Other current assets	(1,420)	(350)	(371)
Deposits and other	639	(324)	(225)
Demonstration and customer service equipment	(636)	(644)	(937)
Accounts payable, trade	8,500	(4,412)	3,568
Accrued payroll and employee benefits	2,569	(367)	725
Customer deposits and other accrued expenses	231	460	149
Income taxes payable	1,011	149	1,388
Net cash provided by operating activities	8,091	3,252	3,674
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of marketable securities	(20,000)	--	--
Acquisition of Tower Electronics, Inc., net of cash acquired	(12,995)	--	--
Purchase of property and equipment, net	(5,179)	(5,137)	(3,824)
Net cash used in investing activities	(38,174)	(5,137)	(3,824)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from notes payable	13,763	1,606	31,179
Repayment of notes payable and capital lease obligations	(13,883)	(2,039)	(34,103)
Repayment of subordinated notes to stockholders	--	--	(4,538)
Sale of common stock, net of expenses	28,724	--	21,212
Sale of common stock through employee stock purchase plan	102	--	--
Proceeds from exercise of stock options and warrants	255	150	125
Proceeds from stockholders' notes receivable	1,553	--	--
Net cash provided by (used in) financing activities	30,514	(283)	13,875
EFFECT OF CURRENCY TRANSLATION ON CASH FLOW	(192)	67	(761)
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	239	(2,101)	12,964
CASH AND CASH EQUIVALENTS, beginning of period	11,231	13,332	368
CASH AND CASH EQUIVALENTS, end of period	\$11,470	\$11,231	\$13,332
SUPPLEMENTAL DISCLOSURE OF NON-CASH INVESTING AND FINANCING ACTIVITIES:			
Note payable assumed in Tower acquisition	\$ 1,389	\$ --	\$ --
Deferred compensation on stock options issued	\$ --	\$ --	\$ 142
Exercise of stock options in exchange for stockholders' notes receivable	\$ 470	\$ --	\$ 1,083
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:			
Cash paid for interest	\$ 329	\$ 168	\$ 604



Cash paid for income taxes	\$ 7,242	\$ 3,940	\$ 6,668
	-----	-----	-----
	-----	-----	-----

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

# **ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES**

## **NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

### **(1) COMPANY OPERATIONS**

Advanced Energy Industries, Inc. (the "Company") was incorporated in Colorado in 1981 and reincorporated in Delaware in 1995. The Company is primarily engaged in the development and production of power conversion and control systems which are used by manufacturers of semiconductors and in industrial thin film manufacturing processes. The Company owns 100% of each of the following subsidiaries: Advanced Energy Japan, K.K. ("AE-Japan"), Advanced Energy, GmbH ("AE-Germany"), Advanced Energy U.K. Limited ("AE-UK") and Advanced Energy Korea, Limited ("AE-Korea"). The Company also owns 100% of Tower Electronics, Inc. ("Tower"), a Minnesota-based designer and manufacturer of custom, high performance switchmode power supplies used principally in the telecommunications, medical and non-impact printing industries.

In September 1995, the Company reincorporated in Delaware with an authorized capitalization of 30,000,000 shares of common stock, \$0.001 par value. Also in September 1995, the Company approved a three for one share common stock split. All share and per share data have been retroactively adjusted in the accompanying consolidated financial statements for the effect of the stock split. Additionally, the Company also authorized 1,000,000 shares of \$0.001 par value preferred stock.

The Company continues to be subject to certain risks similar to other companies in its industry. These risks include the volatility of the semiconductor industry, customer concentration within the industry, technological changes, dependence on the Japanese market, foreign currency risk and competition. A significant change in any of these risk factors could have a material impact on the Company's business.

### **(2) SIGNIFICANT ACCOUNTING POLICIES**

**BASIS OF PRESENTATION** -- The consolidated financial statements include the accounts of the Company and its subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation.

**CASH AND CASH EQUIVALENTS** -- For cash flow purposes, the Company considers all cash and highly liquid investments with an original maturity of 90 days or less to be cash and cash equivalents.

**INVENTORIES** -- Inventories include costs of materials, direct labor and manufacturing overhead. Inventories are valued at the lower of market or cost, computed on a first-in, first-out basis.

**MARKETABLE SECURITIES - TRADING** -- Effective July 1, 1994, the Company adopted Statement of Financial Accounting Standards ("SFAS") No. 115, "Accounting for Certain Investments in Debt and Equity Securities." SFAS No. 115 addresses the accounting and reporting for investments in equity and debt securities. The Company has investments in marketable equity securities and municipal bonds which have original maturities of 90 days or more. The investments are classified as trading securities and reported at fair value with unrealized gains and losses included in earnings.

**DEMONSTRATION AND CUSTOMER SERVICE EQUIPMENT** -- Demonstration and customer service equipment are manufactured products utilized for sales demonstration and evaluation purposes. The Company also utilizes this equipment in its customer service function as replacement and loaner equipment to existing customers. All equipment is held for sale.

The Company depreciates the equipment based on an estimated 3-year useful life in the sales and customer service functions.

**PROPERTY AND EQUIPMENT** -- Property and equipment is stated at cost. Additions, improvements, and major renewals are capitalized. Maintenance, repairs, and minor renewals are expensed as incurred.

Depreciation is provided using straight-line and accelerated methods over three to ten years for machinery and equipment. Amortization of leasehold improvements and leased equipment is provided using the straight-line method over the life of the lease term or the life of the assets, whichever is shorter.

**CONCENTRATIONS OF CREDIT RISK** -- The Company's revenues generally are concentrated among a small number of customers, the majority of which are in the semiconductor equipment industry. The Company establishes an allowance for doubtful accounts based upon factors surrounding the credit risk of specific customers, historical trends and other information.

**WARRANTY POLICY** -- The Company estimates the anticipated costs of repairing products under warranty based on the historical average cost of the repairs. The Company offers warranty coverage for its systems for periods ranging from 12 to 24 months after shipment.

**CUMULATIVE TRANSLATION ADJUSTMENT** -- The functional currency for the Company's foreign operations is the applicable local currency.

The Company records a cumulative translation adjustment from translation of the financial statements of AE-Japan, AE-Germany and AE-UK. This equity account includes the results of translating all balance sheet assets and liabilities at current exchange rates as of the balance sheet date, and the statements of income at the average exchange rates during the respective year.

The Company recognizes gain or loss on foreign currency transactions which are not considered to be of a long-term investment nature. The Company recognized a gain (loss) on foreign currency transactions of \$97,000, \$(351,000) and \$(7,000) for the years ended December 31, 1997, 1996 and 1995, respectively.

**REVENUE RECOGNITION** -- The Company recognizes revenue when products are shipped.

**INCOME TAXES** -- The Company accounts for income taxes by recognizing deferred tax assets and liabilities for temporary differences between the tax basis and financial reporting basis of assets and liabilities, computed at current tax rates.

**EARNINGS PER SHARE** -- In February 1997, the Financial Accounting Standards Board issued SFAS No. 128, "Earnings Per Share," which requires companies to present basic earnings per share ("EPS") and diluted EPS, instead of the primary and fully-diluted EPS that were previously required. The new standard is effective for the Company in fiscal 1997 and all prior periods have been retroactively adjusted. Basic EPS is computed by dividing income available to common stockholders by the weighted-average number of common shares outstanding during the period. The computation of diluted EPS is similar to the computation of basic EPS except that the denominator is increased to include the number of additional common shares that would have been outstanding if dilutive potential common shares had been issued.

**ESTIMATES AND ASSUMPTIONS** -- The preparation of the Company's consolidated financial statements in conformity with generally accepted accounting principles requires the Company's management to make estimates and assumptions that affect the amounts reported and disclosed in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

**ASSET IMPAIRMENTS** -- The Company reviews its long-lived assets and certain identifiable intangibles held and used by the Company for impairment whenever events or changes in circumstances indicate their carrying amount may not be recoverable. In so doing, the Company estimates the future net cash flows expected to result from the use of the asset and its eventual disposition. If the sum of the expected future net cash flows (undiscounted and without interest charges) is less than the carrying amount of the asset, an impairment loss is recognized to reduce the asset to its estimated fair value. Otherwise, an impairment loss is not recognized. Long-lived assets and certain identifiable intangibles to be disposed of, if any, are reported at the lower of carrying amount or fair value less cost to sell.

### (3) ACQUISITION

Effective August 15, 1997, the Company acquired all of the outstanding stock of Tower, a Minnesota-based designer and manufacturer of custom, high-performance switchmode power supplies used principally in the telecommunications, medical and non-impact printing industries. The purchase price consisted of \$14.5 million in cash and a \$1.5 million non-interest bearing promissory note to the seller (the "Note"), payable in August 1998. Total consideration, including the effect of imputing interest on the Note, equaled \$15,889,000. The acquisition was accounted for using the purchase method of accounting and resulted in a one-time charge of \$3,080,000 for in-process research and development acquired as a result of the transaction. Acquisition costs totaled approximately \$209,000.

The purchase price was allocated to the net assets of Tower as summarized below:

	(In thousands)
Cash and cash equivalents	\$ 1,714
Accounts receivable	2,555
Inventories	2,691
Deferred tax asset	57
Fixed assets	280
Goodwill	7,490
Purchased in-process research and development	3,080
Other assets	39
Accounts payable	(1,292)
Accrued liabilities	(516)
	-----
	\$16,098
	-----
	-----

The results of operations of Tower are included within the accompanying consolidated financial statements from the date of acquisition.

The following table sets forth the condensed unaudited pro forma operating results of the Company for the twelve months ended December 31, 1997 and 1996. The condensed pro forma operating results assume that the Tower acquisition had occurred on January 1, 1996 and was funded with debt outstanding until the secondary offering occurred in October 1997. Additionally, the pro forma operating results do not include charges for the \$3,080,000 purchased in-process research and development as it is non-recurring. The condensed pro forma results are not necessarily indicative of the results of operations had the acquisition consummated on January 1, 1996, and may not necessarily be indicative of future performance.

TWELVE MONTHS ENDED DECEMBER 31, (UNAUDITED)	(IN THOUSANDS, EXCEPT PER SHARE AMOUNTS)	
	1997	1996
-----	-----	-----
Sales	\$154,568	\$112,253
Net income	\$ 14,476	\$ 4,842
Basic earnings per share	\$ 0.67	\$ 0.23
Diluted earnings per share	\$ 0.65	\$ 0.22
Basic weighted-average common shares outstanding	21,544	21,242
Diluted weighted-average common shares outstanding	22,274	21,666

#### (4) PUBLIC OFFERINGS

In November 1995, the Company closed on the initial public offering of its common stock. In connection with the offering, 2,400,000 shares of common shares were sold at a price of \$10 per share, providing gross proceeds of \$24,000,000, less \$2,790,000 in offering costs.

In October 1997, the Company closed on a secondary offering of its common stock. In connection with this offering, 1,000,000 shares of common shares were sold at a price of \$31 per share, providing gross proceeds of \$31,000,000, less \$2,276,000 in offering costs.

#### (5) MARKETABLE SECURITIES - TRADING

Marketable securities - trading consisted of the following:

	DECEMBER 31,	
	1997	1996
	(IN THOUSANDS)	
Equities	\$18,345	\$ --
Municipal bonds and notes	1,700	--
Mutual funds	129	--
	\$20,174	\$ --

These marketable securities are reported at fair value and have original costs of \$20,000,000.

#### (6) ACCOUNTS RECEIVABLE - TRADE

Accounts receivable - trade consisted of the following:

	DECEMBER 31,	
	1997	1996
	(IN THOUSANDS)	
Domestic	\$16,724	\$ 9,944
Foreign	9,854	5,585
Allowance for doubtful accounts	(428)	(242)
	\$26,150	\$15,287

#### (7) INVENTORIES

Inventories consisted of the following:

	DECEMBER 31,	
	1997	1996
	(IN THOUSANDS)	
Parts and raw materials	\$18,549	\$11,149
Work in process	2,542	1,122
Finished goods	5,152	1,705
	\$26,243	\$13,976

## (8) PROPERTY AND EQUIPMENT

Property and equipment consisted of the following:

	DECEMBER 31,	
	1997	1996
	(IN THOUSANDS)	
Machinery and equipment	\$ 8,912	\$ 5,708
Computers and communication equipment	4,638	4,793
Furniture and fixtures	1,996	1,996
Vehicles	100	140
Leasehold improvements	2,702	2,642
	18,348	15,279
Less -- accumulated depreciation	(7,017)	(5,779)
	\$11,331	\$ 9,500

Included in the cost of property and equipment above is equipment obtained through capital leases. The net book value of capital lease equipment included in property and equipment above was as follows at December 31, 1997 and 1996:

	DECEMBER 31,	
	1997	1996
	(IN THOUSANDS)	
Machinery and equipment	\$ 79	\$243
Computers and communication equipment	--	62
Furniture and fixtures	1	14
	\$ 80	\$319

Depreciation of assets acquired under capitalized leases is included in depreciation expense.

## (9) NOTES PAYABLE

	DECEMBER 31,	
	1997	1996
	(IN THOUSANDS)	
Revolving line of credit of \$30,000,000, expiring December 7, 2000, interest at bank's prime rate minus 1.25% or the LIBOR 360-day rate plus 150 basis points. Option to convert up to \$10,000,000 to a three-year term loan; advances up to \$5,000,000 each for Optional Currency Rate Advances and Foreign Exchange Contracts. Loan covenants provide certain financial restrictions related to working capital, leverage, net worth and profitability	\$ --	\$ --
Bank overdraft loan, maturing February and March 1998 at interest rates ranging from 1.05% to 1.65% annually	1,762	--
Promissory note related to indemnification clause of Tower acquisition, maturing August 1998 with an imputed interest rate of 8%	1,389	--
Term loan of \$1,500,000 with a bank at prime plus 0.25%	--	1,458
Other	--	109
	3,151	1,567
Less -- current portion	(3,151)	(609)
	\$ --	\$ 958

## (10) INCOME TAXES

For the years ended December 31, 1997, 1996 and 1995, the provision for income taxes consists of an amount for taxes currently payable and a provision for tax effects deferred to future periods. In 1997, the Company increased its statutory U.S. tax rate from 34% to 35%.



The provision (benefit) for income taxes for the years ended December 31, 1997, 1996 and 1995, is as follows:

	DECEMBER 31,		
	1997	1996	1995
	(IN THOUSANDS)		
Federal	\$ 5,470	\$2,744	\$5,827
State and local	1,128	568	918
Foreign taxes	71	(152)	1,059
	\$ 6,669	\$3,160	\$7,804
Current	8,253	\$3,446	\$8,056
Deferred	(1,584)	(286)	(252)
	\$ 6,669	\$3,160	\$7,804

The following reconciles the Company's effective tax rate to the federal statutory rate for the years ended December 31, 1997, 1996 and 1995:

	DECEMBER 31,		
	1997	1996	1995
	(IN THOUSANDS)		
Income tax expense per federal statutory rate	\$5,961	\$2,823	\$7,397
State income taxes, net of federal deduction	733	375	596
Foreign sales corporation	(209)	(108)	(208)
Nondeductible goodwill amortization	132	--	--
Nondeductible purchased in-process research and development	1,078	--	--
Other permanent items, net	(22)	77	49
Effect of foreign taxes	(255)	(168)	316
Tax credits	(272)	(182)	(260)
Other	(477)	343	(86)
	\$6,669	\$3,160	\$7,804

The Company's deferred income taxes are summarized as follows:

	DECEMBER 31, 1997	CHANGE	DECEMBER 31, 1996
	(IN THOUSANDS)		
Deferred tax assets:			
Employee bonuses	\$ 203	\$ 203	\$ --
Warranty reserve	312	137	175
Bad debt reserve	135	60	75
Vacation accrual	295	(31)	326
Obsolete and excess inventory	1,049	475	574
Foreign operating loss carryforward	643	643	--
Other	199	69	73
	2,836	1,556	1,223
Deferred tax liabilities:			
Accumulated depreciation	--	28	(28)
Net deferred income tax assets	\$2,836	\$1,584	\$1,195

The domestic versus foreign component of the Company's net income before income taxes at December 31, 1997, 1996 and 1995, was as follows:

	DECEMBER 31,		
	1997	1996	1995
	(IN THOUSANDS)		
Domestic	\$16,102	\$8,255	\$18,969
Foreign	929	49	2,116



-----	-----	-----
\$17,031	\$8,304	\$21,085
-----	-----	-----
-----	-----	-----

## (11) RETIREMENT PLAN

The Company has a 401(k) Profit Sharing Plan which covers all full-time employees who have completed six months of full-time continuous service and are age eighteen or older. Participants may defer up to 20% of their gross pay up to a maximum limit determined by law (\$9,500 during 1997). Participants are immediately vested in their contributions.

The Company may make discretionary contributions based on corporate financial results for the fiscal year. Effective January 1, 1998, the Company increased its matching contribution for participants in the 401(k) Plan up to a 50% matching on contributions by employees up to 6% of the employee's compensation. The Company's total contributions to the plan were approximately \$580,000, \$45,000 and \$537,000 for the years ended December 31, 1997, 1996 and 1995, respectively. Vesting in the profit sharing contribution account (company contribution) is based on years of service, with a participant fully vested after five years of credited service.

## (12) COMMITMENTS AND CONTINGENCIES

### CAPITAL LEASES

The Company finances a portion of its property and equipment (Note 8) under capital lease obligations at interest rates ranging from 7.63% to 8.66%. The future minimum lease payments under capitalized lease obligations as of December 31, 1997, are as follows:

	( IN THOUSANDS )
1998	\$ 154
1999	23
	-----
Total minimum lease payments	177
Less -- amount representing interest	(8)
Less -- current portion	(147)
	-----
	\$ 22
	-----
	-----

### OPERATING LEASES

The Company has various operating leases for automobiles, equipment, and office and production space (Note 14). Lease expense under operating leases was approximately \$2,251,000, \$1,788,000 and \$1,184,000 for the years ended December 31, 1997, 1996 and 1995, respectively.

The future minimum rental payments required under noncancelable operating leases as of December 31, 1997, are as follows:

	( IN THOUSANDS )
1998	\$ 2,597
1999	2,488
2000	2,201
2001	1,929
2002	1,553
Thereafter	9,199
	-----
	\$19,967
	-----
	-----

### GUARANTEE

In October 1997, the Company extended a guarantee for a \$2,500,000 bank term loan for an additional year, entered into by an entity that serves as a supplier to the Company. An officer of the Company serves as a director of such entity. The Company has received warrants to purchase shares of the supplier for providing this guarantee.

### (13) FOREIGN OPERATIONS

The Company operates in a single industry segment with operations in the U.S., Japan and Europe. The following is a summary of the Company's foreign operations:

	YEARS ENDED DECEMBER 31,		
	1997	1996	1995
	( IN THOUSANDS )		
Sales:			
Originating in Japan to unaffiliated customers	\$ 11,431	\$ 6,467	\$ 11,997
Originating in Europe to unaffiliated customers	7,487	8,023	6,237
Originating in U.S. and sold to unaffiliated foreign customers	17,095	9,506	9,018
Originating in U.S. and sold to domestic customers	105,910	74,856	67,456
Transfers between geographic areas	14,523	10,496	11,524
Intercompany eliminations	(14,523)	(10,496)	(11,524)
	\$141,923	\$ 98,852	\$ 94,708
Income (loss) from operations:			
Japan	\$ (73)	\$ (920)	\$ 1,094
Europe	1,488	1,056	953
U.S.	15,893	8,383	19,448
South Korea	--	--	--
Intercompany eliminations	(303)	(308)	(17)
	\$ 17,005	\$ 8,211	\$ 21,478
Identifiable assets:			
Japan	\$ 10,709	\$ 6,445	\$ 6,342
Europe	4,676	3,788	2,502
U.S.	126,111	54,736	54,415
South Korea	250	--	--
Intercompany eliminations	(29,503)	(8,938)	(7,940)
	\$112,243	\$ 56,031	\$ 55,319

Intercompany sales among the Company's geographic areas are recorded on the basis of intercompany prices established by the Company.

### (14) RELATED PARTY TRANSACTIONS

The Company leases office and production spaces from a limited liability partnership consisting of certain officers of the Company and other individuals. The leases relating to these spaces expire in 2009 and 2011 with monthly payments of approximately \$39,000 and \$46,000, respectively.

The Company also leases other office and production space from another limited liability partnership consisting of certain officers of the Company and other individuals. The lease relating to this space expires in 2002 with a monthly payment of approximately \$23,000.

Approximately \$1,320,000, \$1,364,000, and \$800,000 was charged to rent expense attributable to these leases for the years ended December 31, 1997, 1996 and 1995, respectively.

The Company leases, for business purposes, a condominium owned by a partnership of certain stockholders. The Company paid the partnership \$36,000 for each of the years ended December 31, 1997, 1996 and 1995, relating to this lease.

Included in AE-Japan's accounts receivable at December 31, 1997, 1996 and 1995, is approximately \$835,000, \$394,000 and \$953,000, respectively, due from an entity that is controlled by the president of AE-Japan. This entity also accounted for approximately 2%, 3%, and 3% of consolidated sales during 1997, 1996 and 1995, respectively.

During 1997 and 1995, certain stockholders of the Company exercised options to purchase shares of the Company's common stock for an aggregate exercise price of \$470,000 and \$1,083,000, respectively. In exchange for the stock the Company received notes receivable in the amount of the exercise price. These notes receivable and accrued interest were paid in full during 1997.

## (15) MAJOR CUSTOMERS

The Company's sales to major customers (purchases in excess of 10% of total sales) are to entities which are primarily manufacturers of semiconductor equipment and, for the years ended December 31, 1997, 1996 and 1995 are as follows:

	DECEMBER 31,		
	1997	1996	1995
Customer A	34%	27%	24%
Customer B	10%	20%	17%
	44%	47%	41%

## (16) FORWARD CONTRACT

AE-Japan enters into foreign currency forward contracts to buy U.S. dollars to hedge its payable position arising from trade purchases and intercompany transactions with its parent. Foreign currency forward contracts reduce the Company's exposure to the risk that the eventual net cash outflows resulting from the purchase of products denominated in yen will be adversely affected by changes in exchange rates. Foreign currency gains and losses under the above arrangements are not deferred. Foreign currency forward contracts are entered into with a major commercial Japanese bank that has a high credit rating and the Company does not expect the counterparty to fail to meet its obligations under outstanding contracts. The Company generally enters into foreign currency forward contracts with maturities ranging from 7 to 10 months, with contracts outstanding at December 31, 1997, maturing through September 1998. At December 31, 1997, the Company held foreign forward exchange contracts with notional amounts of \$8,000,000 and fair value amounts of \$7,280,000 or an unrealized gain position of \$720,000.

## (17) STOCK PLANS

**EMPLOYEE STOCK OPTION PLAN** -- During 1993, the Company adopted an Employee Stock Option Plan (the "Employee Option Plan") which was amended and restated in January and September 1995. The Employee Option Plan allows issuance of incentive stock options, non-qualified options, and stock purchase rights. The exercise price of incentive stock options shall not be less than 100% of the stock's fair market value on the date of grant. The exercise price of non-qualified stock options shall not be less than 50% of the stock's fair market value on the date of grant. Options issued in 1997, 1996 and 1995 were issued at 100% of fair market value, as determined by the Company, with typical vesting of one-third at the end of one year, and quarterly thereafter until fully vested after three years. Under the Employee Option Plan, the Company has the discretion to accelerate the vesting period. The options are exercisable for ten years from the date of grant. The Company has reserved 3,500,000 shares of common stock for the issuance of stock under the Employee Option Plan which terminates in June 2003.

In connection with the grant of certain stock options on June 30, 1995, the Company recorded \$142,000 of deferred compensation for the difference between the deemed fair value for accounting purposes and the option price as determined by the Company at the date of grant. This amount is presented as a reduction of stockholders' equity and will be amortized over the 3-year vesting period of the related stock options.

**EMPLOYEE STOCK PURCHASE PLAN** -- In September 1995, stockholders approved an Employee Stock Purchase Plan (the "Stock Purchase Plan") covering an aggregate of 200,000 shares of common stock. Employees are eligible to participate in the Stock Purchase Plan if employed by the Company for at least 20 hours per week during at least five months per calendar year. Participating employees may have up to 15% (subject to a 5% limitation set by the Company's board of directors for fiscal 1996) of their earnings or a maximum of \$1,250 per six month period withheld pursuant to the Stock Purchase Plan. Common stock purchased under the Stock Purchase Plan will be equal to 85% of the lower of the fair market value on the commencement date of each offering period or the relevant purchase date. During 1997 and 1996,

employees purchased an aggregate of 19,878 and 11,572 shares under the Stock Purchase Plan and the Company recognized approximately \$27,000 and \$11,000 in compensation expense, respectively.

**OUTSIDE DIRECTOR STOCK OPTION PLAN** -- In September 1995, the Company adopted the 1995 Non-Employee Directors Stock Option Plan (the "Directors Plan") covering 50,000 shares of common stock. The Directors Plan provides for automatic grants of non-qualified stock options to directors of the Company who are not employees of the Company ("Outside Directors"). Pursuant to the Directors Plan, upon becoming a director of the Company, each Outside Director will be granted an option to purchase 7,500 shares of common stock. Such options will be immediately exercisable as to 2,500 shares of common stock, and will vest as to 2,500 shares of common stock on each of the second and third anniversaries of the grant date. On each anniversary of the date on which a person became an Outside Director, an option for an additional 2,500 shares is granted. Such additional options vest on the third anniversary of the date of grant. Options will expire ten years after the grant date, and the exercise price of the options will be equal to the fair market value of the common stock on the grant date. The Directors Plan terminates September 2005.

The following summarizes the activity relating to options and warrants for the years ended December 31, 1997, 1996 and 1995:

	1997		1996		1995	
	(IN THOUSANDS, EXCEPT PER SHARE AMOUNTS)					
	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Exercise Price
Stock options:						
INCENTIVE STOCK OPTIONS --						
Options outstanding at beginning of period	841	\$ 3.02	729	\$ 2.62	1,904	\$ 0.95
Granted	686	11.42	751	5.10	212	6.40
Exercised	(215)	3.32	(199)	8.51	(1,371)	3.53
Terminated	(33)	4.24	(440)	6.92	(16)	1.69
Options outstanding at end of period	1,279	6.77	841	3.02	729	2.62
Options exercisable at end of period	383	3.45	326	1.51	391	0.88
Weighted-average fair value of options granted during the period	\$ 7.86		\$3.14		\$ 1.84	
Price range of outstanding options	\$0.83 - \$31.63		\$0.83 - \$11.05		\$0.83 - \$11.05	
Price range of options terminated	\$3.40 - \$ 9.00		\$0.83 - \$11.05		\$0.83 - \$ 3.11	
OUTSIDE DIRECTORS STOCK OPTIONS--						
Options outstanding at beginning of period	20	\$ 9.82	15	\$11.05	--	\$ --
Granted	17	16.64	5	6.13	15	11.05
Exercised	(2)	7.13	--	--	--	--
Terminated	(10)	9.82	--	--	--	--
Options outstanding at end of period	25	14.86	20	9.82	15	11.05
Options exercisable at end of period	8	14.62	5	11.05	5	11.05
Weighted-average fair value of options granted during the period	\$11.43		\$4.68		\$ 3.19	
Price range of outstanding options	\$8.63 - \$31.63		\$6.13 - \$11.05		\$11.05	
Price range of options terminated	\$6.13 - \$11.05		\$ --		\$ --	
WARRANTS--						
Warrants outstanding at beginning of period	--		--		7	\$ 3.48
Granted	--		--		--	--
Exercised	--		--		(6)	2.27
Terminated	--		--		(1)	3.99

Warrants outstanding at end of period	--	--	--	--
Price range of stock issuable under warrants	\$ -- ----- -----	\$ -- ----- -----	\$ -- ----- -----	
Price range of warrants terminated	\$ -- ----- -----	\$ -- ----- -----	\$1.41 - \$2.53 ----- -----	

Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" ("SFAS No. 123"), defines a fair value based method of accounting for employee stock options or similar

equity instruments. However, SFAS No. 123 allows the continued measurement of compensation cost for such plans using the intrinsic value method prescribed by APB Opinion No. 25, "Accounting for Stock Issued to Employees" ("APB No. 25"), provided that pro forma disclosures are made of net income or loss and net income or loss per share, assuming the fair value method of SFAS No. 123 had been applied. The Company has elected to account for stock-based compensation plans under APB No. 25, under which no compensation expense is recognized when stock is issued at market value.

For SFAS No. 123 purposes, the fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	1997	1996	1995
	-----	-----	-----
Risk-free interest rates	6.17%	6.57%	6.16%
Expected dividend yield rates	0.00%	0.00%	0.00%
Expected lives	4 years	4 years	4 years
Expected volatility	92.16%	110.16%	22.57%

The total fair value of options granted was computed to be approximately \$5,594,000, \$1,317,000 and \$420,000 for the years ended December 31, 1997, 1996 and 1995, respectively. These amounts are amortized ratably over the vesting period of the options. Cumulative compensation cost recognized in pro forma net income or loss with respect to options that are forfeited prior to vesting is adjusted as a reduction of pro forma compensation expense in the period of forfeiture. Pro forma stock-based compensation, net of the effect of forfeitures and tax, was approximately \$415,000, \$47,000 and \$19,000 for 1997, 1996 and 1995, respectively.

Had compensation cost for these plans been determined consistent with SFAS No. 123, the Company's net income would have been reduced to the following pro forma amounts:

	1997	1996	1995
	-----	-----	-----
	(IN THOUSANDS, EXCEPT PER SHARE DATA)		
Net Income:			
As reported	\$10,362	\$5,144	\$13,281
Pro forma	9,947	5,097	13,262
Diluted Earnings Per Share:			
As reported	\$ 0.47	\$ 0.24	\$ 0.69
Pro forma	0.45	0.24	0.69

Because the SFAS No. 123 method of accounting has not been applied to options granted prior to January 1, 1995, the resulting pro forma compensation cost may not be representative of that to be expected in future years.

The following table summarizes information about the stock options outstanding at December 31, 1997:

Year Granted	Range of Exercise Prices	Number Outstanding	Options Outstanding		Options Exercisable	
			Weighted- Average Remaining Contractual Life	Weighted- Average Exercise Price	Number Exercisable	Weighted- Average Exercise Price
1993-1994	\$0.83 to \$2.53	169,000	5.9 years	\$ 0.92	169,000	\$ 0.92
1995	\$2.57 to \$11.05	71,000	7.5 years	\$ 4.69	53,000	\$ 4.48
1996	\$3.88 to \$8.75	389,000	8.8 years	\$ 4.10	136,000	\$ 4.13
1997	\$7.12 to \$31.63	675,000	9.5 years	\$11.57	33,000	\$12.04
		-----	-----	-----	-----	-----
		1,304,000	8.7 years	\$ 7.58	391,000	\$ 3.45
		-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----

**ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES**

**SCHEDULE II -- VALUATION AND QUALIFYING ACCOUNTS**

	BALANCE AT BEGINNING OF PERIOD	ADDITIONS CHARGED TO EXPENSE	DEDUCTIONS	BALANCE AT END OF PERIOD
	-----	-----	-----	-----
	( IN THOUSANDS )			
Year ended December 31, 1995:				
Inventory obsolescence reserve	\$ 724	\$ 185	\$ 120	\$ 789
Allowance for doubtful accounts	134	76	--	210
	-----	-----	-----	-----
	\$ 858	\$ 261	\$ 120	\$ 999
	-----	-----	-----	-----
Year ended December 31, 1996:				
Inventory obsolescence reserve	\$ 789	\$2,702	\$1,966	\$1,525
Allowance for doubtful accounts	210	35	3	242
	-----	-----	-----	-----
	\$ 999	\$2,737	\$1,969	\$1,767
	-----	-----	-----	-----
Year ended December 31, 1997:				
Inventory obsolescence reserve	\$1,525	\$4,310	\$3,117	\$2,718
Allowance for doubtful accounts	242	188	2	428
	-----	-----	-----	-----
	\$1,767	\$4,498	\$3,119	\$3,146
	-----	-----	-----	-----



## **ITEM 9. DISAGREEMENTS ON ACCOUNTING AND FINANCIAL DISCLOSURES**

Not applicable.

## **PART III**

## **ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT**

In accordance with General Instruction G(3), the information required by this item (with the exception of certain information pertaining to executive officers, which is included in Part I hereof) has been omitted and is incorporated by reference to the Registrant's definitive Proxy Statement (the "Proxy Statement") relating to its 1998 Annual Meeting of Stockholders.

## **ITEM 11. EXECUTIVE COMPENSATION**

The Proxy Statement will be filed not later than 120 days after the end of the fiscal year with the Securities and Exchange Commission. The information set forth therein under "Executive Compensation and Other Information" is incorporated herein by reference.

## **ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT**

Information required is set forth under the caption "Security Ownership of Certain Beneficial Owners and Management" in the Proxy Statement and is incorporated herein by reference.

## **ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS**

Information required is set forth under the caption "Certain Transactions" in the Proxy Statement and is incorporated herein by reference.

## PART IV

### ITEM 14. EXHIBITS, FINANCIAL STATEMENT SCHEDULES AND REPORTS ON FORM 8-K

(a) (i)	Financial Statements:	
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(ii)	Financial Statement Schedules for each of the three years in the period ended December 31, 1997	
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(iii)	Exhibits:	
2.1	Share Purchase Agreement, dated August 11, 1997, among Roger C. Hertel, Tower Electronics, Inc. and the Company(1)	
3.1	The Company's Restated Certificate of Incorporation(2)	
3.2	The Company's By-laws(2)	
4.1	Form of Specimen Certificate for the Company's Common Stock(2)	
4.2	The Company hereby agrees to furnish to the SEC, upon request, a copy of the instruments which define the rights of holders of long-term debt of the Company. None of such instruments not included as exhibits herein represents long-term debt in excess of 10% of the consolidated total assets of the Company.	
10.1	Master Purchase Order and Sales Agreement, dated January 1, 1990, between Applied Materials Inc. and the Company(2)+	
10.2	Purchase Order and Sales Agreement, dated July 1, 1993, amended September 16, 1995 between Lam Research Corporation and the Company(2)+	
10.3	Purchase Agreement, dated November 1, 1995, between Eaton Corporation and the Company(3)+	
10.4	Amended and Restated Loan and Security Agreement, dated as of November 17, 1995, between Silicon Valley Bank and the Company(2)	
10.5	Loan and Security Agreement, dated August 15, 1997, among Silicon Valley Bank, Bank of Hawaii and the Company(4)	
10.6	Loan Agreement dated December 8, 1997, by and among Silicon Valley Bank, as Servicing Agent and a Bank, and Bank of Hawaii, as a Bank, and the Company, as borrower	
10.7	Equipment Line of Credit, dated July 11, 1994, between Silicon Valley Bank and the Company(2)	
10.8	Master Lease Purchase Agreement, dated January 20, 1989, as amended, between MetLife Capital Corporation and the Company(2)	

- 10.9 Lease Purchase Agreement, dated June 11, 1992, between MetLife Capital Corporation and the Company(2)
- 10.10 Master Equipment Lease, dated July 15, 1993, as amended, between KeyCorp Leasing Ltd. and Company(2)
- 10.11 Lease, dated June 12, 1984, amended June 11, 1992, between Prospect Park East Partnership and the Company for property in Fort Collins, Colorado(2)
- 10.12 Lease, dated March 14, 1994, as amended, between Sharp Point Properties, L.L.C., and the Company for property in Fort Collins, Colorado(2)
- 10.13 Lease, dated May 19, 1995, between Sharp Point Properties, L.L.C. and the Company for a building in Fort Collins, Colorado(2)
- 10.14 Form of Indemnification Agreement(2)
- 10.15 1995 Stock Option Plan, as amended and restated\*
- 10.16 Employee Stock Purchase Plan(2)\*
- 10.17 1995 Non-Employee Directors' Stock Option Plan(2)\*
- 21.1 Subsidiaries of the Company(4)
- 23.1 Consent of Arthur Andersen LLP, Independent Accountants
- 24.1 Power of Attorney (included on the signature pages to this Annual Report on Form 10-K)
- 27.1 Financial Data Schedule

(b) No reports on Form 8-K were required to be filed by the Company during the fourth quarter of the year ended December 31, 1997.

---

(1) Incorporated by reference to the Company's Current Report on Form 8-K (File No. 0-26966), dated August 15, 1997, filed August 19, 1997, as amended.

(2) Incorporated by reference to the Company's Registration Statement on Form S-1 (File No. 33-97188), filed September 20, 1995, as amended.

(3) Incorporated by reference to the Company's Annual Report on Form 10-K for the year ended December 31, 1996 (File No. 0-26966), filed March 21, 1997, as amended.

(4) Incorporated by reference to the Company's Registration Statement on Form S-3 (File No. 333-34039), filed August 21, 1997, as amended.

\* Compensation Plan

+ Confidential treatment has been granted for portions of this agreement.

## 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.

### ADVANCED ENERGY INDUSTRIES, INC.

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(Registrant)

*/s/ Douglas S. Schatz*  
-----  
*Douglas S. Schatz*  
*President*

Each person whose signature appears below hereby appoints Douglas S. Schatz and Richard P. Beck, and each of them severally, acting alone and without the other, his true and lawful attorney-in-fact with authority to execute in the name of each such person, and to file with the Securities and Exchange Commission, together with any exhibits thereto and other documents therewith, any and all amendments to this Annual Report on Form 10-K necessary or advisable to enable the registrant to comply with the Securities Exchange Act of 1934, as amended, and any rules, regulations and requirements of the Securities and Exchange Commission in respect thereof, which amendments may make such other changes in the Annual Report on Form 10-K as the aforesaid attorney-in-fact deems appropriate.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<i>Signatures</i> -----	<i>Title</i> -----	<i>Date</i> ----
<i>/s/ Douglas S. Schatz</i> ----- <i>Douglas S. Schatz</i>	<i>Chairman of the Board, President and Chief Executive Officer (Principal Executive Officer)</i>	<i>March 11, 1998</i>
<i>/s/ Richard P. Beck</i> ----- <i>Richard P. Beck</i>	<i>Vice President, Chief Financial Officer, Assistant Secretary and Director (Principal Financial Officer and Principal Accounting Officer)</i>	<i>March 11, 1998</i>
<i>/s/ G. Brent Backman</i> ----- <i>G. Brent Backman</i>	<i>Vice President, Special Projects Assistant Secretary and Director</i>	<i>March 11, 1998</i>
<i>/s/ Hollis L. Caswell</i> ----- <i>Hollis L. Caswell</i>	<i>Chief Operating Officer and Director</i>	<i>March 11, 1998</i>
<i>/s/ Elwood Spedden</i> ----- <i>Elwood Spedden</i>	<i>Director</i>	<i>March 11, 1998</i>
<i>/s/ Arthur A. Noeth</i> ----- <i>Arthur A. Noeth</i>	<i>Director</i>	<i>March 11, 1998</i>

## EXHIBIT INDEX

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\* Compensation Plan

+ Confidential treatment has been granted for portions of this agreement.

**ADVANCED ENERGY INDUSTRIES, INC.**

**LOAN AGREEMENT**

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This LOAN AGREEMENT is entered into as of December 8, 1997 by and among SILICON VALLEY BANK ("SVB") as Servicing Agent and a Bank and BANK OF HAWAII ("BofH;" SVB and BofH are referred to individually herein as a "Bank," and

collectively as the "Banks") and ADVANCED ENERGY INDUSTRIES, INC., a Delaware corporation ("AEI" or "Borrower").

## **RECITALS**

Borrower wishes to obtain credit from time to time from Banks, and Banks desire to advance credit to Borrower. This Agreement sets forth the terms on which Banks will lend to Borrower, and Borrower will repay the advances to Banks.

## **AGREEMENT**

The parties agree as follows:

### **1. DEFINITIONS AND CONSTRUCTION**

1.1 Definitions. As used in this Agreement, the following terms shall have the following definitions:

"Advance" or "Advances" means a cash advance under the Revolving Facility.

"Affiliate" means, with respect to any Person, any Person that owns or controls directly or indirectly such Person, any Person that controls or is controlled by or is under common control with such Person, and each of such Person's senior executive officers, directors, and partners.

"Bank Expenses" means all: reasonable costs or expenses (including reasonable attorneys' fees and expenses) incurred in connection with the preparation, negotiation, administration, and enforcement of the Loan Documents; and each Bank's reasonable attorneys' fees and expenses incurred in amending, enforcing or defending the Loan Documents, whether or not suit is brought.

"Borrower's Books" means all of Borrower's books and records relating to its property.

"Business Day" means a day of the year (a) that is not a Saturday, Sunday or other day on which banks in the States of California or Hawaii or the City of London are authorized or required to close and (b) on which dealings are carried on in the interbank market in which Bank customarily participates and, (c) with respect to Advances and payments in an Optional Currency or any requests or notices related thereto, that is not a day on which the BofH branch or other banks in the country of such Optional Currency are authorized or required to close.

"Closing Date" means the date of this Agreement.

"Code" means the California Uniform Commercial Code.

"Committed Line" means Thirty Million Dollars (\$30,000,000).

"Contingent Obligation" means, as applied to any Person, any direct or indirect liability, contingent or otherwise, of that Person with respect to (i) any indebtedness, lease, dividend, letter of credit or other obligation of another, including, without limitation, any such obligation directly or indirectly guaranteed, endorsed, co-made or discounted or sold with recourse by that Person, or in respect of which that Person is otherwise directly or indirectly liable; (ii) any obligations

with respect to undrawn letters of credit issued for the account of that Person; and (iii) all obligations arising under any interest rate, currency or commodity swap agreement, interest rate cap agreement, interest rate collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; provided, however, that the term "Contingent Obligation" shall not include endorsements for collection or deposit in the ordinary course of business. The amount of any Contingent Obligation shall be deemed to be an amount equal to the stated or determined amount of the primary obligation in respect of which such Contingent Obligation is made or, if not stated or determinable, the maximum reasonably anticipated liability in respect thereof as determined by such Person in good faith; provided, however, that such amount shall not in any event exceed the maximum amount of the obligations under the guarantee or other support arrangement.

"Credit Extension" means an Advance, a Letter of Credit or a Foreign Exchange Contract.

"Current Liabilities" means, as of any applicable date, all amounts that should, in accordance with GAAP, be included as current liabilities on the consolidated balance sheet of Borrower and its Subsidiaries, excluding all outstanding Advances made under Section 2.1 hereof, but including all other Indebtedness that is payable upon demand or within one year from the date of determination thereof unless such Indebtedness is renewable or extendable at the option of Borrower or any Subsidiary to a date more than one year from the date of determination.

"Daily Balance" means the amount of the Obligations owed at the end of a given day.

"EBITDA" means, for any period, earnings before interest expense, taxes, depreciation and amortization.

"Equipment" means machinery, equipment, tenant improvements, furniture, fixtures, vehicles, tools, parts and attachments.

"Equivalent Amount" means the equivalent in United States Dollars of an Optional Currency, calculated at the spot rate for the purchase of such Optional Currency by BofH.

"ERISA" means the Employment Retirement Income Security Act of 1974, as amended, and the regulations thereunder.

"GAAP" means generally accepted accounting principles as in effect from time to time.

"Indebtedness" means (a) all indebtedness for borrowed money or the deferred purchase price of property or services, including without limitation reimbursement and other obligations with respect to surety bonds and letters of credit, (b) all obligations evidenced by notes, bonds, debentures or similar instruments, (c) all capital lease obligations and (d) all Contingent Obligations.

"Insolvency Proceeding" means any proceeding commenced by or against any person or entity under any provision of the United States Bankruptcy Code, as amended, or under any other bankruptcy or insolvency law, including assignments for the benefit of creditors, extension generally with all or substantially all creditors, or proceedings seeking general reorganization, arrangement, or other relief.

"Interest Period" means for each LIBOR Rate Advance, a period of approximately one, three or six months as Borrower may elect, provided that the last day of an

Interest Period for a LIBOR Rate Advance shall be determined in accordance with the practices, of the LIBOR interbank market as from time to time in effect, provided, further, in all cases such period shall expire not later than the applicable Revolving Maturity Date.

"Inventory" means all present and future inventory in which Borrower has any interest, including merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products intended for sale or lease or to be furnished under a contract of service, of every kind and description now or at any time hereafter owned by or in the custody or possession, actual or constructive, of Borrower, including such inventory as is temporarily out of its custody or possession or in transit and including any returns upon any accounts or other proceeds, including insurance proceeds, resulting from the sale or disposition of any of the foregoing and any documents of title representing any of the above, and Borrower's Books relating to any of the foregoing.

"Investment" means any beneficial ownership of (including stock, partnership interest or other securities) any Person, or any loan, advance or capital contribution to any Person.

"IRC" means the Internal Revenue Code of 1986, as amended, and the regulations thereunder.

"Issuing Bank" means the Bank issuing a Letter of Credit pursuant to Section 2.1.1. SVB shall be the issuing bank, except that BofH shall be the Issuing Bank if (i) SVB is unable to issue a Letter of Credit or (ii) a Letter of Credit issued by SVB would require confirmation by another bank under circumstances in which a Letter of Credit issued by BofH would not require confirmation.

"Letter of Credit" means a Letter of Credit issued pursuant to Section 2.1.1.

"LIBOR Base Rate" means, for any Interest Period for a LIBOR Rate Advance, the rate of interest per annum determined by SVB to be the per annum rate of interest at which deposits in United States Dollars are offered to SVB in the London interbank market in which SVB customarily participates at 11:00 A.M. (local time in such interbank market) three (3) Business Days before the first day of such Interest Period for a period approximately equal to such Interest Period and in an amount approximately equal to the amount of such Advance.

"LIBOR Rate" shall mean, for any Interest Period for a LIBOR Rate Advance, a rate per annum (rounded upwards, if necessary, to the nearest 1/16 of 1%) equal to (i) the LIBOR Base Rate for such Interest Period divided by (ii) 1 minus the Reserve Requirement for such Interest Period.

"LIBOR Rate Advances" means any Advances made or a portion thereof on which interest is payable based on the LIBOR Rate in accordance with the terms hereof.

"Lien" means any mortgage, lien, deed of trust, security interest or other encumbrance.

"Loan Documents" means, collectively, this Agreement, any note or notes executed by Borrower, and any other agreement entered into between Borrower and Banks in connection with this Agreement, all as amended or extended from time to time.

"Material Adverse Effect" means a material adverse effect on (i) the business operations or financial condition of Borrower and its Subsidiaries taken as a whole or (ii) the ability of Borrower, taken as a whole, to repay the Obligations.

"Maturity Date" means December 7, 2003.

"Obligations" means all debt, principal, interest, Bank Expenses and other amounts owed to the Banks by Borrower pursuant to this Agreement, whether absolute or contingent, due or to become due (including any interest accruing after the commencement of an Insolvency Proceeding and any interest that would have accrued but for the commencement of an Insolvency Proceeding), now existing or hereafter arising.

"Operating Loss" means an operating loss under GAAP, specifically excluding non-cash losses arising from business-combination activities.

"Optional Currency" means the lawful currency of Japan.

"Optional Currency Rate Advance" means an Advance in an Optional Currency, made pursuant to and in accordance with Section 2.1(c).

"Optional Currency Rate" means, with respect to Advances in Japanese Yen, the Japanese Short Term Prime Rate, as quoted by the office of BofH located in Japan.

"Optional Currency Rate Instruments" means the promissory notes and other agreements and instruments requested by Banks as a condition to making Optional Currency Rate Advances.

"Percentage Share" means, as to each Bank, the percentage calculated in accordance with Section 12.1 hereof.

"Periodic Payments" means all installments or similar recurring payments that Borrower may now or hereafter become obligated to pay to either Bank pursuant to the terms and provisions of any instrument, or agreement now or hereafter in existence between Borrower and such Bank.

"Permitted Indebtedness" means:

(a) Indebtedness of Borrower in favor of Banks arising under this Agreement or any other Loan Document;

(b) Subordinated Debt;

(c) Capital leases or indebtedness incurred solely to purchase equipment, which is secured in accordance with clause (c) of "Permitted Liens" below and is not in excess of the lesser of the purchase price of such equipment or the fair market value of such equipment on the date of acquisition, provided the outstanding principal balance of such Indebtedness incurred in any fiscal year shall not exceed Two Million Five Hundred Thousand Dollars (\$2,500,000);

(d) Indebtedness to trade creditors incurred in the ordinary course of business;

(e) Indebtedness set forth on the Schedule;

(f) Indebtedness of Borrower to any Subsidiary and Contingent Obligations of any Subsidiary with respect to obligations of Borrower (provided that the primary obligations are not prohibited hereby), and Indebtedness of any Subsidiary to any other Subsidiary and Contingent Obligations of any Subsidiary with respect to obligations of any other Subsidiary (provided that the primary obligations are not prohibited hereby), and Indebtedness consisting of Investments that are "Permitted Investments" under clause (l) of the definition of Permitted Investments;

(g) Indebtedness secured by Permitted Liens;

(h) Extensions, refinancings, modifications, amendments and restatements of any of items of Permitted Indebtedness (a), (b), (c), (e) and (g) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose more burdensome terms upon Borrower or its Subsidiaries, as the case may be.

"Permitted Investment" means:

(a) Investments existing on the Closing Date disclosed on the Schedule;

(b) Investments made or obtained through either Bank that consist of (i) marketable direct obligations issued or unconditionally guaranteed by the United States of America or any agency or any State thereof maturing within one (1) year from the date of acquisition thereof, (ii) commercial paper maturing no more than one (1) year from the date of creation thereof and currently having the highest rating obtainable from either Standard & Poor's Corporation or Moody's Investors Service, Inc., (iii) certificates of deposit maturing no more than one (1) year from the date of investment therein issued by either Bank or (iv) that are permitted by Borrower's investment policy, as amended from time to time by its board of directors, provided that such investment policy (and any such amendment thereto) has been approved by the Banks, which approval shall not be unreasonably withheld; and

(c) Investments made in connection with the merger or consolidation with another Person or the acquisition of all or substantially all of the capital stock or property of another Person where the sole consideration paid by Borrower or any Subsidiary consists of Borrower's equity securities and cash and the aggregate value of such equity securities and cash paid after the date hereof does not exceed Fifteen Percent (15%) of Borrower's Tangible Net Worth immediately prior to the date such Investment is made.

"Permitted Liens" means the following:

(a) Any liens existing as of the date hereof and disclosed on the Schedule;

(b) Liens for taxes, fees, assessments or other governmental charges or levies, either not delinquent or being contested in good faith by appropriate proceedings, provided the same have no priority over any of Banks' security interests;

(c) Liens (i) upon or in any equipment acquired by Borrower or any of its Subsidiaries after the date hereof to secure the purchase price of such equipment or indebtedness incurred solely for the purpose of financing the acquisition of such equipment, or (ii) existing on such equipment at the time of its acquisition, provided that the Lien is confined solely to the property so acquired and improvements thereon, and the proceeds of such equipment;

(d) Easements, reservations, rights-of-way, restrictions, minor defects or irregularities in title and other similar charges or encumbrances affecting real property not constituting a Material Adverse Effect;

(e) Liens incurred in connection with the extension, renewal or refinancing of the indebtedness secured by Liens of the type described in clauses (a), (c), and (d) above, provided that any extension, renewal or replacement Lien shall be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness being extended, renewed or refinanced does not increase.

"Person" means any individual, sole proprietorship, partnership, joint venture, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or governmental agency.

"Prime Rate" means the variable rate of interest, per annum, most recently announced by SVB as its "prime rate," or BofH as its "base rate," as applicable to the Advances made hereunder by each such Bank, whether or not such announced rate is the lowest rate available from such Bank.

"Prime Rate Advances" means any Advances made or a portion thereof on which interest is payable based on the Prime Rate in accordance with the terms hereof.

"Quick Assets" means, at any date as of which the amount thereof shall be determined, the consolidated cash, cash-equivalents, accounts receivable and investments, with maturities not to exceed 90 days, of Borrower determined in accordance with GAAP.

"Regulatory Change" means, with respect to Bank, any change on or after the date of this Agreement in United States federal, state or foreign laws or regulations, including Regulation D, or the adoption or making on or after such date of any written interpretations, directives or requests applying to a class of lenders including Bank of or under any United States federal or state, or any foreign, laws or regulations (whether or not having the force of law) by any court or governmental or monetary authority charged with the interpretation or administration thereof.

"Reserve Requirement" means, for any Interest Period, the average maximum rate at which reserves (including any marginal, supplemental or emergency reserves) are required to be maintained during such Interest Period under Regulation D against "Eurocurrency liabilities" (as such term is used in Regulation D) by member banks of the Federal Reserve System. Without limiting the effect of the foregoing, the Reserve Requirement shall reflect any other reserves required to be maintained by Bank by reason of any Regulatory Change against (i) any category of liabilities which includes deposits by reference to which the LIBOR Rate is to be determined as provided in the definition of "LIBOR Base Rate" or (ii) any category of extensions of credit or other assets which include Advances.

"Responsible Officer" means each of the Chief Executive Officer, the Chief Financial Officer, the Treasurer and the Controller of Borrower.

"Revolving Facility" means the facility under which a Borrower may request Bank to issue cash advances, as specified in Section 2.1 hereof.

"Revolving Maturity Date" means the day before the third anniversary of the Closing Date.

"Schedule" means the schedule of exceptions attached hereto.

"Servicing Agent" means SVB or such entity as may succeed to such position.

"Subordinated Debt" means any debt incurred by a Borrower that is subordinated to the Obligations under this Agreement on terms reasonably acceptable to Banks.

"Subsidiary" means any corporation or partnership in which (i) any general partnership interest or (ii) more than 50% of the stock of which by the terms thereof ordinary voting power to elect the Board of Directors, managers or trustees of the entity shall, at the time as of which any determination is being made, is owned by Borrower, either directly or through an Affiliate.

"Tangible Net Worth" means at any date as of which the amount thereof shall be determined, the consolidated total assets of Borrower minus, without duplication, (i) the sum of any amounts attributable to (a) goodwill, (b) intangible items such as unamortized debt discount and expense, patents, trade and service marks and names, copyrights and research and development expenses except prepaid expenses, and (c) all reserves not already deducted from assets, and (ii) Total Liabilities.

"Term Advance" means an Advance converted into a term loan pursuant to Section 2.3.

"Total Liabilities" means at any date as of which the amount thereof shall be determined, all obligations that should, in accordance with GAAP be classified as liabilities on the consolidated balance sheet of Borrower, including in any event all Indebtedness, but specifically excluding Subordinated Debt.

1.2 Accounting Terms. All accounting terms not specifically defined herein shall be construed in accordance with GAAP and all calculations made hereunder shall be made in accordance with GAAP. When used herein, the terms "financial statements" shall include the notes and schedules thereto.

## 2. LOAN AND TERMS OF PAYMENT

2.1 Advances. Subject to the terms and conditions of this Agreement, each Bank severally will make Advances to Borrower as set forth herein. BofH shall make all of the Advances made in an Optional Currency. Each Bank severally will make its Percentage Share of Advances such that the aggregate amount of each Bank's Advances (including Optional Rate Advances) under this Agreement shall not exceed such Bank's Percentage Share of the lesser of (i) Twenty Million Dollars (\$20,000,000) or (ii) the Committed Line minus the face amount of the outstanding Letters of Credit minus the Foreign Exchange Reserve, provided that the aggregate outstanding Advances in an Optional Currency shall not exceed Five Million Dollars (\$5,000,000). At the request of Borrower, each of the sublimits of Five Million Dollars (\$5,000,000) for Optional Currency Rate Advances and Foreign Exchange Contracts may be reduced from time to time, and the sublimit for Advances concurrently increased by the amount of such reduction, provided that the sum of the sublimits for Advances, Optional Currency Rate Advances, Letters of Credit and Foreign Exchange Contracts shall at no time exceed Thirty Million Dollars (\$30,000,000), and the sublimits for Optional Currency Rate Advances or Foreign Exchange Contracts shall not exceed Five Million Dollars (\$5,000,000) each. Each such adjustment shall be in an amount not less than [Five Hundred Thousand Dollars (\$500,000)], and shall be effected by a written notice delivered to each Bank not later than five (5) Business Days before the effective date of such adjustment. As a condition to any adjustment, the Advances, Optional Currency Rate Advances, Letters of Credit and Foreign Exchange Contracts outstanding on such effective date shall be within the corresponding sublimits, as adjusted. Subject to the terms and conditions of this Agreement, amounts borrowed pursuant to this Section 2.1 may be repaid and reborrowed at any time prior to the Revolving Maturity Date.

(a) Requests for Advances. Whenever Borrower desires an Advance, Borrower will notify Servicing Agent by facsimile transmission or telephone no later than 11:00 a.m. California time on the Business Day that a Prime Rate Advance is to be made, noon California time on the Business Day that is two (2) Business Days in the country of the Optional Currency prior to the Business Day on which an Optional Currency Rate Advance is to be made, and noon California time on the Business Day that is three (3) Business Days prior to the Business Day on which a LIBOR Rate Advance is to be made. Servicing Agent shall promptly deliver such notice to the Banks. Each Bank may make Advances under this Agreement, based upon instructions received by Servicing Agent from a Responsible Officer, or without instructions if in Servicing Agent's discretion such Advances are necessary to meet Obligations under this Agreement which have become due and remain unpaid.



Each Bank shall be entitled to rely on any notice by telephone or otherwise given by a person who Servicing Agent reasonably believes to be a Responsible Officer, and Borrower shall indemnify and hold such Bank harmless for any damages or loss suffered by such Bank as a result of such reliance. Such Bank will wire or credit, as appropriate, the amount of Advances in United States Dollars made under this Section 2.1 to Borrower's deposit account held by Servicing Agent, as specified by Borrower, or, as to an Advance in an Optional Currency, to the Borrower's deposit account of Advanced Energy Industries, K.K., Borrower's wholly-owned Japanese subsidiary, held by the branch office of BofH in Japan.

Each such notice shall specify:

- (i) the date such Advance is to be made, which shall be a Business Day;
- (ii) the amount of such Advance;
- (iii) whether such Advance is to be a Prime Rate Advance, an Optional Currency Rate Advance, or a LIBOR Rate Advance;
- (iv) if the Advance is to be a LIBOR Rate Advance, the Interest Period for such Advance; and
- (v) if the Advance is to be in an Optional Currency, the type of currency.

Each written request for an Advance, and each confirmation of a telephone request for such an Advance, shall be in the form of a Borrowing Certificate in the form of Exhibit B executed by Borrower on behalf of Borrower.

(b) Prime Rate Advances. Each Prime Rate Advance shall be in an amount not less than Twenty Five Thousand Dollars (\$25,000). The outstanding principal balance of each Prime Rate Advance shall bear interest until principal is due (computed daily on the basis of a 360 day year and actual days elapsed), at a rate per annum equal to the Prime Rate minus One and One Quarter of One Percent (1.25%). Borrower shall pay the entire outstanding principal amount of each Prime Rate Advance on the Revolving Maturity Date.

(c) Optional Currency Rate Advances. Each Optional Currency Rate Advance shall be in an Equivalent Amount of not less than Fifty Thousand Dollars (\$50,000). The outstanding principal balance of each Optional Currency Rate Advance shall bear interest until principal is due (computed daily on the basis of a 360 day year and actual days elapsed or, where required by any law or is customary in the country of the Optional Currency, a 365 day year) at a rate per annum equal to the Optional Currency Rate plus 100 basis points for such Optional Currency Rate Advance. The Optional Currency Rate Advances shall be evidenced by this Agreement and by the Optional Currency Rate Instruments. Borrower shall pay the entire outstanding principal amount of each Optional Currency Rate Advance on the Revolving Maturity Date.

(d) LIBOR Rate Advances. Each LIBOR Rate Advance shall be in an amount or an Equivalent Amount of not less than Five Hundred Thousand Dollars (\$500,000). The outstanding principal balance of each LIBOR Rate Advance shall bear interest until principal is due (computed daily on the basis of a 360 day year and actual days elapsed) at a rate per annum equal to the LIBOR Rate plus 150 basis points for such LIBOR Rate Advance. The entire outstanding principal amount of each LIBOR Rate Advance shall be due and payable on the last day of the LIBOR Rate Interest Period for such LIBOR Rate Advance and on the Revolving Maturity Date.

(e) Prepayment of the Advances. Borrower may at any time prepay any Prime Rate Advance, any Optional Currency Rate Advance, or any LIBOR Rate Advance, in full or in part. Each partial prepayment for a LIBOR Rate Advance shall be in an amount not less than Two Hundred Fifty Thousand Dollars (\$250,000). Each prepayment shall be made upon the irrevocable written or telephone notice of Borrower received by Servicing Agent not later than 10:00 a.m. California time on the date of the prepayment of a Prime Rate Advance, not less than two Business Days in the country of the Optional Currency prior to the date of the prepayment of an Optional Currency Rate Advance, and not less than three (3) Business Days prior to the date of the prepayment of a LIBOR Rate Advance. The notice of prepayment shall specify the date of the prepayment, the amount of the prepayment, and the Advance or Advances to be prepaid. Each prepayment of an Optional Currency Rate Advance for which the term and interest rate have been fixed or LIBOR Rate Advance shall be accompanied by the payment of accrued interest on the amount prepaid and any amount required by Section 2.12.

(f) Fees. On each anniversary of the Closing Date, Borrower shall pay SVB a non-usage fee equal to One Fourth of One Percent (0.25%) of the difference between the Committed Line and the average Daily Balance during the prior year.

(g) Term. The Revolving Facility shall terminate on the Revolving Maturity Date, at which time all Advances under this Section 2.1 shall be immediately due and payable.

#### 2.1.1 Letters of Credit.

(a) At Borrower's written request, Issuing Bank shall issue Letters of Credit for Borrower's account. Each Bank severally agrees to participate in Letters of Credit, in accordance with such Bank's Percentage Share.

(b) Issuing Bank shall issue the Letter of Credit upon receipt of Borrower's written request and Issuing Bank's standard form of application, stating (a) the date Borrower wishes to receive the Letter of Credit (which shall be a Business Day); (b) the requested amount of such Letter of Credit; (c) the aggregate amount of all Advances and Letters of Credit then outstanding; (d) if appropriate, the conditions requested by Borrower under which the Letter of Credit may be drawn upon; and (e) any other information Issuing Bank might need to issue the Letter of Credit. Issuing Bank shall promptly notify all of the Banks upon receipt of a request for a Letter of Credit.

(c) The maximum aggregate obligation at any one time for undrawn and drawn but unreimbursed Letters of Credit shall be Five Million Dollars (\$5,000,000). Each Letter of Credit shall be issued pursuant to the terms and conditions of this Agreement and of the Issuing Bank's standard form of application and security agreement for letters of credit. Each Letter of Credit shall (a) expire no later than the Revolving Maturity Date; and (b) be otherwise in form and substance satisfactory to Issuing Bank. Upon issuing a Letter of Credit, the Issuing Bank shall immediately notify the other Bank of such issuance and shall, on a continuing basis, keep the other Bank informed of the drawn and undrawn but unreimbursed amount of each Letter of Credit for so long as such Letter of Credit is outstanding. Borrower shall pay Issuing Bank its standard fees on account of each Letter of Credit issued hereunder, which shall be shared by Banks in accordance with their agreement. On the day on which Issuing Bank honors any drawing made by the beneficiary of a Letter of Credit, Borrower shall pay to Issuing Bank the full amount of the drawing so honored, or at Borrower's option, shall treat the amount of such drawing as an Advance under Section 2.1. The obligation to reimburse Issuing Bank for the amount of such drawing is absolute, unconditional, and irrevocable.

(d) Borrower may request that Issuing Bank issue a Letter of Credit payable in a currency other than United States Dollars. If a demand for payment is made under any such Letter of Credit, Issuing Bank shall treat such demand as an advance to Borrower of the Equivalent Amount thereof. Upon the issuance of any Letter of Credit payable in a currency other than United States Dollars, Banks shall create a reserve under the Committed Line for letters of credit against fluctuations in currency exchange rates, in an amount equal to ten percent (10%) of the face amount of such Letter of Credit. The amount of such reserve may be amended by Banks from time to time to account for fluctuations in the exchange rate. The availability of funds under the Committed Line shall be reduced by the amount of such reserve for so long as such Letter of Credit remains outstanding.

## 2.2 Foreign Exchange Contract; Foreign Exchange Settlements.

(a) Subject to the terms of this Agreement, Borrower may utilize up to Five Million Dollars (\$5,000,000) for Exchange Contracts, pursuant to which the Japanese branch office of BofH shall sell to or purchase from Borrower foreign currency on a spot or future basis. All Exchange Contracts must provide for delivery of settlement on or before the Maturity Date. The limit available at any time shall be reduced by the following amounts (the "Foreign Exchange Reserve") on each day (the "Determination Date"): (i) on all outstanding Exchange Contracts on which delivery is to be effected or settlement allowed more than two business days from the Determination Date, 10% of the gross amount of the Exchange Contracts. In lieu of the Foreign Exchange Reserve for 100% of the gross amount of any Exchange Contract, Borrower may request that Banks treat such amount as an Advance under the Committed Line.

(b) Banks may, in their discretion, terminate the Exchange Contracts at any time (a) that an Event of Default occurs or (b) that there is no sufficient availability under the Committed Line and Borrower does not have available funds in its bank account to satisfy the Foreign Exchange Reserve. If Banks terminate the Exchange Contracts, and without limitation of any applicable indemnities, Borrower shall reimburse Banks for any and all fees, costs and expenses relating thereto or arising in connection therewith.

(c) Borrower shall not permit the total gross amount of all Exchange Contracts on which delivery is to be effected and settlement allowed in any two business day period to be more than Five Million Dollars (\$5,000,000) nor shall Borrower permit the total gross amount of all Exchange Contracts to which Borrower is a party, outstanding at any one time, to exceed Five Million Dollars (\$5,000,000).

(d) As a condition to requesting any Exchange Contracts, Borrower shall request each Exchange Contract by written notice to Servicing Agent, and shall execute all standard form applications and agreements of Banks in connection with the Exchange Contracts and, without limiting any of the terms of such applications and agreements, Borrower will pay all standard fees and charges of Banks in connection with the Exchange Contracts.

## 2.3 Term Conversion Option.

(a) Subject to and upon the terms and conditions of this Agreement, at any time from the date hereof through the Revolving Maturity Date, Borrower may elect to convert all or any portion of the outstanding Advances in an aggregate amount not to exceed Ten Million Dollars (\$10,000,000) into Term Advances.

(b) Interest shall continue to accrue on each Term Advance at the rate applicable prior to the effective date of conversion, and shall continue to be payable on the seventh day of each calendar month thereafter. Each Term Advance will be payable in twelve (12) equal

quarterly installments of principal, beginning on the \_\_\_\_ day of the fiscal quarter immediately following the date of conversion, and continuing on the \_\_\_\_ day of each subsequent fiscal quarter.

(c) When Borrower desires to convert an Advance into a Term Advance, Borrower shall notify Servicing Agent (which notice shall be irrevocable) by facsimile transmission to be received no later than 3:00 p.m. Pacific time three (3) Business Days before the day on which the conversion is to be effected. Such notice shall be in a form reasonably acceptable to Servicing Agent, and shall be signed by a Responsible Officer or its designee.

(d) Borrower may prepay all or any portion of any Term Advance without penalty or premium, provided that any prepayment of a Term Advance bearing a fixed rate of interest shall be accompanied by a prepayment fee equal to the breakage costs advised by Banks at the time of such prepayment.

2.4 Overadvances. If, at any time or for any reason, the sum of

(i) Advances owed by Borrower to Banks pursuant to Section 2.1 of this Agreement plus (ii) the Foreign Exchange Reserve plus (iii) the face amount of any outstanding Letters of Credit is greater than the Committed Line, Borrower shall immediately pay to SVB, in cash, the amount of such excess, for payment to the Banks according to their respective Percentage Shares. If, at any time or for any reason, the Equivalent Amount of Outstanding Optional Currency Advances exceeds Five Million Dollars (\$5,000,000), Borrower shall immediately pay to BofH the amount of such excess.

2.5 Interest Rates, Payments, and Calculations.

(a) Interest Rate. Except as set forth in Section 2.5(b), any Obligations shall bear interest, on the average Daily Balance, at the rates specified in the provisions relating to each facility under this Agreement.

(b) Default Rate. All Obligations shall bear interest, from and after the occurrence of an Event of Default, at a rate equal to the lesser of (i) three (3) percentage points above the interest rate applicable immediately prior to the occurrence of the Event of Default or (ii) the maximum rate permitted by law including, to the extent applicable to Optional Currency Advances, the law of the country of such Optional Currency.

(c) Payments. Accrued interest shall be due and payable in arrears upon the earlier of (i) the end of the Interest Period or (ii) any payment of principal or (iii) on the fourteenth day of each calendar month. With respect to repayments of Prime Rate Advances and LIBOR Rate Advances, Servicing Agent shall, at the option of each Bank, charge such interest, all Bank Expenses, and all Periodic Payments against a Borrower's deposit account held at SVB or against the Committed Line, in which case those amounts shall thereafter accrue interest at the rate then applicable hereunder. With respect to repayments of Optional Currency Advances, the branch of BofH in the country of the Optional Currency shall, at the option of each Bank, charge such interest and all periodic payments against a Borrower's deposit account in such country or against the Committed Line, in which case those amounts shall thereafter accrue interest at the rate then applicable hereunder. Any interest not paid when due shall be compounded by becoming a part of the Obligations, and such interest shall thereafter accrue interest at the rate then applicable hereunder.

(d) Computation. In the event the Prime Rate is changed from time to time hereafter, the applicable rate of interest hereunder shall be increased or decreased effective as of 12:01 a.m. on the day the Prime Rate is changed, by an amount equal to such change in the Prime Rate. All interest chargeable under the Loan Documents shall be computed on the basis of a three hundred sixty (360) day year for the actual number of days elapsed, except that interest chargeable on account of Optional Rate Currency Advances shall be computed on the basis of a three hundred sixty five (365) day year where such computation is required by any law or is customary in the country of the Optional Currency.

2.6 Crediting Payments. Prior to the occurrence of an Event of Default, each Bank shall credit a wire transfer of funds, check, or other item of payment to such deposit account held at such Bank or Obligation as Borrower specifies; provided that payments in an Optional Currency shall be made only at the branch of BofH in the country of such Optional Currency. After the occurrence and during the continuation of an Event of Default, the receipt by a Bank of any wire transfer of funds, check, or other item of payment shall be immediately applied to conditionally reduce Obligations, but shall not be considered a payment on account unless such payment is of immediately available federal funds or unless and until such check or other item of payment is honored when presented for payment. Notwithstanding anything to the contrary contained herein, any wire transfer or payment received by a Bank after noon California time (or, as to a payment in an Optional Currency, noon at the BofH branch office in the country of the Optional Currency) shall be deemed to have been received by such Bank as of the opening of business on the immediately following Business Day. Whenever any payment to a Bank under the Loan Documents would otherwise be due (except by reason of acceleration) on a date that is not a Business Day, such payment shall instead be due on the next Business Day, and additional fees or interest, as the case may be, shall accrue and be payable for the period of such extension.

2.7 Bank Expenses. Borrower shall pay to Banks upon the date hereof, all Bank Expenses incurred through the date hereof, including reasonable attorneys' fees and expenses, and, within thirty (30) days of demand, other Bank Expenses as they become due from time to time hereunder.

2.8 Additional Costs. In case any law, regulation, treaty or official directive or the written interpretation or application thereof by any court or any governmental authority charged with the administration thereof or the compliance with any guideline or request of any central bank or other governmental authority (whether or not having the force of law):

(a) subjects any Bank to any tax with respect to payments of principal or interest or any other amounts payable hereunder by Borrower or otherwise with respect to the transactions contemplated hereby (except for taxes on the overall net income of such Bank imposed by the United States of America or any political subdivision thereof);

(b) imposes, modifies or deems applicable any deposit insurance, reserve, special deposit or similar requirement against assets held by, or deposits in or for the account of, or loans by, any Bank; or

(c) imposes upon any Bank any other material condition with respect to its performance under this Agreement,

and the result of any of the foregoing is to increase the cost to such Bank, reduce the income receivable by such Bank or impose any expense upon such Bank with respect to any loans, such Bank shall notify Borrower thereof in writing. Borrower shall pay to such Bank the amount of such increase in cost, reduction in income or additional expense as and when such cost, reduction or expense is incurred or determined, upon presentation by such Bank of a statement of the amount and setting forth such Bank's calculation thereof, all in reasonable detail, which statement shall be deemed true and correct absent manifest error; provided, however, that Borrower shall not be liable for any such amount attributable to any period prior to 180 days prior to the date of such certificate.

2.9 Conversion/Continuation of Advances.

(a) Borrower may from time to time submit in writing a request that Prime Rate Advances be converted to LIBOR Rate Advances or that any existing LIBOR Rate Advances continue for an additional Interest Period. Such request shall specify the amount of the Prime Rate Advances which will constitute LIBOR Rate Advances (subject to the limits set forth below) and the Interest Period to be applicable to such LIBOR Rate Advances. Each written request for a conversion to a LIBOR Rate Advance or a continuation of a LIBOR Rate Advance shall be

substantially in the form of an Optional Currency Rate or LIBOR Rate Conversion/Continuation Certificate as set forth on Exhibit B, which shall be duly executed by a Responsible Officer. Subject to the terms and conditions contained herein, three (3) Business Days after Servicing Agent's receipt of such a request from Borrower, such Prime Rate Advances shall be converted to LIBOR Rate Advances or such LIBOR Rate Advances or an Optional Currency Rate Advance shall continue, as the case may be provided that:

- (i) no Event of Default or event which with notice or passage of time or both would constitute an Event of Default exists;
- (ii) no party hereto shall have sent any notice of termination of the Agreement;
- (iii) Borrower shall have complied with such customary procedures as Banks have established from time to time for Borrower's requests for Optional Currency Rate Advances or LIBOR Rate Advances;
- (iv) the amount of a Prime Rate Advance shall be \$25,000 or more, the amount of an Optional Currency Rate Advance shall be \$50,000 or more, and the amount of a LIBOR Rate Advance shall be \$500,000 or such greater amount which is an integral multiple of \$50,000; and
- (v) Servicing Agent shall have determined that the Interest Period or LIBOR Rate or Optional Currency Rate is available to Banks as of the date of the request for such LIBOR Rate Advance or Optional Currency Rate Advance.

Any request by Borrower to convert Prime Rate Advances to LIBOR Rate Advances or continue any existing LIBOR Rate Advances shall be irrevocable. Notwithstanding anything to the contrary contained herein, Banks shall not be required to purchase United States Dollar deposits in the London interbank market or other applicable LIBOR Rate market to fund any LIBOR Rate Advances, but the provisions hereof shall be deemed to apply as if Banks had purchased such deposits to fund the LIBOR Rate Advances.

(b) Any LIBOR Rate Advances shall automatically convert to Prime Rate Advances upon the last day of the applicable Interest Period, unless Banks have received and approved a complete and proper request to continue such LIBOR Rate Advance at least three (3) Business Days prior to such last day in accordance with the terms hereof. Any LIBOR Rate Advances or Optional Currency Rate Advances shall, at Banks' option, convert to Prime Rate Advances in the event that an Event of Default shall exist. Borrower shall pay to Banks, upon demand by Banks (or Servicing Agent may, at its option, charge Borrower's deposit account) any amounts required to compensate Banks for any loss (including loss of anticipated profits), cost or expense incurred by such person, as a result of the conversion of LIBOR Rate Advances or Optional Currency Rate Advances to Prime Rate Advances pursuant to any of the foregoing.

#### 2.10 Additional Requirements/Provisions Regarding LIBOR Rate Advances or Optional Currency Rate Advances.

(a) If for any reason (including voluntary or mandatory prepayment or acceleration), Banks receive all or part of the principal amount of a LIBOR Rate Advance prior to the last day of the Interest Period for such LIBOR Rate Advance or the proposed term of any Optional Currency Rate Advance for which the term and the interest rate have been fixed, Borrower shall on demand by Servicing Agent, pay Servicing Agent the amount (if any) by which

(i) the additional interest which would have been payable on the amount so received had it not been received until the last day of such Interest Period or term exceeds (ii) the interest which would have been recoverable by Banks by placing the amount so received on deposit in the certificate of deposit markets or the offshore currency interbank markets or United States Treasury investment products, as the case may

be, for a period starting on the date on which it was so received and ending on the last day of such Interest Period or term at the interest rate determined by Servicing Agent in its reasonable discretion. Servicing Agent's determination as to such amount shall be conclusive absent manifest error.

(b) Borrower shall pay to a Bank, upon demand by a Bank, from time to time such amounts as such Bank may reasonably determine to be necessary to compensate it for any costs incurred by such Bank that such Bank determines are attributable to its making or maintaining of any amount receivable by such Bank hereunder in respect of any Advances relating thereto (such increases in costs and reductions in amounts receivable being herein called "Additional Costs"), in each case resulting from any Regulatory Change which:

(i) changes the basis of taxation of any amounts payable to such Bank under this Agreement in respect of any Advances (other than changes which affect taxes measured by or imposed on the overall net income of such Bank by the jurisdiction in which such Bank has its principal office); or

(ii) imposes or modifies any reserve, special deposit or similar requirements relating to any extensions of credit or other assets of, or any deposits with or other liabilities of such Bank (including any Advances or any deposits referred to in the definition of "LIBOR Base Rate"); or

(iii) imposes any other material condition affecting this Agreement (or any of such extensions of credit or liabilities).

Such Bank will notify Borrower of any event occurring after the date of the Agreement which will entitle such Bank to compensation pursuant to this section as promptly as practicable after it obtains knowledge thereof and determines to request such compensation. Such Bank will furnish Borrower with a statement setting forth the basis and amount of each request by such Bank for compensation under this Section 2.10. Determinations and allocations by a Bank for purposes of this Section 2.10 of the effect of any Regulatory Change on its costs of maintaining its obligations to make Advances or of making or maintaining Advances or on amounts receivable by it in respect of Advances, and of the additional amounts required to compensate such Bank in respect of any Additional Costs, shall be conclusive absent manifest error.

(c) Borrower shall pay to a Bank, upon the request of such Bank, such amount or amounts as shall be sufficient (in the sole good faith opinion of such Bank) to compensate it for any reasonable loss, costs or expense incurred by it as a result of any failure by Borrower to borrow a LIBOR Rate Advance on the date for such borrowing specified in the relevant notice of borrowing hereunder.

(d) If a Bank shall determine that the adoption or implementation of any applicable law, rule, regulation or treaty regarding capital adequacy, or any change therein, or any change in the interpretation or administration thereof by any governmental authority, central bank or comparable agency charged with the interpretation or administration thereof, or compliance by Bank (or its applicable lending office) with any respect or directive regarding capital adequacy (whether or not having the force of law) of any such authority, central bank or comparable agency, has or would have the effect of reducing the rate of return on capital of such Bank or any person or entity controlling Bank (a "Parent") as a consequence of its obligations hereunder to a level below that which Bank (or its Parent) could have achieved but for such adoption, change or compliance (taking into consideration its policies with respect to capital adequacy) by an amount deemed by Bank to be material, then from time to time, within 15 days after demand by such Bank, Borrower shall pay to Bank such additional amount or amounts as will compensate such Bank for such reduction. A statement of such Bank claiming compensation under this Section and setting forth the additional amount or amounts to be paid to it hereunder shall be conclusive absent manifest error.

(e) If at any time a Bank, in its sole and absolute discretion, determines that: (i) the amount of the LIBOR Rate Advances or Optional Currency Rate Advances for periods equal to the corresponding Interest Periods or any other period are not available to such Bank in the offshore currency interbank markets, or (ii) the LIBOR Rate or Optional Currency Rate does not accurately reflect the cost to Bank of lending the LIBOR Rate Advance or Optional Currency Rate Advance, then such Bank shall promptly give notice thereof to Borrower, and upon the giving of such notice such Bank's obligation to make the LIBOR Rate Advances or Optional Currency Rate Advances shall terminate, unless Banks and Borrower agree in writing to a different interest rate applicable to LIBOR Rate Advances or Optional Currency Rate Advances. If it shall become unlawful for a Bank to continue to fund or maintain any Advances, or to perform its obligations hereunder, upon demand by such Bank, Borrower shall prepay the Advances in full with accrued interest thereon and all other amounts payable by Borrower hereunder (including, without limitation, any amount payable in connection with such prepayment pursuant to Section 2.10(a)).

2.11 Term. This Agreement shall become effective upon the date hereof and shall continue in full force and effect for a term ending on the Maturity Date. Notwithstanding the foregoing, Banks shall have the right to terminate any obligation to make Advances under this Agreement immediately and without notice upon the earlier of (i) the occurrence and during the continuance of an Event of Default or (ii) the Revolving Maturity Date. On the date of termination, all Obligations shall become immediately due and payable in cash or by wire transfer.

Upon satisfaction of all Obligations hereunder (including prepayment fees, if applicable) this Agreement shall, at Borrower's request, terminate, and Banks shall execute such terminations of financing statements as Borrower may reasonably request.

### 3. CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Advance. The obligation of either Bank to make the initial Advance is subject to the condition precedent that such Bank shall have received, in form and substance satisfactory to such Bank, the following:

- (a) this Agreement;
- (b) a certificate of the Secretary of Borrower with respect to incumbency and resolutions authorizing the execution and delivery of this Agreement;
- (c) the Optional Currency Rate Instruments (with respect to Optional Currency Rate Advances only);
- (d) an opinion of Borrower's counsel;
- (e) payment of the Bank Expenses then due specified in Section 2.5 hereof, provided reasonably detailed invoices are received; and
- (f) such other documents, and completion of such other matters, as Banks may reasonably deem necessary or appropriate.

3.2 Conditions Precedent to all Advances. The obligation of any Bank to make each Advance, including the initial Advance, is further subject to the following conditions:

- (a) timely receipt by Servicing Agent of the Loan Payment/Advance Form as provided in Section 2.1;
- (b) the representations and warranties contained in Section 5 shall be true and correct in all material respects on and as of the date of such Loan Payment/Advance Form and on the effective date of each Advance as though made at and as of each such date (except to the extent



they relate specifically to an earlier date, in which case such representations and warranties shall continue to have been true and accurate as of such date), and no Event of Default shall have occurred and be continuing, or would result from such Advance; and

(c) as to each Optional Currency Rate Advance, all of the terms and conditions contained in the applicable Optional Currency Rate Instruments have been satisfied.

The making of each Advance shall be deemed to be a representation and warranty by each Borrower on the date of such Advance as to the accuracy of the facts referred to in this Section 3.2(b).

#### 4. REPRESENTATIONS AND WARRANTIES

Each Borrower represents and warrants as follows:

4.1 Due Organization and Qualification. Borrower is a corporation duly existing and in good standing under the laws of its state of incorporation and qualified and licensed to do business in, and is in good standing in, any state in which the conduct of its business or its ownership of property requires that it be so qualified except for states as to which any failure so to qualify would not have a Material Adverse Effect.

4.2 Due Authorization; No Conflict. The execution, delivery, and performance of the Loan Documents are within Borrower's powers, have been duly authorized, and are not in conflict with nor constitute a breach of any provision contained in Borrower's Articles or Certificate of Incorporation or Bylaws, nor will they constitute an event of default under any material agreement to which such Borrower is a party or by which Borrower is bound. Borrower is not in default under any agreement to which it is a party or by which it is bound, which default is reasonably likely to have a Material Adverse Effect.

4.3 No Prior Encumbrances. Borrower has good and indefeasible title to its assets, free and clear of Liens, except for Permitted Liens.

4.4 Merchantable Inventory. All Inventory is in all material respects of good and marketable quality, free from all material defects.

4.5 Litigation. There are no actions or proceedings pending by or against any Borrower before any court or administrative agency in which an adverse decision is reasonably likely to have a Material Adverse Effect. Borrower has no knowledge of any such pending or threatened actions or proceedings.

4.6 No Material Adverse Change in Financial Statements. All consolidated financial statements related to Borrower that have been delivered to Banks fairly present in all material respects the consolidated financial condition as of the date thereof of each such entity and consolidated results of operations for the period then ended of each such entity. There has not been a material adverse change in the consolidated financial condition of Borrower since the date of the most recent of such financial statements submitted to Banks.

4.7 Solvency. Borrower is solvent and able to pay its debts (including trade debts) as they mature.

4.8 Regulatory Compliance. Borrower has met the minimum funding requirements of ERISA with respect to any employee benefit plans subject to ERISA. No Borrower has withdrawn from, and no termination or partial termination has occurred with respect to, any deferred compensation plan, and no Borrower has withdrawn from any multi-employer plan under ERISA. No event has occurred resulting from Borrower's failure to comply with ERISA that is reasonably likely to result in Borrower's incurring any liability that is reasonably likely to have a Material Adverse Effect. No Borrower is an "investment company" or a company "controlled" by an "investment company"

within the meaning of the Investment Company Act of 1940. No Borrower is engaged principally, or as one of the important activities, in the business of extending credit for the purpose of purchasing or carrying margin stock (within the meaning of Regulations G, T and U of the Board of Governors of the Federal Reserve System), and no part of the proceeds of the Advances will be used to purchase or carry any margin stock or for any purpose that would violate any of Regulations G, T and U. Borrower has complied with all the provisions of the Federal Fair Labor Standards Act. Borrower has complied with all laws and regulations to which it is subject, noncompliance with which is reasonably likely to have a Material Adverse Effect.

4.9 Environmental Condition. None of Borrower's properties or assets has ever been used by Borrower or any Subsidiary or, to Borrower's knowledge, without any independent investigation, by previous owners or operators, in the disposal of, or to produce, store, handle, treat, release, or transport, any hazardous waste or hazardous substance other than in accordance with applicable law; to the best of Borrower's knowledge, none of Borrower's properties or assets has ever been designated or identified in any manner pursuant to any environmental protection statute as a hazardous waste or hazardous substance disposal site, or a candidate for closure pursuant to any environmental protection statute; no lien arising under any environmental protection statute has attached to any revenues or to any real or personal property owned by a Borrower or any Subsidiary; and neither Borrower nor any Subsidiary has received a summons, citation, notice, or directive from the Environmental Protection Agency or any other federal or state governmental agency concerning any action or omission by Borrower or any Subsidiary resulting in the releasing, or otherwise disposing of hazardous waste or hazardous substances into the environment.

4.10 Taxes. Borrower and each Subsidiary have filed or caused to be filed all material tax returns required to be filed, and has paid, or have made adequate provision for the payment of, all taxes reflected therein.

4.11 Subsidiaries. No Borrower owns any stock, partnership interest or other equity securities of any Person, except for Permitted Investments.

4.12 Government Consents. Borrower has obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all governmental authorities that are necessary for the continued operation of their respective businesses as currently conducted.

4.13 Full Disclosure. The representations, warranties and other statements included in the documents, certificates and written statements furnished by Borrower to either Bank prior to or as of the date of this Agreement for use in connection with the transactions contemplated by this Agreement, taken as a whole, do not contain any untrue statement of a material fact or omit to state a material fact (known to Borrower, in the case of any document not furnished by it) necessary in order to make the statements contained herein or therein not misleading (it being recognized by Banks that the projections and forecasts provided by Borrower are not to be viewed as facts and that actual results during the period or periods covered by any such projections and forecasts may differ from the projected or forecasted results).

## 5. AFFIRMATIVE COVENANTS

Borrower covenants and agrees that, from and after the Closing Date until payment in full of all outstanding Obligations, and for so long as any Bank may have any commitment to make an Advance hereunder, Borrower shall do all of the following:

5.1 Good Standing. Maintain its and cause to be maintained each of its Subsidiaries' corporate existence and good standing in its jurisdiction of incorporation and maintain qualification in each jurisdiction in which the failure to so qualify is reasonably likely to have a Material Adverse Effect. Borrower shall maintain, and shall cause each of its Subsidiaries to maintain

in force all licenses, approvals and agreements, the loss of which would have a Material Adverse Effect.

5.2 Government Compliance. Meet, and shall cause each Subsidiary to meet, the minimum funding requirements of ERISA with respect to any employee benefit plans subject to ERISA. Borrower shall comply, and shall cause each Subsidiary to comply, with all statutes, laws, ordinances and government rules and regulations to which it is subject, noncompliance with which could have a Material Adverse Effect.

5.3 Financial Statements, Reports, Certificates. Borrower shall deliver to Banks: (a) upon the sooner of 45 days after the last day of each fiscal quarter as to Form 10-Q, and the sooner of 90 days after the last day of each fiscal year as to Form 10-K, or within five (5) days upon becoming available, copies of all statements, reports and notices sent or made available generally by Borrower to its security holders or to any holders of Subordinated Debt and all reports on Form 10-K and 10-Q filed with the Securities and Exchange Commission; (b) promptly upon receipt of notice thereof, a report of any legal actions pending or threatened against Borrower or any Subsidiary that is reasonably likely to result in damages or costs to Borrower or any Subsidiary of Five Hundred Thousand Dollars (\$500,000) or which could have a Material Adverse Effect; and (c) such budgets, sales projections, operating plans or other financial information as Bank may reasonably request from time to time.

Borrower shall deliver to Banks with the quarterly financial statements a Compliance Certificate signed by a Responsible Officer in substantially the form of Exhibit B hereto.

Any Bank shall have a right from time to time hereafter to audit Borrower's Accounts, provided that such audits will be conducted at Borrower's expense no more often than annually, unless an Event of Default has occurred and is continuing, with the auditing Bank to conduct all other audits at its own expense.

5.4 Inventory; Returns. Keep all Inventory in good and marketable condition, free from all material defects. Returns and allowances, if any, as between Borrower and its account debtors shall be on the same basis and in accordance with the usual customary practices of Borrower, as they exist at the time of the execution and delivery of this Agreement. Borrower shall promptly notify Bank when any particular return, recovery, dispute or claim causes the aggregate returns for any fiscal month to exceed Ten Percent (10%) of the gross sales for such month.

5.5 Taxes. Make, and shall cause each Subsidiary to make, due and timely payment or deposit of all material federal, state, and local taxes, assessments, or contributions required of it by law, and will execute and deliver to Banks, on demand, appropriate certificates attesting to the payment or deposit thereof; and Borrower will make, and will cause each Subsidiary to make, timely payment or deposit of all material tax payments and withholding taxes required of it by applicable laws, including, but not limited to, those laws concerning F.I.C.A., F.U.T.A., state disability, and local, state, and federal income taxes, and will, upon request, furnish each Bank with proof satisfactory to such Bank indicating that Borrower or a Subsidiary has made such payments or deposits; provided that Borrower or a Subsidiary need not make any payment if the amount or validity of such payment is contested in good faith by appropriate proceedings and is reserved against (to the extent required by GAAP) by Borrower.

5.6 Insurance.

(a) Borrower, at its expense, shall keep its assets insured against loss or damage by fire, theft, explosion, sprinklers, and all other hazards and risks, and in such amounts, as ordinarily insured against by other owners in similar businesses conducted in the locations where their respective businesses are conducted on the date hereof. Borrower shall also maintain insurance relating to Borrower's ownership and use of its assets in amounts and of a type that are customary to businesses similar to Borrower's.

(b) All such policies of insurance shall be in such form, with such companies, and in such amounts as are reasonably satisfactory to Banks. At a Bank's request, Borrower shall deliver to Banks certified copies of such policies of insurance and evidence of the payments of all premiums therefor. All proceeds payable under any such policy shall, at the option of Banks, be payable to Banks to be applied on account of the Obligations.

5.7 Quick Ratio. Maintain, on a consolidated basis, as of the last day of each fiscal quarter, a ratio of Quick Assets to Current Liabilities of at least 1.75 to 1.00.

5.8 Debt-Tangible Net Worth Ratio. Maintain, on a consolidated basis, as of the last day of each fiscal quarter, a ratio of Total Liabilities to Tangible Net Worth of not more than 0.65 to 1.00.

5.9 Tangible Net Worth. Maintain, on a consolidated basis, as of the last day of each fiscal quarter, a Tangible Net Worth of not less than Sixty Million Dollars (\$60,000,000) plus Seventy Five Percent (75%) of Borrower's quarterly profits beginning December 31, 1998.

5.10 Profitability. On a consolidated basis, have a minimum net profit of One Dollar (\$1.00) for each fiscal quarter, provided Borrower may suffer a loss in any one fiscal quarter per fiscal year of not more than Five Hundred Thousand Dollars (\$500,000). Non-cash charges incurred in the acquisition of Tower Electronics, Inc. shall not be included in the calculation of profitability for the fiscal quarter ending September 30, 1997.

5.11 Debt Service Coverage. Borrower shall maintain, as of the last day of each fiscal quarter, a Debt Service Coverage of at least 2.0 to 1.0 on a rolling two quarter basis, annualized, excluding capital expenditures. "Debt Service Coverage" means (a) the sum of (i) earnings after tax plus (ii) depreciation and amortization expense less (iii) capital expenditures, divided by (b) the current portion of total long term debt, excluding Advances under the Committed Line.

5.12 Further Assurances. At any time and from time to time Borrower shall execute and deliver such further instruments and take such further action as may reasonably be requested by any Bank to effect the purposes of this Agreement.

## 6. NEGATIVE COVENANTS

Borrower covenants and agrees that, from and after the Closing Date, so long as any credit hereunder shall be available and until payment in full of the outstanding Obligations or for so long as any Bank may have any commitment to make any Advances, Borrower will not do any of the following:

6.1 Dispositions. Without the Banks' consent, which shall not be unreasonably withheld, convey, sell, lease, transfer or otherwise dispose of (collectively, a "Transfer"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, other than: (i) Transfers in the ordinary course of business; (ii) Transfers of non-exclusive licenses and similar arrangements for the use of the property of Borrower or its Subsidiaries; (iii) Transfers of worn-out or obsolete Equipment; or (iv) Transfers which constitute liquidation of Investments permitted under Section 7.7.

6.2 Change in Business or Control. Engage in any business, or permit any of its Subsidiaries to engage in any business, other than the businesses currently engaged in by Borrower and any business substantially similar or related thereto (or incidental thereto).

6.3 Mergers or Acquisitions. Except in the ordinary course of Borrower's business, merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with or into any other business organization, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock or property of another Person; provided that this Section 7.3 shall not apply to

Permitted Investments or to transactions among a Borrower and its Subsidiaries in which such Borrower is the surviving entity or among its Subsidiaries.

6.4 Indebtedness. Create, incur, assume or be or remain liable with respect to any Indebtedness, or permit any Subsidiary so to do, other than Permitted Indebtedness.

6.5 Encumbrances. Create, incur, assume or suffer to exist any Lien with respect to any of its property, or assign or otherwise convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries so to do, except for Permitted Liens.

6.6 Distributions. Pay any dividends or make any other distribution or payment on account of or in redemption, retirement or purchase of any capital stock, except for so long as an Event of Default has not occurred and is not continuing (and would not exist immediately after such payment), Borrower may repurchase its stock from former employees of Borrower in accordance with the terms of repurchase or similar agreements between Borrower and such employees.

6.7 Investments. Directly or indirectly acquire or own, or make any Investment in or to any Person, or permit any of its Subsidiaries so to do, other than Permitted Investments and except as made in the ordinary course of Borrower's business.

6.8 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower except for transactions that are in the ordinary course of Borrower's business, upon fair and reasonable terms that are no less favorable to Borrower than would be obtained in an arm's length transaction with a nonaffiliated Person, and except for transactions with a Subsidiary that are upon fair and reasonable terms and transactions constituting Permitted Investments.

6.9 Subordinated Debt. Make any payment in respect of any Subordinated Debt, or permit any of its Subsidiaries to make any such payment, except in compliance with the terms of such Subordinated Debt, or amend any provision contained in any documentation relating to the Subordinated Debt without Banks' prior written consent.

6.10 Compliance. Become an "investment company" controlled by an "investment company," within the meaning of the Investment Company Act of 1940, or become principally engaged in, or undertake as one of its important activities, the business of extending credit for the purpose of purchasing or carrying margin stock, or use the proceeds of any Advance for such purpose. Fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or Prohibited Transaction, as defined in ERISA, to occur, permit any condition to exist that would entitle any Person to obtain a decree adjudicating that any Plan under ERISA must be terminated, fail to comply with the Federal Fair Labor Standards Act or violate any law or regulation, which violation could have a Material Adverse Effect or a material adverse effect on the Collateral or the priority of Banks' Lien on the Collateral, or permit any of its Subsidiaries to do any of the foregoing.

## 7. EVENTS OF DEFAULT

Any one or more of the following events shall constitute an Event of Default by Borrower under this Agreement:

7.1 Payment Default. If Borrower fails to pay the principal of, or any interest on, any Credit Extensions when due and payable; or fails to pay any portion of any other Obligations not constituting such principal or interest, including without limitation Bank Expenses, within thirty (30) days of receipt by Borrower of a reasonably detailed invoice on account of such other Obligations;

7.2 Covenant Default. If Borrower fails to perform any obligation under Article 5 or violates any of the covenants contained in Article 6 of this Agreement, or fails or neglects to perform, keep, or observe any other material term, provision, condition, covenant, or agreement

contained in this Agreement, in any of the Loan Documents, or in any other present or future agreement between Borrower and any Bank and as to any default under such other term, provision, condition, covenant or agreement that can be cured, has failed to cure such default within twenty (20) days after Borrower receives notice thereof or any Responsible Officer becomes aware thereof; provided, however, that if the default cannot by its nature be cured within the twenty (20) day period or cannot after diligent attempts by Borrower be cured within such twenty (20) day period, and such default is likely to be cured within a reasonable time, then Borrower shall have an additional reasonable period (which shall not in any case exceed thirty (30) days) to attempt to cure such default, and within such reasonable time period the failure to have cured such default shall not be deemed an Event of Default (provided that no Advances will be required to be made during such cure period);

**7.3 Material Adverse Change.** If there occurs a material adverse change in the business or financial condition of Borrower, taken as a whole, or if there is a material impairment of the prospect of repayment of any portion of the Obligations;

**7.4 Attachment.** If any material portion of Borrower's assets is attached, seized, subjected to a writ or distress warrant, or is levied upon, or comes into the possession of any trustee, receiver or person acting in a similar capacity and such attachment, seizure, writ or distress warrant or levy has not been removed, discharged or rescinded within thirty (30) days, or if a Borrower is enjoined, restrained, or in any way prevented by court order from continuing to conduct all or any material part of its business affairs, or if a judgment or other claim becomes a lien or encumbrance upon any material portion of Borrower's assets, or if a notice of lien, levy, or assessment is filed of record with respect to any of Borrower's assets by the United States Government, or any department, agency, or instrumentality thereof, or by any state, county, municipal, or governmental agency, and the same is not paid within thirty (30) days after Borrower receives notice thereof, provided that none of the foregoing shall constitute an Event of Default where such action or event is stayed or an adequate bond has been posted pending a good faith contest by Borrower (provided that no Advances will be required to be made during such cure period);

**7.5 Insolvency.** If Borrower becomes insolvent, or if an Insolvency Proceeding is commenced by Borrower, or if an Insolvency Proceeding is commenced against Borrower and is not dismissed or stayed within thirty (30) days (provided that no Advances will be made prior to the dismissal of such Insolvency Proceeding);

**7.6 Other Agreements.** If there is a default in any agreement to which Borrower is a party with a third party or parties resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount in excess of Five Hundred Thousand Dollars (\$500,000) or which would have a Material Adverse Effect;

**7.7 Judgments.** If a judgment or judgments for the payment of money in an amount, individually or in the aggregate, of at least Five Hundred Thousand Dollars (\$500,000) shall be rendered against Borrower and shall remain unsatisfied and unstayed for a period of thirty (30) days (provided that no Advances will be made prior to the satisfaction or stay of such judgment); or

**7.8 Misrepresentations.** If any material misrepresentation or material misstatement exists now or hereafter in any warranty or representation set forth herein or in any certificate delivered to any Bank by any Responsible Officer pursuant to this Agreement or to induce Bank to enter into this Agreement or any other Loan Document.

## **8. BANKS' RIGHTS AND REMEDIES**

**8.1 Rights and Remedies.** Upon the occurrence and during the continuance of an Event of Default, any Bank may, at its election, do any one or more of the following, all of which are authorized by Borrower:

(a) Declare all Obligations owing to such Bank, whether evidenced by this Agreement, by any of the other Loan Documents, or otherwise, immediately due and payable (provided that upon the occurrence of an Event of Default described in Section 8.5 all Obligations shall become immediately due and payable without any action by any Bank);

(b) Cease advancing money or extending credit to or for the benefit of Borrower under this Agreement or under any other agreement between Borrower and any Bank; and

(c) Set off and apply to the Obligations any and all (i) balances, deposits and investments of Borrower held by such Bank, or (ii) indebtedness at any time owing to or for the credit or the account of Borrower held by such Bank;

(d) Liquidate any Exchange Contracts not yet settled and demand that Borrower immediately deposit cash with Banks in an amount sufficient to cover any losses incurred by Bank due to liquidation of the Exchange Contracts at the then prevailing market price; and

(e) Without notice to Borrower set off and apply to the Obligations any and all (i) balances and deposits of Borrower held by a Bank, or (ii) indebtedness at any time owing to or for the credit or the account of Borrower held by a Bank.

8.2 Bank Expenses. After the occurrence of an Event of Default, if a Borrower fails to pay any amounts or furnish any required proof of payment due to third persons or entities, as required under the terms of this Agreement, then Banks may do any or all of the following: (a) make payment of the same or any part thereof; (b) set up such reserves under the Committed Line as Banks deem necessary to protect Banks from the exposure created by such failure; or (c) obtain and maintain insurance policies of the type discussed in Section 5.6 of this Agreement, and take any action with respect to such policies as Banks reasonably deem prudent. Any amounts so paid or deposited by Banks shall constitute Bank Expenses, shall be immediately due and payable, and shall bear interest at the then applicable rate hereinabove provided. Any payments made by any Bank shall not constitute an agreement by such Bank to make similar payments in the future or a waiver by Bank of any Event of Default under this Agreement.

8.3 Remedies Cumulative. Banks' rights and remedies under this Agreement, the Loan Documents, and all other agreements shall be cumulative. Banks shall have all other rights and remedies not inconsistent herewith as provided under the Code, by law, or in equity. No exercise by any Bank of one right or remedy shall be deemed an election. No waiver by any Bank of any Event of Default on a Borrower's part shall be effective unless also waived in writing by any other Bank. No waiver shall be deemed a continuing waiver. No delay by any Bank shall constitute a waiver, election, or acquiescence by it.

8.4 Demand; Protest. Each Borrower waives protest, notice of protest, notice of dishonor, notice of payment and nonpayment, notice of any nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees at any time held by any Bank on which Borrower may in any way be liable.

## 9. NOTICES

Unless otherwise provided in this Agreement, all notices or demands by any party relating to this Agreement or any other agreement entered into in connection herewith shall be in writing and (except for financial statements and other informational documents which may be sent by first-class mail, postage prepaid) shall be personally delivered or sent by certified mail, postage prepaid, return receipt requested, or by prepaid telefacsimile to Borrower or to each Bank, as the case may be, at its addresses set forth below:

If to :           Advanced Energy Industries, Inc.  
                  1625 Sharp Point Drive  
                  Ft. Collins, CO 80525  
                  Attn: Richard Beck  
                  FAX: (970) 221-5583

If to Banks:     Silicon Valley Bank  
                  4430 Arapahoe Avenue, Suite 225  
                  Boulder, CO 80303  
                  Attn: Greg Becker  
                  FAX: (303) 938-0483

Bank of Hawaii  
1850 N. Central Avenue, Suite 400  
Phoenix, AZ 85004  
Attn: Ken Loveless  
FAX: (602) 257-2235

The parties hereto may change the address at which they are to receive notices hereunder, by notice in writing in the foregoing manner given to the other. NOTICES TO ONE BANK SHALL NOT BE DEEMED NOTICE TO THE OTHER BANK.

#### 10. CHOICE OF LAW AND VENUE; JURY TRIAL WAIVER

This Agreement shall be governed by, and construed in accordance with, the internal laws of the State of California, without regard to principles of conflicts of law. Borrower and Banks hereby submit to the exclusive jurisdiction of the state and Federal courts located in the County of Santa Clara, State of California. BORROWER AND BANKS HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF ANY OF THE LOAN DOCUMENTS OR ANY OF THE TRANSACTIONS CONTEMPLATED THEREIN, INCLUDING CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW OR STATUTORY CLAIMS. EACH PARTY RECOGNIZES AND AGREES THAT THE FOREGOING WAIVER CONSTITUTES A MATERIAL INDUCEMENT FOR IT TO ENTER INTO THIS AGREEMENT. EACH PARTY REPRESENTS AND WARRANTS THAT IT HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

#### 11. INTERCREDITOR PROVISIONS

11.1 Proportionate Interests. Except for Optional Currency Advances, which shall be the sole responsibility of BofH, and except as otherwise provided in this Agreement, the rights, interests, and obligations of each Bank under this Agreement and the Loan Documents at any time shall be shared in the ratio of (a) the maximum amount the Bank has committed to advance as set forth on the signature page signed by the Bank to (b) the Committed Line. Any reference in this Agreement or the Loan Documents to an allocation between or sharing by the Banks of any right, interest, or duty "ratably," "proportionally," "pro rata," or in similar terms shall refer to this ratio. No Bank is obligated to advance any funds in lieu of or for the account of the other Bank if the latter Bank fails to make such Advance.

11.2 Designation of Service Agent. To facilitate the administration of this Agreement, SVB shall act as "Servicing Agent" for itself and BofH. Servicing Agent shall have only such duties as are expressly set forth in this Agreement, or as otherwise agreed in writing by the Banks. Servicing Agent shall be deemed to act on behalf of both Banks whenever Servicing Agent acts under this Agreement.



11.3 Resignation. Servicing Agent may resign as Servicing Agent, upon thirty (30) day's written notice to the other Banks and to Borrower and appointment of a successor Servicing Agent approved by Banks. Upon receipt of notice of resignation, the Banks shall appoint a successor Servicing Agent. The resigning Servicing Agent shall cooperate fully in delivering to the successor Servicing Agent the Loan Documents and copies of all records relating to the Advances and payments made hereunder that the successor Servicing Agent reasonably requests.

11.4 Servicing Agent as Bank. Servicing Agent shall have the same rights and powers under this Agreement as any other Bank and may exercise the same as though it were not Servicing Agent. The term "Banks" includes Servicing Agent in Servicing Agent's individual capacity. Servicing Agent and its Subsidiaries and Affiliates may accept deposits from, lend money to, act as agent or trustee for other lenders to, and generally engage in any kind of banking, trust, or other business with, any Borrower or any Subsidiary or Affiliates as if Servicing Agent were not Servicing Agent.

11.5 No Agency. EXCEPT AS SPECIFIED HEREIN, NEITHER BANK IS AN AGENT OF THE OTHER. NEITHER BANK HAS ANY AUTHORITY TO ACT OR FAIL TO ACT FOR THE OTHER. THE OBLIGATIONS OF EACH BANK HEREUNDER ARE SEVERAL. NO BANK SHALL BE LIABLE FOR THE FAILURE OF ANY OTHER BANK TO PERFORM ITS OBLIGATIONS HEREUNDER.

11.6 No Reliance. The provisions of this Article 11 are solely for the benefit of Banks in specifying their rights and obligations with respect to each other, and not for the benefit of any Borrower or its assigns or successors.

## 12. GENERAL PROVISIONS

12.1 Successors and Assigns. This Agreement shall bind and inure to the benefit of the respective successors and permitted assigns of each of the parties; provided, however, that neither this Agreement nor any rights hereunder may be assigned by any Borrower without each Bank's prior written consent, which consent may be granted or withheld in each Bank's sole discretion. Subject to the terms of any agreement between Banks, each Bank shall have the right with the consent (which shall not be unreasonably withheld) of Borrower to sell, transfer, negotiate, or grant participations in all or any part of, or any interest in, Bank's obligations, rights and benefits hereunder; provided no Bank will sell, transfer, negotiate or grant participations in any part of, or any interest in, such obligations, rights and benefits in a principal amount of less than Five Million Dollars (\$5,000,000).

12.2 Indemnification. Borrower shall defend, indemnify and hold harmless each Bank and its officers, employees, and agents against: (a) all obligations, demands, claims, and liabilities claimed or asserted by any other party in connection with the transactions contemplated by this Agreement (except with regard to a dispute between the Banks); and (b) all losses or Bank Expenses in any way suffered, incurred, or paid by such Bank as a result of or in any way arising out of, following, or consequential to transactions between such Bank and Borrower whether under this Agreement, or otherwise (including without limitation reasonable attorneys fees and expenses), except for losses caused by such Bank's gross negligence or willful misconduct and except with regard to a dispute between the Banks.

12.3 Time of Essence. Time is of the essence for the performance of all obligations set forth in this Agreement.

12.4 Severability of Provisions. Each provision of this Agreement shall be severable from every other provision of this Agreement for the purpose of determining the legal enforceability of any specific provision.

12.5 Amendments in Writing, Integration. This Agreement cannot be changed or terminated orally. No amendment shall be effective without the consent of all the parties hereto,

except the provisions of Article 11 may be amended by Banks without Borrower's approval. All prior agreements, understandings, representations, warranties, and negotiations between the parties hereto with respect to the subject matter of this Agreement, if any, are merged into this Agreement and the Loan Documents.

12.6 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, shall be deemed to be an original, and all of which, when taken together, shall constitute but one and the same Agreement.

12.7 Survival. All covenants, representations and warranties made in this Agreement shall continue in full force and effect so long as any Obligations remain outstanding. The obligations of Borrower to indemnify each Bank with respect to the expenses, damages, losses, costs and liabilities described in Section 12.2 shall survive until all applicable statute of limitations periods with respect to actions that may be brought against such Bank have run.

12.8 Confidentiality. In handling any confidential information each Bank shall exercise the same degree of care that it exercises with respect to its own proprietary information of the same types to maintain the confidentiality of any non-public information thereby received or received pursuant to this Agreement except that disclosure of such information may be made (i) to the subsidiaries or affiliates of such Bank in connection with their present or prospective business relations with Borrower, (ii) to prospective transferees or purchasers of any interest in the Loans, provided that they have entered into a comparable confidentiality agreement in favor of Borrower and have delivered a copy to Borrower, (iii) as required by law, regulations, rule or order, subpoena, judicial order or similar order, (iv) as may be required in connection with the examination, audit or similar investigation of Bank, and (v) as may be appropriate in the exercise of any remedies hereunder. Confidential information hereunder shall not include information that either: (a) is in the public domain or in the knowledge or possession of Bank when disclosed to Bank, or becomes part of the public domain after disclosure to Bank through no fault of Bank; or (b) is disclosed to the Bank by a third party, provided the Bank does not have actual knowledge that such third party is prohibited from disclosing such information.

12.9 Optional Currency Rate Instruments. To the extent the terms of any Optional Currency Rate Instrument differ from the terms of this Agreement then the terms of such Optional Currency Rate Instrument shall govern the rights and obligations of the parties thereto.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first above written.

**ADVANCED ENERGY INDUSTRIES, INC.**

By:

Title:

**SILICON VALLEY BANK**

By:

Title:

Maximum Commitment Amount:  
\$15,000,000 (50%)

**BANK OF HAWAII**

By:

Title:

Maximum Commitment Amount:  
\$15,000,000 (50%)

**EXHIBIT A**

**LOAN PAYMENT/ADVANCE REQUEST FORM**

**DEADLINE FOR SAME DAY PROCESSING IS NOON, P.S.T.**

TO: SILICON VALLEY BANK, as Servicing Agent

FAX#: (408) 432-3249 TIME: \_\_\_\_\_

**FROM:** \_\_\_\_\_

**CLIENT NAME (BORROWER)**

**REQUESTED BY:** \_\_\_\_\_

**AUTHORIZED SIGNER'S NAME**

**AUTHORIZED SIGNATURE:** \_\_\_\_\_

**PHONE NUMBER:** \_\_\_\_\_

FROM ACCOUNT # \_\_\_\_\_ TO ACCOUNT # \_\_\_\_\_

REQUESTED TRANSACTION TYPE	REQUEST DOLLAR AMOUNT
PRINCIPAL INCREASE (ADVANCE)	\$ _____
PRINCIPAL PAYMENT (ONLY)	\$ _____
INTEREST PAYMENT (ONLY)	\$ _____
PRINCIPAL AND INTEREST (PAYMENT)	\$ _____

**OTHER INSTRUCTIONS:** \_\_\_\_\_

All representations and warranties of Borrower stated in the Loan Agreement are true, correct and complete in all material respects as of the date of the telephone request for and Advance confirmed by this Borrowing Certificate; provided, however, that those representations and warranties expressly referring to another date shall be true, correct and complete in all material respects as of such date.

**BANK USE ONLY**

**TELEPHONE REQUEST:**

The following person is authorized to request the loan payment transfer/loan advance on the advance designated account and is known to me.

_____ Authorized Requester	_____ Phone #
-------------------------------	------------------

_____ Received By (Bank)	_____ Phone #
-----------------------------	------------------

\_\_\_\_\_

**Authorized Signature (Bank)**

**EXHIBIT A-1**

**ADVANCE/CONVERSION REQUEST FORM**

The undersigned hereby certifies as follows:

I, \_\_\_\_\_, am the duly elected and acting \_\_\_\_\_ of Advanced Energy Industries, Inc.

This certificate is delivered on behalf of Borrower to Silicon Valley Bank, as Servicing Agent, pursuant to Section 2 of that certain Loan by and between Borrower and Banks (the "Agreement"). The terms used in this Borrowing Certificate which are defined in the Agreement have the same meaning herein as ascribed to them therein.

Borrower hereby requests on \_\_\_\_\_, 19\_\_\_\_ an Advance (the "Advance") as follows:

(a) The date on which the Advance is to be made or converted into a Term Advance is \_\_\_\_\_, 19\_\_\_\_.

(b) The amount of the Advance is to be \_\_\_\_\_ (\$\_\_\_\_\_), in the form of a Prime Rate Advance of \$\_\_\_\_\_; a LIBOR Rate Advance for an Interest Period of \_\_\_\_\_ months; an Optional Currency Rate Advance of an Equivalent Amount of \$ \_\_\_\_\_ in [currency type] for an Interest Period of \_\_\_\_\_ months.

All representations and warranties of Borrower stated in the Agreement are true, correct and complete in all material respects as of the date of this request for a loan; provided, however, that those representations and warranties expressly referring to another date shall be true, correct and complete in all material respects as of such date.

IN WITNESS WHEREOF, this Advance Request Form is executed by the undersigned as of this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

**ADVANCED ENERGY INDUSTRIES, INC.**

By:

Title:

**FOR INTERNAL BANK USE ONLY**

LIBOR Pricing Date	LIBOR Rate	LIBOR Rate Variance ____%	Maturity Date
Optional Currency Pricing Date	Optional Currency Rate	Optional Currency Rate Variance ____%	Maturity Date

**EXHIBIT A-2**

**Optional Currency/LIBOR RATE CONVERSION/CONTINUATION CERTIFICATE**

The undersigned hereby certifies as follows:

I, \_\_\_\_\_, am the duly elected and acting \_\_\_\_\_ of Advanced Energy Industries, Inc. ("Borrower").

This certificate is delivered on behalf of Borrower to Silicon Valley Bank, as Servicing Agent, pursuant to Section 2 of that certain Loan Agreement between Borrower and Banks (the "Agreement"). The terms used in this Optional Currency/LIBOR Rate Conversion/Continuation Certificate which are defined in the Agreement have the same meaning herein as ascribed to them therein.

Borrower hereby requests on \_\_\_\_\_, 19\_\_ a LIBOR Rate Advance (the "Advance") as follows:

- (a)    \_\_\_    (i)       A rate conversion of an existing Prime Rate Advance from a Prime Rate Advance to a LIBOR Rate Advance; or  
          \_\_\_    (ii)      A continuation of an existing LIBOR Rate Advance as a LIBOR Rate Advance; or  
          \_\_\_    (iii)     A continuation of an existing Optional Currency Rate Advance as an Optional Currency Rate Advance.

[Check (i), (ii) or (iii) above]

(b) The date on which the Advance is to be made is \_\_\_\_\_, 19\_\_.

(c) The amount or the Equivalent Amount of the Advance is to be \_\_\_\_\_ (\$\_\_\_\_\_), for an Interest Period of \_\_\_\_\_ month(s).

All representations and warranties of Borrower stated in the Agreement are true, correct and complete in all material respects as of the date of this request for a loan; provided, however, that those representations and warranties expressly referring to another date shall be true, correct and complete in all material respects as of such date.

IN WITNESS WHEREOF, this Optional Currency/LIBOR Rate Conversion/Continuation Certificate is executed by the undersigned as of this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_.

**ADVANCED ENERGY INDUSTRIES, INC.**

By:

Title:

**FOR INTERNAL BANK USE ONLY**

LIBOR Pricing Date	LIBOR Rate	LIBOR Rate Variance ____%	Maturity Date
Optional Currency Pricing Date	Optional Currency Rate	Optional Currency Rate Variance ____%	Maturity Date

**EXHIBIT B  
COMPLIANCE CERTIFICATE**

**TO: SILICON VALLEY BANK  
BANK OF HAWAII**

**FROM: ADVANCED ENERGY INDUSTRIES, INC.**

The undersigned authorized officer of Advanced Energy Industries, Inc. hereby certifies that, in accordance with the terms and conditions of the Loan Agreement between Borrower and Banks (the "Agreement"), (i) Borrower is in complete compliance for the period ending \_\_\_\_\_ with all required covenants except as noted below and (ii) all representations and warranties of Borrower stated in the Agreement are true and correct in all material respects as of the date hereof. Attached herewith are the required documents supporting the above certification. The Officer further certifies that these are prepared in accordance with Generally Accepted Accounting Principles (GAAP) and are consistently applied from one period to the next except as explained in an accompanying letter or footnotes.

**PLEASE INDICATE COMPLIANCE STATUS BY CIRCLING YES/NO UNDER "COMPLIES" COLUMN.**

REPORTING COVENANT	REQUIRED	COMPLIES	
Form 10-K	Annually within 5 days	Yes No	
Form 10-Q	Quarterly within 5 days	Yes No	
FINANCIAL COVENANT	REQUIRED	ACTUAL	COMPLIES
Maintain on a Quarterly Basis:			
Minimum Quick Ratio	1.75:1.00	_____:1.0	Yes No
Minimum Tangible Net Worth	\$60,000,000_/1	\$_____	Yes No
Maximum Debt - Tangible Net Worth	0.65:1.00	_____:1.0	Yes No
Profitability			
Quarterly	\$1.00_/2	\$_____	Yes No
Debt Service Coverage	1.00:1.00	_____:1.00	Yes No

/1 Plus 75% of quarterly net income beginning 12/31/98. /2 One loss quarter permitted per fiscal year, up to \$500,000.

**COMMENTS REGARDING EXCEPTIONS: BANK USE ONLY**

See Attached.

Received by:  
authorized signer

Sincerely,  
Date:  
Signature  
Verified:

authorized signer

Title  
Date:  
Date  
Compliance Status: Yes No

## DISBURSEMENT REQUEST AND AUTHORIZATION

Borrower: Advanced Energy Industries, Inc. and Subsidiaries

LOAN TYPE. This is a Revolving Line of Credit.

PRIMARY PURPOSE OF LOAN. The primary purpose of this loan is for business.

SPECIFIC PURPOSE. The specific purpose of this loan is: Short Term Working Capital and Equipment Finance.

DISBURSEMENT INSTRUCTIONS. Borrower understands that no loan proceeds will be disbursed until all of Banks' conditions for making the loan have been satisfied. Please disburse the loan proceeds as follows:

Amount paid to Borrower directly:	Revolving Line \$0.0
Undisbursed Funds	\$ -----
Principal	\$30,000,000

CHARGES PAID IN CASH. Borrower has paid or will pay in cash as agreed the following charges:

Prepaid	Finance Charges Paid in Cash:
\$ -----	Outside Counsel Fees and Expenses (Estimate)

**Total Charges Paid in Cash \$**

AUTOMATIC PAYMENTS. Borrower hereby authorizes Banks to automatically deduct the amount of any loan payment from AEI's account no. 351030170 at Silicon Valley Bank. If the funds in the accounts are insufficient to cover any payment, Banks shall not be obligated to advance funds to cover the payment.

FINANCIAL CONDITION. BY SIGNING THIS AUTHORIZATION, BORROWER REPRESENTS AND WARRANTS TO BANKS THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND CORRECT AND THAT THERE HAS BEEN NO ADVERSE CHANGE IN BORROWER'S FINANCIAL CONDITION AS DISCLOSED IN SUCH BORROWER'S MOST RECENT FINANCIAL STATEMENT TO BANKS. THIS AUTHORIZATION IS DATED AS OF \_\_\_\_\_, 1997.

**BORROWER:**

**ADVANCED ENERGY INDUSTRIES, INC.**

**Authorized Officer**



## CORPORATE RESOLUTIONS TO BORROW

BORROWER: Advanced Energy Industries, Inc.

I, the undersigned Secretary or Assistant Secretary of Advanced Energy Industries, Inc. (the "Corporation"), HEREBY CERTIFY that the Corporation is organized and existing under and by virtue of the laws of the State of Delaware.

I FURTHER CERTIFY that at a meeting of the Directors of the Corporation (or by other duly authorized corporate action in lieu of a meeting), duly called and held, at which a quorum was present and voting, the following resolutions were adopted.

BE IT RESOLVED, that ANY ONE (1) of the following named officers, employees, or agents of this Corporation, whose actual signatures are shown below:

NAMES	POSITIONS	ACTUAL SIGNATURES
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----

acting for an on behalf of this Corporation and as its act and deed be, and they hereby are, authorized and empowered:

**BORROW MONEY.** To borrow from time to time from Bank of Hawaii and Silicon Valley Bank ("Banks"), on such terms as may be agreed upon between the officers, employees, or agents and Bank, such sum or sums of money as in their judgment should be borrowed, without limitation, including such sums as are specified in that certain Loan and Security Agreement dated as of December 8, 1997 (the "Loan Agreement").

**EXECUTE NOTES.** To execute and deliver to Banks the promissory note or notes of the Corporation, on each Bank's forms, at such rates of interest and on such terms as may be agreed upon, evidencing the sums of money so borrowed or any indebtedness of the Corporation to Banks, and also to execute and deliver to Banks one or more renewals, extensions, modifications, refinancings, consolidations, or substitutions for one or more of the notes, or any portion of the notes.

**NEGOTIATE ITEMS.** To draw, endorse, and discount with Banks all drafts, trade acceptances, promissory notes, or other evidences of indebtedness payable to or belonging to the Corporation or in which the Corporation may have an interest, and either to receive cash for the same or to cause such proceeds to be credited to the account of the Corporation with Banks, or to cause such other disposition of the proceeds derived therefrom as they may deem advisable.

LETTERS OF CREDIT. To execute letter of credit application and other related documents pertaining to SVB's issuance of letters of credit.

FOREIGN EXCHANGE CONTRACTS. To request any Bank to enter into foreign exchange contracts on its behalf.

FURTHER ACTS. In the case of lines of credit, to designate additional or alternate individuals as being authorized to request advances thereunder, and in all cases, to do and perform such other acts and things, to pay any and all fees and costs, and to execute and deliver such other documents and agreements as they may in their discretion deem reasonably necessary or proper in order to carry into effect the provisions of these Resolutions.

BE IT FURTHER RESOLVED, that any and all acts authorized pursuant to these resolutions and performed prior to the passage of these resolutions are hereby ratified and approved, that these Resolutions shall remain in full force and effect and Banks may rely on these Resolutions until written notice of their revocation shall have been delivered to and received by Bank. Any such notice shall not affect any of the Corporation's agreements or commitments in effect at the time notice is given.

I FURTHER CERTIFY that the officers, employees, and agents named above are duly elected, appointed, or employed by or for the Corporation, as the case may be, and occupy the positions set forth opposite their respective names; that the foregoing Resolutions now stand of record on the books of the Corporation; and that the Resolutions are in full force and effect and have not been modified or revoked in any manner whatsoever.

I FURTHER CERTIFY that attached hereto are true and correct copies of the Certificate of Incorporation and Bylaws of the Corporation.

IN WITNESS WHEREOF, I have hereunto set my hand on \_\_\_\_\_, 19\_\_\_\_ and attest that the signatures set opposite the names listed above are their genuine signatures.

**CERTIFIED TO AND ATTESTED BY:**

  X  

2

**ADVANCED ENERGY INDUSTRIES, INC.**

**1995 STOCK OPTION PLAN**

**ADOPTED JUNE 6, 1993  
AS AMENDED AND RESTATED SEPTEMBER 20, 1995  
AND AS FURTHER AMENDED FEBRUARY 10, 1998**

**1. PURPOSES.**

- (a) The purpose of the Plan is to provide a means by which selected Employees and Directors of and Consultants to the Company, and its Affiliates, may be given an opportunity to purchase stock of the Company.
- (b) The Company, by means of the Plan, seeks to retain the services of persons who are now Employees or Directors of or Consultants to the Company or its Affiliates, to secure and retain the services of new Employees, Directors and Consultants, and to provide incentives for such persons to exert maximum efforts for the success of the Company and its Affiliates.
- (c) The Company intends that the Options issued under the Plan shall, in the discretion of the Board or any Committee to which responsibility for administration of the Plan has been delegated pursuant to subsection 3(c), be either Incentive Stock Options or Nonstatutory Stock Options. All Options shall be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and in such form as issued pursuant to Section 6, and a separate certificate or certificates will be issued for shares purchased on exercise of each type of Option.

**2. DEFINITIONS.**

- (a) "AFFILIATE" means any parent corporation or subsidiary corporation, whether now or hereafter existing, as those terms are defined in Sections 424(e) and (f) respectively, of the Code.
- (b) "BOARD" means the Board of Directors of the Company.
- (c) "CODE" means the Internal Revenue Code of 1986, as amended.
- (d) "COMMITTEE" means a Committee appointed by the Board in accordance with subsection 3(c) of the Plan.

(e) "COMPANY" means Advanced Energy Industries, Inc., a Delaware corporation.

(f) "CONSULTANT" means any person, including an advisor, engaged by the Company or an Affiliate to render consulting services and who is compensated for such services, provided that the term "Consultant" shall not include Directors who are paid only a director's fee by the Company or who are not compensated by the Company for their services as Directors.

(g) "CONTINUOUS STATUS AS AN EMPLOYEE, DIRECTOR OR CONSULTANT" means the employment or relationship as a Director or Consultant is not interrupted or terminated. The Board, in its sole discretion, may determine whether Continuous Status as an Employee, Director or Consultant shall be considered interrupted in the case of: (i) any leave of absence approved by the Board, including sick leave, military leave, or any other personal leave; or (ii) transfers between locations of the Company or between the Company, Affiliates or their successors.

(h) "COVERED EMPLOYEE" means the Chief Executive Officer and the four (4) other highest compensated officers of the Company.

(i) "DIRECTOR" means a member of the Board.

(j) "DISINTERESTED PERSON" means a Director who either (i) was not during the one year prior to service as an administrator of the Plan granted or awarded equity securities pursuant to the Plan or any other plan of the Company or any of its affiliates entitling the participants therein to acquire equity securities of the Company or any of its affiliates except as permitted by Rule 16b-3(c)(2)(i); or (ii) is otherwise considered to be a "disinterested person" in accordance with Rule 16b-3(c)(2)(i), or any other applicable rules, regulations or interpretations of the Securities and Exchange Commission.

(k) "EMPLOYEE" means any person, including Officers and Directors, employed by the Company or any Affiliate of the Company. Neither service as a Director nor payment of a director's fee by the Company shall be sufficient to constitute "employment" by the Company.

(l) "EXCHANGE ACT" means the Securities Exchange Act of 1934, as amended.

- (m) "FAIR MARKET VALUE" means the value of the common stock as determined in good faith by the Board and in a manner consistent with Section 260.140.50 of Title 10 of the California Code of Regulations.
- (n) "INCENTIVE STOCK OPTION" means an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code and the regulations promulgated thereunder.
- (o) "NONSTATUTORY STOCK OPTION" means an Option not intended to qualify as an Incentive Stock Option.
- (p) "OFFICER" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.
- (q) "OPTION" means a stock option granted pursuant to the Plan.
- (r) "OPTION AGREEMENT" means a written agreement between the Company and an Optionee evidencing the terms and conditions of an individual Option grant. Each Option Agreement shall be subject to the terms and conditions of the Plan.
- (s) "OPTIONEE" means an Employee, Director or Consultant who holds an outstanding Option.
- (t) "OUTSIDE DIRECTOR" means a Director who either (i) is not a current employee of the Company or an "affiliated corporation" (as defined in the Treasury regulations promulgated under Section 162(m) of the Code), is not a former employee of the Company or an affiliated corporation receiving compensation for prior services (other than benefits under a tax qualified pension plan), was not an officer of the Company or an affiliated corporation at any time, and is not currently receiving compensation for personal services in any capacity other than as a Director, or (ii) is otherwise considered an "outside director" for purposes of Section 162(m) of the Code.
- (u) "PLAN" means this 1995 Stock Option Plan.
- (v) "RULE 16B-3" means Rule 16b-3 of the Exchange Act or any successor to Rule 16b-3, as in effect when discretion is being exercised with respect to the Plan.

### 3. ADMINISTRATION.

(a) The Plan shall be administered by the Board unless and until the Board delegates administration to a Committee, as provided in subsection 3(c).

(b) The Board shall have the power, subject to, and within the limitations of, the express provisions of the Plan:

(1) To determine from time to time which of the persons eligible under the Plan shall be granted Options; when and how each Option shall be granted; whether an Option will be an Incentive Stock Option or a Nonstatutory Stock Option; the provisions of each Option granted (which need not be identical), including the time or times such Option may be exercised in whole or in part; and the number of shares for which an Option shall be granted to each such person.

(2) To construe and interpret the Plan and Options granted under it, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Option Agreement, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective.

(3) To amend the Plan as provided in Section 11.

(c) The Board may delegate administration of the Plan to a committee composed of not fewer than two (2) members (the "Committee"), all of the members of which Committee shall be Disinterested Persons and may also be, in the discretion of the Board, Outside Directors. If administration is delegated to a Committee, the Committee shall have, in connection with the administration of the Plan, the powers theretofore possessed by the Board (and references in this Plan to the Board shall thereafter be to the Committee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may abolish the Committee at any time and revert in the Board the administration of the Plan. Additionally, prior to the date of the first registration of an equity security of the Company under Section 12 of the Exchange Act, and notwithstanding anything to the contrary contained

herein, the Board may delegate administration of the Plan to any person or persons and the term "Committee" shall apply to any person or persons to whom such authority has been delegated. Notwithstanding anything in this Section 3 to the contrary, the Board or the Committee may delegate to a committee of one or more members of the Board the authority to grant Options to eligible persons who (1) are not then subject to Section 16 of the Exchange Act and/or

(2) are either (i) not then Covered Employees and are not expected to be Covered Employees at the time of recognition of income resulting from such Option, or (ii) not persons with respect to whom the Company wishes to comply with Section 162(m) of the Code.

(d) Any requirement that an administrator of the Plan be a Disinterested Person shall not apply (i) prior to the date of the first registration of an equity security of the Company under Section 12 of the Exchange Act, or (ii) if the Board or the Committee expressly declares that such requirement shall not apply. Any Disinterested Person shall otherwise comply with the requirements of Rule 16b-3.

#### 4. SHARES SUBJECT TO THE PLAN.

(a) Subject to the provisions of Section 10 relating to adjustments upon changes in stock, the stock that may be sold pursuant to Options shall not exceed in the aggregate four million six hundred twenty-five thousand (4,625,000) shares of the Company's common stock. If any Option shall for any reason expire or otherwise terminate, in whole or in part, without having been exercised in full, the stock not purchased under such Option shall revert to and again become available for issuance under the Plan.

(b) The stock subject to the Plan may be unissued shares or reacquired shares, bought on the market or otherwise.

#### 5. ELIGIBILITY.

(a) Incentive Stock Options may be granted only to Employees. Nonstatutory Stock Options may be granted only to Employees, Directors or Consultants.

(b) A Director shall in no event be eligible for the benefits of the Plan unless at the time discretion is exercised in the selection of the Director as a person to whom Options may be granted, or in the determination of the number of shares which may be covered by Options granted to the Director: (i) the Board has delegated its discretionary authority over the Plan to a Committee which consists solely of Disinterested Persons; or (ii) the Plan otherwise complies with the requirements of Rule 16b-3. The Board shall otherwise comply with the requirements of Rule 16b-3. This subsection 5(b) shall not apply (i) prior to the date of the first registration of an equity security of the Company under Section 12 of the Exchange Act, or (ii) if the Board or Committee expressly declares that it shall not apply.

(c) No person shall be eligible for the grant of an Option if, at the time of grant, such person owns (or is deemed to own pursuant to Section 424 (d) of the Code) stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or of any of its Affiliates unless the exercise price of such Option is at least one hundred ten percent (110%) of the Fair Market Value of such stock at the date of grant and the Option is not exercisable after the expiration of five (5) years from the date of grant.

(d) Subject to the provisions of Section 10 relating to adjustments upon changes in stock, no person shall be eligible to be granted Options covering more than three hundred thousand (300,000) shares of the Company's common stock in any calendar year.

## 6. OPTION PROVISIONS.

Each Option shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. The provisions of separate Options need not be identical, but each Option shall include (through incorporation of provisions hereof by reference in the Option or otherwise) the substance of each of the following provisions:

(a) TERM. No Option shall be exercisable after the expiration of ten (10) years from the date it was granted.



(b) **PRICE.** The exercise price of each Incentive Stock Option shall be not less than one hundred percent (100%) of the Fair Market Value of the stock subject to the Option on the date the Option is granted. The exercise price of each Nonstatutory Stock Option shall be not less than eighty-five percent (85%) of the Fair Market Value of the stock subject to the Option on the date the Option is granted.

(c) **CONSIDERATION.** The purchase price of stock acquired pursuant to an Option shall be paid, to the extent permitted by applicable statutes and regulations, either (i) in cash at the time the Option is exercised, or (ii) at the discretion of the Board or the Committee, either at the time of the grant or exercise of the Option, (A) by delivery to the Company of other common stock of the Company, (B) according to a deferred payment or other arrangement (which may include, without limiting the generality of the foregoing, the use of other common stock of the Company) with the person to whom the Option is granted or to whom the Option is transferred pursuant to subsection 6(d), or (C) in any other form of legal consideration that may be acceptable to the Board.

In the case of any deferred payment arrangement, interest shall be payable at least annually and shall be charged at the minimum rate of interest necessary to avoid the treatment as interest, under any applicable provisions of the Code, of any amounts other than amounts stated to be interest under the deferred payment arrangement.

(d) **TRANSFERABILITY.** An Incentive Stock Option shall not be transferable except by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of the person to whom the Incentive Stock Option is granted only by such person. A Nonstatutory Stock Option shall not be transferable except by will or by the laws of descent and distribution or pursuant to a qualified domestic relations order satisfying the requirements of Rule 16b-3 and the rules thereunder (a "QDRO"), and shall be exercisable during the lifetime of the person to whom the Option is granted only by such person or any transferee pursuant to a QDRO. The person to whom the Option is granted may, by delivering written notice to the Company, in a form satisfactory to

the Company, designate a third party who, in the event of the death of the Optionee, shall thereafter be entitled to exercise the Option.

(e) VESTING. The total number of shares of stock subject to an Option may, but need not, be allotted in periodic installments (which may, but need not, be equal). The Option Agreement may provide that from time to time during each of such installment periods, the Option may become exercisable ("vest") with respect to some or all of the shares allotted to that period, and may be exercised with respect to some or all of the shares allotted to such period and/or any prior period as to which the Option became vested but was not fully exercised. The Option may be subject to such other terms and conditions on the time or times when it may be exercised (which may be based on performance or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options may vary but in each case will provide for vesting of at least twenty percent (20%) per year of the total number of shares subject to the Option. The provisions of this subsection 6(e) are subject to any Option provisions governing the minimum number of shares as to which an Option may be exercised.

(f) SECURITIES LAW COMPLIANCE. The Company may require any Optionee, or any person to whom an Option is transferred under subsection 6(d), as a condition of exercising any such Option, (1) to give written assurances satisfactory to the Company as to the Optionee's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters, and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Option; and (2) to give written assurances satisfactory to the Company stating that such person is acquiring the stock subject to the Option for such person's own account and not with any present intention of selling or otherwise distributing the stock. The foregoing requirements, and any assurances given pursuant to such requirements, shall be inoperative if (i) the issuance of the shares upon the exercise of the Option has been registered under a then currently effective registration statement under the Securities Act

of 1933, as amended (the "Securities Act"), or (ii) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the stock.

**(g) TERMINATION OF EMPLOYMENT OR RELATIONSHIP AS A DIRECTOR OR**

**CONSULTANT.** In the event an Optionee's Continuous Status as an Employee, Director or Consultant terminates (other than upon the Optionee's death or disability), the Optionee may exercise his or her Option (to the extent that the Optionee was entitled to exercise it at the date of termination) but only within such period of time ending on the earlier of (i) the date three (3) months after the termination of the Optionee's Continuous Status as an Employee, Director or Consultant (or such longer or shorter period, which in no event shall be less than thirty (30) days, specified in the Option Agreement), or (ii) the expiration of the term of the Option as set forth in the Option Agreement. If, after termination, the Optionee does not exercise his or her Option within the time specified in the Option Agreement, the Option shall terminate, and the shares covered by such Option shall revert to and again become available for issuance under the Plan.

**(h) DISABILITY OF OPTIONEE.** In the event an Optionee's Continuous Status as an Employee, Director or Consultant terminates as a result of the Optionee's disability, the Optionee may exercise his or her Option (to the extent that the Optionee was entitled to exercise it at the date of termination), but only within such period of time ending on the earlier of

(i) the date twelve (12) months following such termination (or such longer or shorter period, which in no event shall be less than six (6) months, specified in the Option Agreement), or (ii) the expiration of the term of the Option as set forth in the Option Agreement. If, at the date of termination, the Optionee is not entitled to exercise his or her entire Option, the shares covered by the unexercisable portion of the Option shall revert to and again become available for issuance under the Plan. If, after termination,

the Optionee does not exercise his or her Option within the time specified herein, the Option shall terminate, and the shares covered by such Option shall revert to and again become available for issuance under the Plan.

(i) **DEATH OF OPTIONEE.** In the event of the death of an Optionee during, or within a period specified in the Option after the termination of, the Optionee's Continuous Status as an Employee, Director or Consultant, the Option may be exercised (to the extent the Optionee was entitled to exercise the Option at the date of death) by the Optionee's estate, by a person who acquired the right to exercise the Option by bequest or inheritance or by a person designated to exercise the option upon the Optionee's death pursuant to subsection 6(d), but only within the period ending on the earlier of (i) the date eighteen (18) months following the date of death (or such longer or shorter period, which in no event shall be less than six (6) months, specified in the Option Agreement), or (ii) the expiration of the term of such Option as set forth in the Option Agreement. If, at the time of death, the Optionee was not entitled to exercise his or her entire Option, the shares covered by the unexercisable portion of the Option shall revert to and again become available for issuance under the Plan. If, after death, the Option is not exercised within the time specified herein, the Option shall terminate, and the shares covered by such Option shall revert to and again become available for issuance under the Plan.

(j) **EARLY EXERCISE.** The Option may, but need not, include a provision whereby the Optionee may elect at any time while an Employee, Director or Consultant to exercise the Option as to any part or all of the shares subject to the Option prior to the full vesting of the Option. Any unvested shares so purchased shall be subject to a repurchase right in favor of the Company, with the repurchase price to be equal to the original purchase price of the stock, or to any other restriction the Board determines to be appropriate; provided, however, that (i) the right to repurchase at the original purchase price shall lapse at a minimum rate of twenty percent (20%) per year over five (5) years from the date the Option was granted, and (ii) such right shall be exercisable only within (A) the ninety (90) day period following the termination of employment or

the relationship as a Director or Consultant, or (B) such longer period as may be agreed to by the Company and the Optionee (for example, for purposes of satisfying the requirements of Section 1202(c)(3) of the Code (regarding "qualified small business stock")), and (iii) such right shall be exercisable only for cash or cancellation of purchase money indebtedness for the shares. Should the right of repurchase be assigned by the Company, the assignee shall pay the Company cash equal to the difference between the original purchase price and the stock's Fair Market Value if the original purchase price is less than the stock's Fair Market Value.

(k) **WITHHOLDING.** To the extent provided by the terms of an Option Agreement, the Optionee may satisfy any federal, state or local tax withholding obligation relating to the exercise of such Option by any of the following means or by a combination of such means: (1) tendering a cash payment; (2) authorizing the Company to withhold shares from the shares of the common stock otherwise issuable to the participant as a result of the exercise of the Option; or (3) delivering to the Company owned and unencumbered shares of the common stock of the Company.

## **7. COVENANTS OF THE COMPANY.**

(a) During the terms of the Options, the Company shall keep available at all times the number of shares of stock required to satisfy such Options.

(b) The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to issue and sell shares of stock upon exercise of the Options; provided, however, that this undertaking shall not require the Company to register under the Securities Act either the Plan, any Option or any stock issued or issuable pursuant to any such Option. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority which counsel for the Company deems necessary for the lawful issuance and sale of stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell stock upon exercise of such Options unless and until such authority is obtained.

## **8. USE OF PROCEEDS FROM STOCK.**

Proceeds from the sale of stock pursuant to Options shall constitute general funds of the Company.

#### 9. MISCELLANEOUS.

- (a) Neither an Optionee nor any person to whom an Option is transferred under subsection 6(d) shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares subject to such Option unless and until such person has satisfied all requirements for exercise of the Option pursuant to its terms.
- (b) Throughout the term of any Option, the Company shall deliver to the holder of such Option, not later than one hundred twenty (120) days after the close of each of the Company's fiscal years during the Option term, a balance sheet and an income statement. This section shall not apply when issuance is limited to key employees whose duties in connection with the Company assure them access to equivalent information.
- (c) Nothing in the Plan or any instrument executed or Option granted pursuant thereto shall confer upon any Employee, Director, Consultant or Optionee any right to continue in the employ of the Company or any Affiliate or to continue acting as a Director or Consultant or shall affect the right of the Company or any Affiliate to terminate the employment or relationship as a Director or Consultant of any Employee, Director, Consultant or Optionee with or without cause.
- (d) To the extent that the aggregate Fair Market Value (determined at the time of grant) of stock with respect to which Incentive Stock Options granted after 1986 are exercisable for the first time by any Optionee during any calendar year under all plans of the Company and its Affiliates exceeds one hundred thousand dollars (\$100,000), the Options or portions thereof which exceed such limit (according to the order in which they were granted) shall be treated as Nonstatutory Stock Options.
- (e) (1) The Board or the Committee shall have the authority to effect, at any time and from time to time (i) the repricing of any outstanding Options under the Plan and/or (ii) with the consent of the affected holders of Options, the cancellation of any outstanding Options and the

grant in substitution therefor of new Options under the Plan covering the same or different numbers of shares of Common Stock, but having an exercise price per share not less than eighty-five percent (85%) of the Fair Market Value (one hundred percent (100%) of the Fair Market Value in the case of an Incentive Stock Option or, in the case of a ten percent (10%) stockholder (as defined in subsection 5(c)), not less than one hundred and ten percent (110%) of the Fair Market Value) per share of Common Stock on the new grant date.

(2) Shares subject to an Option canceled under this subsection 9(e) shall continue to be counted against the maximum award of Options permitted to be granted pursuant to subsection 5(d) of the Plan. The repricing of an Option under this subsection 9(e), resulting in a reduction of the exercise price, shall be deemed to be a cancellation of the original Option and the grant of a substitute Option; in the event of such repricing, both the original and the substituted Options shall be counted against the maximum awards of Options permitted to be granted pursuant to subsection 5(d) of the Plan. The provisions of this subsection 9(e) shall be applicable only to the extent required by Section 162(m) of the Code.

#### 10. ADJUSTMENTS UPON CHANGES IN STOCK.

(a) If any change is made in the stock subject to the Plan, or subject to any Option (through merger, consolidation, reorganization, recapitalization, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or otherwise), the Plan will be appropriately adjusted in the class(es) and maximum number of shares subject to the Plan pursuant to subsection 4(a) and the maximum number of shares subject to award to any person during any calendar year pursuant to subsection 5(d), and the outstanding Options will be appropriately adjusted in the class(es) and number of shares and price per share of stock subject to such outstanding Options.

(b) In the event of: (1) a merger or consolidation in which the Company is not the surviving corporation or (2) a reverse merger in which the Company is the surviving corporation but the shares of the Company's common stock outstanding immediately preceding the merger are

converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise then to the extent permitted by applicable law:

(i) any surviving corporation shall assume any Options outstanding under the Plan or shall substitute similar Options for those outstanding under the Plan, or (ii) such Options shall continue in full force and effect. In the event any surviving corporation refuses to assume or continue such Options, or to substitute similar options for those outstanding under the Plan, then such Options shall be terminated if not exercised prior to such event. In the event of a dissolution or liquidation of the Company, any Options outstanding under the Plan shall terminate if not exercised prior to such event.

#### 11. AMENDMENT OF THE PLAN.

(a) The Board at any time, and from time to time, may amend the Plan. However, except as provided in Section 10 relating to adjustments upon changes in stock, no amendment shall be effective unless approved by the stockholders of the Company within twelve (12) months before or after the adoption of the amendment, where the amendment will:

(1) Increase the number of shares reserved for Options under the Plan;

(2) Modify the requirements as to eligibility for participation in the Plan (to the extent such modification requires stockholder approval in order for the Plan to satisfy the requirements of Section 422 of the Code); or

(3) Modify the Plan in any other way if such modification requires stockholder approval in order for the Plan to satisfy the requirements of Section 422 of the Code or to comply with the requirements of Rule 16b-3.

(b) The Board may in its sole discretion submit any other amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of Section 162(m) of the Code and the regulations promulgated thereunder regarding the exclusion of performance-based compensation from the limit on corporate deductibility of compensation paid to certain executive officers.



(c) It is expressly contemplated that the Board may amend the Plan in any respect the Board deems necessary or advisable to provide Optionees with the maximum benefits provided or to be provided under the provisions of the Code and the regulations promulgated thereunder relating to Incentive Stock Options and/or to bring the Plan and/or Incentive Stock Options granted under it into compliance therewith.

(d) Rights and obligations under any Option granted before amendment of the Plan shall not be altered or impaired by any amendment of the Plan unless

(i) the Company requests the consent of the person to whom the Option was granted and (ii) such person consents in writing.

## 12. TERMINATION OR SUSPENSION OF THE PLAN.

(a) The Board may suspend or terminate the Plan at any time. Unless sooner terminated, the Plan shall terminate on June 5, 2003 which shall be within ten (10) years from the date the Plan is adopted by the Board or approved by the stockholders of the Company, whichever is earlier. No Options may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) Rights and obligations under any Option granted while the Plan is in effect shall not be altered or impaired by suspension or termination of the Plan, except with the consent of the person to whom the Option was granted.

## 13. EFFECTIVE DATE OF PLAN.

The Plan shall become effective as determined by the Board, but no Options granted under the Plan shall be exercised unless and until the Plan has been approved by the stockholders of the Company, which approval shall be within twelve (12) months before or after the date the Plan is adopted by the Board, and, if required, an appropriate permit has been issued by the Commissioner of Corporations of the State of California.

**Exhibit 23.1**

**[LETTERHEAD]**

**CONSENT OF INDEPENDENT PUBLIC ACCOUNTANTS**

As independent public accountants, we hereby consent to the incorporation of our report included in this Form 10-K, into the Company's previously filed Registration Statement File Nos. 333-01616, 333-04073 and 333-46705.

*/s/ ARTHUR ANDERSEN LLP*

*Denver, Colorado,  
March 24, 1998.*

**ARTICLE 5**

RESTATED:

MULTIPLIER: 1,000

PERIOD TYPE	12 MOS
FISCAL YEAR END	DEC 31 1995
PERIOD START	JAN 01 1995
PERIOD END	DEC 31 1995
CASH	13,332
SECURITIES	0
RECEIVABLES	15,382
ALLOWANCES	(210)
INVENTORY	16,104
CURRENT ASSETS	46,302
PP&E	10,273
DEPRECIATION	(3,634)
TOTAL ASSETS	55,319
CURRENT LIABILITIES	12,553
BONDS	0
PREFERRED MANDATORY	0
PREFERRED	0
COMMON	21
OTHER SE	41,066
TOTAL LIABILITY AND EQUITY	55,319
SALES	94,708
TOTAL REVENUES	94,708
CGS	49,314
TOTAL COSTS	49,314
OTHER EXPENSES	23,916
LOSS PROVISION	0
INTEREST EXPENSE	612
INCOME PRETAX	21,085
INCOME TAX	7,804
INCOME CONTINUING	13,281
DISCONTINUED	0
EXTRAORDINARY	0
CHANGES	0
NET INCOME	13,281
EPS PRIMARY	0.73
EPS DILUTED	0.69

## ARTICLE 5

MULTIPLIER: 1,000

PERIOD TYPE	YEAR
FISCAL YEAR END	DEC 31 1997
PERIOD START	JAN 01 1997
PERIOD END	DEC 31 1997
CASH	11,470
SECURITIES	20,174
RECEIVABLES	28,814
ALLOWANCES	(428)
INVENTORY	26,243
CURRENT ASSETS	91,581
PP&E	18,348
DEPRECIATION	(7,017)
TOTAL ASSETS	112,243
CURRENT LIABILITIES	24,873
BONDS	0
PREFERRED MANDATORY	0
PREFERRED	0
COMMON	22
OTHER SE	87,326
TOTAL LIABILITY AND EQUITY	112,243
SALES	141,923
TOTAL REVENUES	141,923
CGS	87,538
TOTAL COSTS	87,538
OTHER EXPENSES	37,380
LOSS PROVISION	0
INTEREST EXPENSE	329
INCOME PRETAX	17,031
INCOME TAX	6,669
INCOME CONTINUING	10,362
DISCONTINUED	0
EXTRAORDINARY	0
CHANGES	0
NET INCOME	10,362
EPS PRIMARY	0.48
EPS DILUTED	0.47

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**End of Filing**

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