



FORM 10-K

BTU INTERNATIONAL INC - BTUI

Exhibit:

Filed: March 30, 2000 (period: December 31, 1999)

Annual report which provides a comprehensive overview of the company for the past year

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- Portions of the Proxy Statement for the 2000 Annual Meeting of

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SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-K

(MARK ONE)

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

FOR THE FISCAL YEAR ENDED DECEMBER 31, 1999

OR

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

FOR THE TRANSITION PERIOD FROM _____ TO _____.

COMMISSION FILE NUMBER 0-17297

BTU INTERNATIONAL, INC.
(Exact name of Registrant as specified in its charter)

DELAWARE
(State or Other Jurisdiction of
Incorporation or Organization)

04-2781248
(I.R.S. Employer
Identification Number)

23 ESQUIRE ROAD, NORTH BILLERICA, MASSACHUSETTS
(Address of principal executive offices)

01862-2596
(Zip Code)

REGISTRANT'S TELEPHONE NUMBER, INCLUDING AREA CODE: (978) 667-4111

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

None Registered

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT:

Title of Each Class

Common Stock, \$.01 Par Value

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 is not contained herein, and will not be contained, to the best of the Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K .

The aggregate market value of the shares of Common Stock, \$.01 par value, of the Company held by non-affiliates of the Company was \$56,670,790 on March 29, 2000.

Indicate number of shares outstanding of the Registrant's Common Stock, par value \$.01 per share, as of the latest practicable date: As of March 29, 2000: 6,864,688 shares.

DOCUMENTS INCORPORATED HEREIN BY REFERENCE

The following documents are incorporated herein by reference: Part II - Portions of the Annual Report to Stockholders, for the year ended December 31, 1999; and

Part III - Portions of the Proxy Statement for the 2000 Annual Meeting of Stockholders, both of which are to be filed with the Securities and Exchange Commission.

BTU INTERNATIONAL, INC.
1999 FORM 10-K ANNUAL REPORT

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PART I

ITEM 1. BUSINESS

We design, manufacture, sell and support advanced thermal processing systems used primarily in advanced semiconductor packaging and the assembly of printed circuit boards (PCBs). We believe we are the leading supplier of solder reflow systems used by electronics original equipment manufacturers (OEMs) and contract electronics manufacturers (CEMs). In addition, we produce high temperature advanced thermal processing systems for manufacturing ceramics components for electronics and a variety of specialty applications.

Our customers serve the advanced segments of the electronics industry in which complex, high density PCBs and components are used. Our customers typically require high throughput, high yield and highly reliable advanced thermal processing systems with tightly controlled temperature and atmosphere parameters of the type realizable with our products.

Our products are sold worldwide through our direct technical sales force and through independent sales representatives. Among our top revenue generating customers in 1999 are such industry leaders as Celestica Incorporated, Intel Corporation, Lucent Technologies Inc., Motorola, Inc., Nokia Corporation, Samsung Corporation and Sollectron Corporation.

Our principal offices are located at 23 Esquire Road, North Billerica, Massachusetts 01862. Our telephone number is (978) 667-4111. We also have sales and service facilities throughout North America, Europe and Asia. Our corporate website is www.btu.com.

INDUSTRY BACKGROUND

Growth in Electronics. Demand is growing rapidly for increasingly sophisticated electronic devices such as notebook computers, cellular phones, and personal digital assistants (PDAs). Other types of electronics equipment are becoming more complex, including data communications equipment such as switches, routers and servers, broadband access products such as cable modems and ethernet accessories and consumer products such as automobile electronics and digital cameras.

Integral to the growth in electronics are the advances in technology which result in producing smaller, lighter and cheaper end products. These advances are achieved, in part, by increasing the performance and reducing the cost, size, weight and power requirements of the components that comprise electronic devices, such as electronic assemblies, PCBs and semiconductors. In response to these developments, OEMs and CEMs are increasingly employing more sophisticated manufacturing and assembly techniques and more advanced manufacturing equipment.

ELECTRONICS MANUFACTURING PROCESS. Electronics manufacturing processes include integrated circuit manufacturing, integrated circuit packaging and the assembly of PCBs. In the advanced semiconductor packaging and PCB assembly processes, several precision thermal processes are required to connect and bond integrated circuits (ICs) to semiconductor packages and packaged circuits and other components to PCBs. The attachment process, which creates a permanent physical and electrical bond, is called solder reflow, or reflow. For example, the PCB assembly process involves heating a PCB upon which solder pads have been printed and electronic components have been placed. A convection thermal processing system heats the PCB until just above the melting point of the solder pads and then provides a controlled cooling cycle, resulting in a permanent physical and electrical bond between the PCB and the electronic components. Flux, which is produced by vaporized solder during the solder reflow thermal processing cycle, must be contained and collected. Following the bonding process, voids must be filled with an epoxy material which is then thermally cured.

The growth in the electronics industry is driving manufacturers to demand more versatile, more reliable and more advanced capital equipment. Other factors that drive the demand for advanced thermal processing systems include:

- Rapid growth in contract electronics manufacturing;
- Sharp growth in manufacturing capacity at leading cellular phone producers;
- Technological advances in semiconductor packaging and PCB assembly;
- Globalization of major electronics manufacturers;
- Move toward lead-free solder;
- Replacement of palladium with nickel in capacitors; and
- Increased velocity of new product introductions.

TECHNOLOGICAL CHALLENGES

Advanced thermal processing systems present significant engineering challenges related to temperature control, atmosphere control, product handling, flux containment and disposal, and high system up time.

Advanced thermal processing systems maintain accurate and uniform temperatures within their process chambers. The temperature within the process chamber is influenced by the rate at which components are moved through the system and the weight and density of the PCBs. In addition, the thermal processing system's heat convection rate must be varied and controlled as different components and PCBs are processed. The chamber must also dispense heat uniformly across the PCBs and components at precise temperatures so that all of the solder will reflow properly without damaging the components. Also, components must be heated and cooled at closely preset rates in order to avoid damage caused by thermal stress.

Another technological challenge for advanced thermal processing systems is achieving precisely controlled atmospheric conditions within the process chamber. In order to facilitate thermal processing without damage to components, many advanced thermal processing systems use a substantially oxygen-free atmosphere of nitrogen or hydrogen in their process chambers. If such gases are used, the entry of contaminating air must be substantially eliminated, even though the product enters and exits the system continuously from the ambient atmosphere. Maintaining a pure and controlled atmosphere in the process chamber, while minimizing the consumption of nitrogen or hydrogen gases in order to reduce operating costs, presents significant engineering challenges.

Handling PCBs in advanced thermal processing systems requires highly reliable conveyance systems that can easily be converted to process a wide variety of products having different specifications, often on side-by-side tracks through the process chamber. The product handling system must also fully support different sizes of PCBs to eliminate yield loss which could be caused by the sagging of PCBs at elevated temperatures during the heating process.

Volatile compounds in the flux, which is vaporized during the solder reflow thermal processing cycle, must be contained and collected so that they do not condense in the system and damage the environment. The efficient containment, collection and disposal of the flux are important factors in achieving high system up time, high throughput and reliability.

The mechanical components in advanced thermal processing systems must operate almost continuously in a demanding, elevated temperature environment with frequent thermal cycles. The use of materials that are resistant to high temperature and thermal stress is important to achieving high reliability.

OUR SOLUTION

We deliver a broad range of advanced thermal processing systems to serve the needs of electronics manufacturers that require high throughput, process yields and reliability with tightly controlled process parameters. Our systems enable our customers to increase advanced semiconductor packaging and PCB assembly throughput and yield by providing precise atmosphere and temperature control. In addition to the high performance of our products, we believe the quality standards of our organization and our worldwide service and support are important to our success with industry leading global electronics manufacturers.

ATMOSPHERE UNIFORMITY AND CONTROL. Our advanced thermal processing systems provide precision control over atmospheric conditions within their process chambers by integrating our gas curtain and physical curtain technologies. Our systems are capable of excluding virtually all oxygen from the reflow and curing process steps to maintain the integrity of the process chamber atmosphere. In addition, our systems minimize the consumption of nitrogen or hydrogen, thereby reducing the operating cost of maintaining the atmosphere.

ACCURATE AND UNIFORM TEMPERATURE. Our high rate convection heating modules provide controlled heating capacities across many different sizes of PCBs,

thereby enabling our customers to maximize throughput regardless of their product mix. In addition, our systems apply heat uniformly across each PCB and its semiconductor and other components, which is critical to ensure that complete reflow occurs. Heat up and cool down profiles are also closely controlled for process consistency and the protection of component parts.

REPEATABILITY FROM SYSTEM TO SYSTEM. We provide a high degree of repeatability from system to system through our closely characterized atmosphere and temperature controls and the reliability of our systems. This is a critical attribute because our customers must achieve uniform manufacturing performance in plants located throughout the world.

PROCESSING FLEXIBILITY. Major electronics manufacturers process many sizes of PCBs and often need rapid product changeover capabilities. Our systems can process PCBs of different sizes with minimal or no reconfiguration. Rapid changeover reduces down time and increases manufacturing volume. In addition, due to their very high volume requirements, our customers may require the ability to process multiple

PCBs simultaneously side by side through the same process chamber. Our systems afford our customers the flexibility to achieve side-by-side processing.

RELIABILITY. Our customers place a high premium on reliability. Reliability is a major contributor to low cost of ownership because high up time can increase the productivity of an entire production line. We believe our advanced thermal processing systems are the most reliable in our customers' production lines and among the most reliable advanced thermal processing systems in the electronics industry.

WORLDWIDE CUSTOMER SUPPORT. We provide our customers with global technical service support, in depth process engineering support and fast delivery of our systems and parts. We provide our customer support through our on-site direct service organization and our independent sales and service representatives, supplemented with telephonic support and extensive customer training programs twenty-four hours a day, seven days a week.

PRODUCTS

We supply a broad range of advanced thermal processing systems, the majority of which are used by OEMs and CEMs in the electronics manufacturing industry. The major application for our products is currently in the PCB assembly industry for solder reflow. Our advanced thermal processing systems are used in the bonding process necessary for the manufacture of advanced semiconductor packages and PCB assemblies. In addition, our products are used for such custom applications as the sintering of ceramics, the brazing of metals and the deposition of thin film coatings.

ELECTRONICS MANUFACTURING

PCB Reflow and Cure. We currently sell two series of advanced thermal processing systems used in the solder reflow and cure stages of PCB assembly as well as a new generation of systems under development.

The PARAGON series of advanced convection reflow systems, using specialized fan drives, is rated up to 400(degrees)C and operates in air or nitrogen atmospheres. The Paragon series utilizes an impingement technology to transfer heat to the PCB. The Paragon series is designed to handle a wide range of board sizes and can process loads of up to three pounds per square foot in a controlled atmosphere. Using the thermal power arrays of five kilowatt heaters, the Paragon can process PCBs in dual track configurations by engaging multiple board supports, thereby enabling our customers to double production without increasing the machine's footprint. This feature is primarily used in the production of PCBs for cellular phones.

The solder reflow process requires the thermal processing system to manage flux residues outgassed during the processing of the PCBs. The Paragon advanced thermal processing systems are equipped with a patented flux management system that isolates the flux outside the main process chamber, thereby helping to maintain the integrity of the atmosphere and facilitate easy disposal. The Paragon also features a closed loop convection control system to provide repeatable processes and controllable convection flows used in direct chip attach processes.

The Paragon series is available in three models based on the heated lengths of the thermal processing chambers. The heated length is based on the required production rate and loading requirements. The Paragon advanced thermal processing systems, with a 400(degrees)C temperature rating, are capable of processing lead-free solder. The Paragon series ranges in price from \$70,000 to \$160,000.

The VIP series of fan based reflow and curing systems is rated up to 300(degrees)C and is available in either air or air/nitrogen configurations. The VIP series also utilizes an impingement convection technology. The VIP uses 2.5 kilowatt heaters and is available in various heated lengths. The VIP series can be upgraded to process lead-free materials and ranges in price from \$40,000 to \$100,000.

We are developing, and expect to be selling by the second half of 2000, the PYRAMAX series of thermal processing systems. This series is designed on a single platform to be rapidly configurable, which will reduce our product build cycle and allow us to meet customer demands for shorter delivery lead times. The Pyramax offers our customers reduced capital cost, lower nitrogen consumption and reduced scheduled maintenance cycles.

Our new Pyramax series provides increased process flexibility due to its ability to process PCBs up to 24 inches wide. The Pyramax series, rated up to 400(degrees)C, is capable of operating in air or nitrogen atmospheres and has increased convection flow for greater performance. The Pyramax systems will be offered in various heated lengths and range in price from \$70,000 to \$150,000. Our Pyramax series will be capable of processing lead-free solder.

The VIP and Pyramax advanced thermal processing systems can also be used for advanced semiconductor packaging.

Advanced Semiconductor Packaging. We sell several systems for the thermal processes used in advanced semiconductor packaging.

Wafer Bump Reflow. Our TCAS series of continuous belt advanced thermal processing systems is rated up to 800(degrees)C and is designed for wafer bump reflow. It can operate in a variety of controlled atmospheres including hydrogen using patented gas barrier technology to achieve a high purity hydrogen atmosphere. Our TCAS systems range in price from \$100,000 to \$300,000 and are available in various belt widths and heated lengths.

Flip Chip Reflow in Package. Flip Chip Reflow physically and electronically attaches the die to its package. Our TRS thermal processing system is rated up to 350(degrees)C, operates in air or nitrogen and uses an impingement convection system, which is unique for this application. This system uses a gas amplifier instead of a fan to drive convection flow. The TRS is currently used for flip chip reflow in the semiconductor packaging industry. Our TRS has the capability to control nitrogen atmospheres with oxygen levels below five parts per million which is critical in the flip chip reflow process for high input/output applications. Our TRS advanced thermal processing systems range in price from \$100,000 to \$150,000.

Ball Grid Array Solder Sphere Attach Reflow. The VIP series, with nitrogen atmosphere capability, is used for the attachment of solder balls to the semiconductor package. Our VIP series, as configured with 70 inches of heated length and nitrogen atmosphere, is used for the solder reflow process. See "VIP" above.

Epoxy Underfill Cure. The VIP series, operating in a clean dry air atmosphere, is used to cure the epoxy underfill materials in various advanced semiconductor packaging technologies. To reduce footprint, the VIP utilizes dual or triple track conveyance system for materials requiring longer cure times. As part of the process, the VIP is used for heating the epoxy underfill materials thereby keeping the material flowing under the chip prior to the curing process.

Hybrid Circuits and Discrete Components. We offer a range of products that are used in the manufacturing of multilayer ceramic capacitors and thick film hybrid circuits.

Multilayer Ceramic Capacitors and Hybrid Circuits. We have developed a new BME PUSHER thermal processing system for manufacturing advanced nickel-based MLCCs. The process requires the sintering of the nickel electrode in a very controlled multi atmosphere containing nitrogen, hydrogen and oxygen at 1300(degrees) to 1400(degrees)C. The BME Pusher controls partial pressures of oxygen, critical in the sintering process, and ranges in price from \$800,000 to \$1.0 million.

We also supply a second type of system for MLCC manufacturing. Our VMCA series of continuous belt advanced thermal processing systems, rated up to 1100(degrees)C in air or nitrogen atmospheres, is used for firing copper thick film for terminations of MLCC. The VMCA utilizes an advanced gas scrubbing system to control the binder removal phase in the termination firing process. The VMCA is available in various belt widths and heated lengths and ranges in price from \$100,000 to \$150,000.

Thick Film Resistors and Conductors. The TFF and the VM series of continuous belt advanced thermal processing systems is rated up to 1050(degrees)C in air. These systems are used for firing thick film pastes in the production of hybrid circuits and can achieve an across belt temperature uniformity of +/- 1(degrees)C. Such thermal uniformity is critical in the production of resistor circuits. These systems are available in various belt widths and heated lengths and range in price from \$50,000 to \$180,000.

CUSTOM APPLICATIONS

We design and manufacture custom high temperature systems used in such applications as metals brazing, ceramic sintering and thin film coatings.

Metals Brazing. The TCA series of continuous advanced thermal processing systems is rated up to 1150(degrees)C and operates in a variety of atmospheres. This series is used for a range of thermal processing applications including brazing of metals such as aluminum oil coolers for the automotive industry. The TCA series utilizes a patented system to enhance temperature uniformity and increase product throughput. The TCA series is available in a variety of belt widths and heated lengths and ranges in price from \$70,000 to \$500,000.

Ceramic Sintering. The WBE WALKING BEAM thermal processing system is rated up to 1800(degrees)C and operates in a hydrogen reducing atmosphere. This series is primarily used for sintering of multilayer ceramics and nuclear fuel pellets that are used in the production of nuclear power. The WBE Walking Beam is designed for high volume production applications with very heavy loads. It uses a walking beam transport system to eliminate friction associated with advanced thermal processing systems that use pusher technology. This system ranges in price from \$500,000 to \$1.5 million.

We also offer a PUSHER thermal processing system which is rated up to 1800(degrees)C in a hydrogen reducing atmosphere. The Pusher is used in lower volume applications for the sintering of ceramics and nuclear fuels. These systems range in price from \$500,000 to \$1.0 million.

Thin Film Coatings. The TCD series of continuous advanced thermal processing systems is used for the deposition of thin film coatings at atmospheric pressure. Typical processes include the deposition of anti-reflective coatings on silicon or glass. The TCD series is available in a variety of belt widths and heated lengths and ranges in price from \$300,000 to \$600,000.

CUSTOMERS

Many of our principal customers are large-volume global OEMs and CEMs that produce ICs and assemble PCBs for use in the manufacture of electronic devices. Many of our customers use our products in multiple facilities worldwide. Our CEM customers include industry leaders such as Celestica and Solectron. Our OEM customers include leaders in the their respective industries such as Intel and Lucent as well as those in the telecommunications industry such as Motorola, Nokia, and Samsung.

Our largest revenue generating customers have historically accounted for a significant percentage of our net sales. In 1999, aggregate sales to our ten largest customers accounted for approximately 50% of our net sales. In 1999, sales to Solectron, our largest customer for that year, represented nearly 18% of our total net sales. In 1998, Solectron and Intel represented approximately 14% and 13% of our net sales, respectively. In 1997, Solectron represented approximately 14% of our net sales.

SALES AND MARKETING

We market and sell our products through our direct sales force and independent sales representatives throughout the world and we promote our products through industry-wide venues such as trade shows. Our direct sales force is responsible for educating the marketplace, generating leads and creating sales programs and literature. Our on-site direct service organization and our manufacturers representatives provide ongoing services to customers using our products. These services include implementing continuous improvement tools related both to the cost of our products and to their technical performance. These service functions allow us to market future sales within our current customer base. In addition, our management and sales teams participate in periodic trade conventions, through which we aggressively market our products to potential customers.

We market our systems and services globally. Approximately 68% of our net sales originate outside the United States, with Asia Pacific and Europe representing 30% and 26% of net sales, respectively.

RESEARCH, DEVELOPMENT AND ENGINEERING

Our research, development and engineering efforts are directed toward enhancing existing products and developing our next generation of products. Our expenses for research, development and engineering increased from \$4.6 million in 1998 to \$4.8 million in 1999. A large percent of our research, development and engineering budget in 1999 was spent on the development of a new solder reflow platform and in the design of our MLCC sintering systems.

We have developed close working relationships between our key customers and our product engineering teams. These relationships enable us to incorporate our customers' feedback and needs into our product development efforts.

We have reduced the time it takes to introduce new products and lowered research, development and engineering costs by integrating product design, manufacturing, engineering and after sales support documentation. We also have begun an information technology initiative to develop language-independent electronic service and repair support.

MANUFACTURING AND SUPPLIERS

Our principal manufacturing operations consist of final assembly, systems integration and testing at our facility in North Billerica, Massachusetts. We outsource the manufacture of most of our components to a number of different suppliers and maintain close relationships with these key suppliers. We have a list of qualified alternative suppliers in the event we exceed the capacity of our key suppliers.

We made a significant investment to modernize our manufacturing operations in 1998. In the future, we expect to make additional investments in software and capital equipment related to our information technology infrastructure and customer support. We have outsourced the manufacture of most of our significant component systems in the last two years, thereby reducing cycle time and increasing our inventory turnover. We adhere closely to the principles of total quality management and have been ISO 9001 certified since March 1998. Our customers, suppliers and employees are encouraged to provide feedback and make suggestions for product improvements. These increased efficiencies in our manufacturing operations have dramatically increased our net sales per employee.

INTELLECTUAL PROPERTY

We seek to protect our intellectual property by filing patents on proprietary features of our advanced thermal processing systems and by challenging third parties that we believe infringe on our patents. We also protect our intellectual property rights with nondisclosure and confidentiality agreements with employees, consultants and key customers and with our trademarks, trade secrets and copyrights. As a global supplier of equipment, we recognize that the laws of certain foreign countries may not protect our intellectual property to the same extent as the laws of the United States.

We license some software programs from third party developers and

incorporate them into our products. Generally, these agreements grant us non-exclusive licenses to use the software and terminate only upon a material breach by us. We believe that such licenses are generally available on commercial terms from a number of licensors.

We initiated a legal action on June 12, 1998 against Electrovert, Inc., a Division of Cookson Group PLC (Electrovert) and one of Electrovert's subsidiaries, claiming that the flux condenser on their advanced thermal processing system infringes on our patent. Electrovert and its subsidiary have filed two counter suits, claiming that parts of our thermal processing technology infringe on their patents. We intend to vigorously protect our proprietary rights in these actions.

BACKLOG

Backlog at December 31, 1999 was \$11.3 million, compared to \$10.9 million at December 31, 1998. As of December 31, 1999, we expected to ship our year end backlog within 6 to 20 weeks. Most of our backlog for solder reflow systems is expected to be shipped within 3 to 8 weeks. The backlog of our custom systems is expected to be shipped within 12 to 20 weeks. We include in backlog only those orders for which the customer has signed a purchase order and a delivery schedule has been specified. Because of possible changes in delivery schedules and order cancellations, our backlog at any particular date is not necessarily representative of sales for any subsequent period.

COMPETITION

Several companies compete with us in selling advanced thermal processing systems to OEMs and CEMs. Although price is a factor in buying decisions on price, we believe that technological leadership, process capability, throughput, environmental safeguards, uptime, mean time-to-repair, cost of ownership and after-sale support have become increasingly important factors. We compete primarily on the basis of these criteria, rather than on the basis of price.

Our principal competitors for advanced semiconductor packaging and PCB assembly equipment vary by product application. Our principal competitors for solder reflow systems are Electrovert-Speedline Technologies (a Cookson Electronic Company), Heller Industries, and Vitronics-Soltec, Inc. (a Dover Technologies Company). Our MLCC systems will primarily compete with systems produced by Tokai, a Japanese manufacturer. Our high temperature systems for thick film, hybrid circuits, ceramics and other applications compete primarily against systems sold by Lindberg (a Unit of SPX Corp.), SierraTherm Production Furnaces, Inc., Centrotherm and Harper International Corp.

EMPLOYEES

As of March 1, 2000, we had 294 employees, of whom 87 are engaged in sales, marketing and service, 33 in research, development and engineering, 34 in finance and administration and 140 in operations. None of our employees is represented by a collective bargaining agreement, and we believe that we have satisfactory relations with our employees.

ENVIRONMENTAL

Compliance with laws and regulations regarding the discharge of materials into the environment, or otherwise relating to the protection of the environment, has not had any material effects on the capital expenditures, earnings or competitive position of the Company. The Company does not anticipate any material capital expenditures for environmental control facilities in 2000.

ITEM 2. PROPERTIES

FACILITIES

We maintain our headquarters in North Billerica, Massachusetts, where we own a 150,000 square foot manufacturing facility. We currently operate our manufacturing facility on a full time first shift and a partial second shift basis. In England, we lease a facility for our European sale and service operations. We also rent office space in Paris, France. In Asia, we lease sales and service offices in Shanghai and Beijing, China; Singapore; Penang, Malaysia; and Cavite, Philippines. We believe that our plant and capital equipment provide sufficient manufacturing capacity through 2000.

ITEM 3. LEGAL PROCEEDINGS

There were no material legal proceedings pending as of the time of this filing.

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

There were no matters submitted to a vote of the Company's security holders during the fourth quarter of 1999.

ITEM 4A. EXECUTIVE OFFICERS OF THE REGISTRANT

NAME ----	AGE ---	POSITIONS -----
Paul J. van der Wansem	60	Chairman of the Board of Directors, President and Chief Executive Officer
Santo J. DiNaro	54	Executive Vice President
Thomas P. Kealy	57	Vice President, Corporate Controller and Chief Accounting Officer
James M. Griffin	42	Vice President of Sales-Americas

Paul J. van der Wansem has been President, Chief Executive Officer and a member of our board of directors since 1979. From December 1977 to 1981, he served as Vice President of Holec, N.V., a Dutch electronics company, and from 1978 to 1981, he was also president of Holec (USA), Inc. From 1973 to 1977, he worked as a Management Consultant for the Boston Consulting Group, Inc. From 1970 to 1973, Mr. van der Wansem worked as an Adjunct Director of First National City Bank in Amsterdam and New York. Mr. van der Wansem received an undergraduate degree in automotive engineering from Bromsgrove College, England and holds an M.B.A. from IMD, Switzerland.

Santo J. DiNaro has been Executive Vice President of our company since May 1999. He joined our company as Vice President of Operations and Engineering in December 1997. Prior to joining our company, Mr. DiNaro served as head of Engineering at Varian's Ion Implant Division and previously was the Operations Manager. Mr. DiNaro was with Varian for 17 years. Mr. DiNaro has a B.S. in Mechanical Engineering from Northeastern University.

Thomas P. Kealy has been Vice President, Corporate Controller and Chief Accounting Officer of our company since February 1991. He has been the Corporate Controller since joining our company in July 1985. Prior to 1985, Mr. Kealy served for 14 years in various financial management positions, including Division Controller for Polaroid Corporation. Earlier he was the Corporate Controller for Coro, Inc. and Lebanon, Inc. Mr. Kealy holds a B.S. in Finance and Accounting from Bentley College and an M.B.A. from Clark University.

James M. Griffin has been Vice President Sales-Americas of our company since February 2000. Previously, Mr. Griffin was our Director of Sales-North America. Mr. Griffin has held a number of positions within our company's sales organization. Mr. Griffin has been with our company for 17 years. Mr. Griffin attended Worcester Polytechnic Institute in the mechanical engineering program.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDERS MATTERS.

Our common stock has been listed on the Nasdaq National Market System under the symbol "BTUI" since February 7, 1989. The following table sets forth, for the periods indicated, the high and low closing prices of our common stock as reported on the Nasdaq National Market System.

HIGH	LOW
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Fiscal Year Ended December 31, 1998:

Source: BTU INTERNATIONAL IN, 10-K, March 30, 2000

First Quarter.....	\$ 5.53	\$ 4.25
Second Quarter.....	5.00	4.13
Third Quarter.....	4.25	2.50
Fourth Quarter.....	3.63	2.19
Fiscal Year Ended December 31, 1999:		
First Quarter.....	4.00	3.00
Second Quarter.....	5.00	2.69
Third Quarter.....	5.75	4.00
Fourth Quarter.....	5.75	4.31

As of March 29, 2000 there were approximately 519 stockholders of record.

DIVIDEND POLICY

Our policy is to retain earnings to provide funds for the operation and expansion of our business. We have not paid cash dividends on our common stock and do not anticipate that we will do so in the foreseeable future. The payment of dividends in the future will depend on our growth, profitability, financial condition and other factors that our board of directors may deem relevant.

ITEM 6. SELECTED FINANCIAL DATA

The selected consolidated statement of operations data for each of the fiscal years ended December 31, 1997, December 31, 1998 and December 31, 1999 and the selected consolidated balance sheet data as of December 31, 1998 and December 31, 1999 have been derived from our consolidated financial statements audited by Arthur Andersen LLP, independent public accountants, and are included elsewhere in this Form 10-K. The selected consolidated statement of operations data for the fiscal years ended December 31, 1995 and December 31, 1996 and the selected consolidated balance sheet data as of December 31, 1995, December 31, 1996 and December 31, 1997 have been derived from audited financial statements not included in this Form 10-K. This data should be read together with our consolidated financial statements and related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this Form 10-K.

	FISCAL YEAR ENDED DECEMBER 31,				
	1995	1996	1997	1998	1999
	(IN THOUSANDS, EXCEPT PER SHARE DATA)				
CONSOLIDATED STATEMENT OF OPERATIONS DATA:					
Net sales.....	\$58,274	\$45,811	\$52,118	\$56,468	\$70,476
Cost of goods sold.....	32,022	26,768	30,431	33,985	42,478
Gross profit.....	26,252	19,043	21,687	22,483	27,998
Selling, general and administrative.....	15,583	14,123	15,349	16,021	19,471
Research, development and engineering.....	4,266	3,850	3,808	4,575	4,786
Restructuring charge(1).....	--	--	530	--	--
Operating income.....	6,403	1,070	2,000	1,887	3,741
Interest income (expense), net.....	(290)	(255)	(10)	(46)	8
Other income (expense).....	90	82	(341)	73	24
Gain on sale of minority investment(2).....	--	3,400	--	--	--
Income before provision for income taxes.....	6,203	4,297	1,649	1,914	3,773
Net income from continuing operations.....	5,073	744	1,250	1,533	2,838
Net income.....	\$ 5,073	\$ 3,560	\$ 1,250	\$ 1,533	\$ 2,838
Earnings per share, diluted, from continuing operations(3)	\$ 0.68	\$ 0.11	\$ 0.17	\$ 0.22	\$ 0.41
Earnings per share, diluted.....	\$ 0.68	\$ 0.49	\$ 0.17	\$ 0.22	\$ 0.41
Weighted average shares outstanding, diluted.....	7,320	7,338	7,336	7,118	6,968

	DECEMBER 31,				
	1995	1996	1997	1998	1999
	(IN THOUSANDS)				
CONSOLIDATED BALANCE SHEET DATA:					
Cash and cash equivalents.....	\$ 6,145	\$10,218	\$11,873	\$10,594	\$12,431
Working capital.....	18,005	25,268	26,098	24,961	26,693
Total liabilities.....	17,138	14,556	16,821	15,478	17,346
Total assets.....	35,834	36,763	40,379	38,615	43,149
Stockholders' equity.....	18,696	22,207	23,558	23,137	25,803

(1) In 1997, we incurred a one-time restructuring charge resulting from the implementation of our strategy to outsource subassemblies and change our

approach in our sales and service support in certain Asia Pacific countries.

- (2) In 1996, we sold our 19.4% minority interest in Bruce Technologies International, Inc. for \$7.0 million. As a result, we recognized a pretax gain on this investment of \$3.4 million, net of direct expenses.
- (3) Earnings per share from continuing operations exclude the sale of the minority interest in Bruce Technologies, Inc.

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

OVERVIEW

We design, manufacture, sell and support advanced thermal processing systems used primarily in the assembly of PCBs and in advanced semiconductor packaging. We believe we are the leading supplier of solder reflow systems used by OEMs and CEMs. In addition, we produce advanced high temperature processing systems for manufacturing ceramic components for electronic devices and a variety of specialty applications.

We derive our net sales from customers around the world. Our customers include large multinational OEMs and CEMs requiring advanced thermal processing equipment solutions. In 1999, net sales to our five largest customers accounted for 42.0% of our total net sales. Our net sales in 1999 were dispersed worldwide, with approximately 32.0% to customers in the United States, 30.0% to Asia Pacific customers, 26.0% to European customers and 12.0% to customers in the rest of the world. Over the past three years, the percentage of our net sales to international customers has increased from 50.0% in 1997 to 68.0% in 1999. This shift reflects the continued trend toward offshore manufacturing by our U.S.-based multinational customers and the successful penetration of new non-U.S. based customers.

RESULTS OF OPERATIONS

The following table sets forth the percentage of net sales of certain items in our consolidated financial statements for the periods indicated.

	FISCAL YEAR ENDED DECEMBER 31,		
	1997	1998	1999
Net sales.....	100.0%	100.0%	100.0%
Cost of goods sold.....	58.4%	60.2%	60.3%
Gross profit.....	41.6%	39.8%	39.7%
Operating expenses:			
Selling, general and administrative.....	29.5%	28.4%	27.6%
Research, development and engineering.....	7.3%	8.1%	6.8%
Restructuring charge.....	1.0%	0.0%	0.0%
Operating income.....	3.8%	3.3%	5.3%
Interest income.....	0.9%	0.7%	0.6%
Interest expense.....	(0.9)%	(0.8)%	(0.6)%
Other income (expense), net.....	(0.7)%	0.1%	0.0%
Income before provision for income taxes.....	3.2%	3.4%	5.4%
Income taxes.....	0.8%	0.7%	1.3%
Net Income.....	2.4%	2.7%	4.0%

Net Sales. Net sales increased 24.8% from \$56.5 million in 1998 to \$70.5 million in 1999. The increase in 1999 net sales reflects the higher demand for our products, primarily by our large multinational OEMs and CEMs. This increase in net sales also reflects growth of approximately 14.0% in the electronics manufacturing market and the gain in market share we have achieved with our medium and high end solder reflow systems.

The percentage of net sales attributable to our customers in the United States declined by 3.3%, net sales attributable to our customers in Europe increased by 2.2%, net sales attributable to our Asia Pacific customers increased by 1.1% and there was a minimal percentage change in net sales in the rest of the world. The larger growth rate in net sales to European and Asia Pacific customers reflects the trend toward offshore manufacturing by our U.S.-based and multinational customers and our increased sales to overseas domestic manufacturers. The effect of price changes for specific products has not materially impacted the change in net sales for the periods presented.

Gross Profit. Gross profit increased 24.5% from \$22.5 million in 1998 to \$28.0 million in 1999 and, as a percentage of net sales, decreased from 39.8% in 1998 to 39.7% in 1999. The increase in gross profit for 1999 was due to the increase in net sales in 1999.

Selling, General and Administrative. Selling, general and administrative increased 21.5% from \$16.0 million in 1998 to \$19.5 million in 1999, and as a percentage of net sales, decreased from 28.4% to 27.6%. The higher costs in 1999 were primarily the result of a \$14.0 million increase in our net sales. The higher selling, general and administrative in 1999 can be attributed to an increase in customer service support for our worldwide customer base and higher selling expenses. In 1999, sales commission expense was higher as the number of products sold through agents increased. Warranty costs were also higher in 1999 due to our rapid growth and the increase in the use of outside service contractors in the latter part of the year. In addition, higher bonuses were recorded in 1999 compared to 1998, due to the increase in net income.

Research, Development and Engineering. Research, development and engineering increased 4.6% from \$4.6 million in 1998 to \$4.8 million in 1999, and as a percentage of net sales, decreased from 8.1% in 1998 to 6.8% in 1999. In 1999, we increased our investment in new product development.

Operating Income. Operating income increased 98.3% from \$1.9 million in 1998 to \$3.7 million in 1999, and as a percentage of net sales, increased from 3.3% in 1998 to 5.3% in 1999. In 1999, the increase in operating income was the result of a 24.8% increase in net sales over 1998. In addition, our cost structure for sales, general and administrative and research, development and engineering increased at a lower rate than did the net sales percentage.

Income Taxes. Income taxes increased from \$381,000 in 1998 to \$935,000 in 1999. Our effective tax rates were 19.9% in 1998 and 24.8% in 1999. The 1999 and 1998 effective tax rates reflect the use of net operating loss carryforwards available to our UK subsidiary, which was profitable in 1999 and 1998. During 1999 and 1998, we recorded the benefit of these net operating losses, resulting in the lower effective tax rates. Our statutory federal income tax rate is 34.0%.

FISCAL YEAR ENDED DECEMBER 31, 1998 COMPARED TO FISCAL YEAR ENDED DECEMBER 31, 1997

Net Sales. Net sales increased 8.3% from \$52.1 million in 1997 to \$56.5 million in 1998. The increase in net sales in 1998 reflects the higher demand for our products, primarily by our large multinational customers, despite a decline in the overall market for capital equipment in electronics manufacturing during the period. In addition, we saw an increase in net sales of our large thermal processing systems for the sintering of nuclear fuels.

During 1998, the percentage of net sales attributable to our customers in the United States declined by 14.7%. This was offset by a 4.9% increase in net sales to our Asia Pacific customers, a 1.0% increase in net sales to our European customers and an 8.8% increase in net sales to customers in the rest of the world. The increase in non-United States net sales was due to expansion in production by multinational companies to offshore facilities and our market penetration of non-domestic customers. The effect of price changes for specific products has not materially impacted the change in net sales for the periods presented.

Gross Profit. Gross profit increased 3.7% from \$21.7 million in 1997 to \$22.5 million in 1998, and as a percentage of net sales, decreased from 41.6% in 1997 to 39.8% in 1998. The increase in gross profit for 1998 was due to the increase in net sales compared to 1997. The decrease in the gross margin percentage in 1998 was due to our product mix and price pressure for our more competitive, high volume products.

Selling, General and Administrative. Selling, general and administrative increased 4.4% from \$15.3 million in 1997 to \$16.0 million in 1998 and, as a percentage of net sales, decreased from 29.5% in 1997 to 28.4% in 1998. The higher costs in 1998 were primarily the result of an increase of \$4.4 million in net sales and resulting increased costs for sales and service to support our increasing worldwide customer base. These increases in costs were offset by a lower overall commission expense as we increased our direct sales and service locations in certain Asia Pacific countries.

Research, Development and Engineering. Research, development, and engineering increased 20.1% from \$3.8 million in 1997 to \$4.6 million in 1998, and as a percentage of net sales, increased from 7.3% in 1997 to 8.1% in 1998. In 1998, the increase in research, development and engineering was the result of adding and implementing new engineering management resources and technologies.

Operating Income. Operating income decreased 5.7% from \$2.0 million in 1997 to \$1.9 million in 1998, and as a percentage of net sales, decreased from 3.8% in 1997 to 3.3% in 1998. In 1998, the decrease in operating income resulted from a \$530,000 one time restructuring charge incurred as the result of the implementation of our strategy to outsource subassemblies and a change in strategy for our sales and service support in certain Asia Pacific countries.

Income Taxes. Income taxes decreased from \$399,000 in 1997 to \$381,000 in 1998. Our effective tax rates were 24.2% in 1997 and 19.9% in 1998. The 1998 and 1997 effective tax rates reflect the use of net operating loss carryforwards available to our UK subsidiary, which was profitable in 1998 and 1997. During 1998 and 1997, we recorded the benefit of these net operating losses, resulting in the lower effective tax rates. Our statutory federal income tax rate is 34.0%.

As of December 31, 1999, we had \$12.4 million in cash and cash equivalents, an increase of \$1.8 million compared to December 31, 1998. The increase was primarily a result of cash flow from operations.

We have an unsecured revolving line of credit that allows for aggregate borrowings, including letters of credit, up to \$14.0 million. We may elect to borrow at either the bank's base rate or the Eurodollar rate in effect from time to time. This loan agreement was extended in 1999 until April 30, 2004 and is subject to certain financial covenants. No amounts were outstanding under this agreement as of December 31, 1999 or at any time in 1999.

We have a mortgage note that is secured by our real property. The mortgage note had an outstanding balance at December 31, 1999 of approximately \$5.1 million. The mortgage requires monthly payments of \$53,922, which includes interest calculated at the rate of 8.125% per annum. A final balloon payment of approximately \$3.8 million is due on July 1, 2004 upon maturity of the mortgage note.

During 1999, we invested approximately \$1.8 million in capital improvements to enhance our information technology infrastructure and to develop several equipment prototypes. We do not presently have any outstanding commitments for capital expenditures that would have a material impact on our liquidity and future capital resources.

During 1999, we repurchased an additional 87,000 shares of our common stock for \$372,000. This stock buy back program reduced the number of outstanding shares of stock during 1999 by 1.3%. These repurchases were approved by our board of directors in 1998.

We expect that our current cash position, ability to borrow necessary funds and cash flows from operations will be sufficient to meet our corporate, operating and capital requirements into 2001.

MARKET RISK DISCLOSURE

Our primary market risk exposure is in the area of foreign currency exchange rate risk. We are exposed to currency exchange rate fluctuations as they pertain to invoices for parts and labor in our foreign service locations.

As of December 31, 1999, all of our long-term debt and capital lease obligations are fixed rate financial instruments, thus we are not exposed to interest rate risk resulting from variable interest rate of its debts.

OTHER MATTERS

The impact of inflation and the effect of foreign exchange rate changes during 1999 have not had a material impact on our business and financial results.

In December 1999, the SEC issued Staff Accounting Bulletin (SAB) No. 101, "Revenue Recognition in Financial Statements," which provides additional guidance in applying generally accepted accounting principles for revenue recognition to a company's consolidated financial statements. SAB No. 101 addresses several issues, including the timing for recognizing revenue derived from arrangements that provide for customer acceptance or product installation after shipment and transfer of title.

Our existing revenue recognition policy is to recognize revenue at the time the customer takes title of the product, generally at the time of shipment, because we have routinely met our installation obligations and obtained customer acceptance. Applying the requirements of SAB No. 101 to the present arrangements used in our thermal processing systems sales may result in a change in our accounting policy for revenue recognition and the deferral of the revenue for some equipment sales until installation is complete and accepted by the customer. We are currently evaluating the impact that SAB No. 101 might have on our revenue recognition policies. However, there will be no impact on our cash flows from operations as a result of this change.

We are required to report the impact of SAB No. 101, as amended by SAB No. 101A, no later than the second fiscal quarter of the fiscal year 2000. The effect of the change will be recognized as a cumulative effect of a change in accounting principle as of January 1, 2000. Accordingly, the first quarter of year 2000 financial results may be restated to the extent that SAB No. 101 is relevant and material. Prior year financial statements will not be restated. We are also considering potential changes to our standard contracts that could mitigate the impact of SAB No. 101 in the future.

In June 1998, the Financial Standards Accounting Board issued Statement of Financial Accounting Standard (SFAS) No. 133 "Accounting for Derivative Instruments and Hedging Activities." This statement establishes accounting and reporting standards requiring that every derivative instrument (including certain derivative instruments embedded in other contracts) be recorded in the balance sheet as either an asset or liability measured at its fair value. The statement requires that changes in the derivative's fair value be recognized currently in income unless specific hedge accounting criteria are met. Special accounting for qualifying hedges allows a derivative's gains and losses to offset related results on the hedged item in the statement of income and requires that a company must formally document, designate and assess the effectiveness of transactions that receive hedge accounting. SFAS No. 133, as amended by SFAS No. 137 "Accounting for Derivative Instruments and Hedging Activities Deferral of the Effective Date of FASB Statement No. 133," shall be effective for all fiscal quarters of all fiscal years beginning after June 15, 2000. SFAS No. 133 cannot be applied retroactively. SFAS No. 133, as amended, must be applied to (a) derivative instruments and (b) certain derivative instruments embedded in hybrid contracts that were issued, acquired, or substantively modified after December 31, 1997 (and, at our election, before January 1, 1998). We have not yet quantified the impact of adopting SFAS No. 133 on our consolidated financial statements and have not determined the timing nor method of its adoption of the statement. However, we do not expect that the adoption of this statement will have a material impact on our financial position or results of operations.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The information required by item 8 of Form 10-K is presented here in the following order:

Unaudited Quarterly Financial Information.....
 Consolidated Balance Sheet as of December 31, 1999 and
 1998.....
 Consolidated Statement of Operations for the years ended
 December 31, 1999, 1998, and 1997.....
 Consolidated Statement of Stockholders' Equity for the years
 ended December 31, 1999, 1998 and 1997.....
 Consolidated Statement of Cash Flows for the years ended
 December 31, 1999, 1998 and 1997.....
 Notes to Consolidated Financial Statements.....
 Report of Independent Public Accounts.....

UNAUDITED QUARTERLY RESULTS OF OPERATIONS

The following table presents unaudited statements of operations data for each of the eight quarters in the period ended December 31, 1999 with such data expressed as a percentage of net sales for the period indicated. We believe that all necessary adjustments have been included to present fairly the quarterly information when read in conjunction with our consolidated financial statements. The operating results for any quarter are not necessarily indicative of the results for any subsequent period.

CONSOLIDATED STATEMENT OF OPERATIONS DATA
(IN THOUSANDS, EXCEPT PER SHARE DATA)

	QUARTER ENDED							
	MAR. 29, 1998	JUNE 28, 1998	SEPT. 27, 1998	DEC. 31, 1998	MAR. 28, 1999	JUNE 27, 1999	SEPT. 26, 1999	DEC. 31, 1999
Net sales.....	\$12,101	\$14,314	\$14,039	\$16,014	\$15,876	\$16,199	\$17,795	\$20,606
Cost of goods sold.....	7,162	8,533	8,472	9,818	9,773	9,683	10,780	12,242
Gross profit.....	4,939	5,781	5,567	6,196	6,103	6,516	7,015	8,364
Selling, general and administrative.....	3,673	3,974	4,017	4,357	4,330	4,371	4,845	5,925
Research, development and engineering.....	1,172	1,235	964	1,204	1,053	1,247	1,148	1,338
Income from operations.....	94	572	586	635	720	898	1,022	1,101
Interest income (expense), net....	6	(22)	(15)	(15)	22	(39)	26	(1)
Other income (expense), net.....	4	40	11	18	39	6	(44)	23
Income before taxes.....	104	590	582	638	781	865	1,004	1,123
Income tax (benefit) provision....	(22)	110	181	112	237	257	303	138
Net income.....	\$ 126	\$ 480	\$ 401	\$ 526	\$ 544	\$ 608	\$ 701	\$ 985
Earnings per share, diluted.....	\$ 0.02	\$ 0.07	\$ 0.06	\$ 0.08	\$ 0.08	\$ 0.09	\$ 0.10	\$ 0.14
Weighted average shares, diluted.....	7,360	7,212	7,060	6,856	6,910	6,925	7,010	7,019

	QUARTER ENDED							
	MAR. 29, 1998	JUNE 28, 1998	SEPT. 27, 1998	DEC. 31, 1998	MAR. 28, 1999	JUNE 27, 1999	SEPT. 26, 1999	DEC. 31, 1999
PERCENTAGE OF NET SALES:								
Net sales.....	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of goods sold.....	59.2	59.6	60.3	61.3	61.6	59.8	60.6	59.4
Gross profit.....	40.8	40.4	39.7	38.7	38.4	40.2	39.4	40.6
Selling, general and administrative.....	30.4	27.8	28.6	27.2	27.3	27.0	27.2	28.8
Research, development and engineering.....	9.7	8.6	6.9	7.5	6.6	7.7	6.5	6.5
Income from operations.....	0.8	4.0	4.2	4.0	4.5	5.5	5.7	5.3
Interest income (expense), net....	0.0	(0.2)	(0.1)	(0.1)	0.1	(0.2)	0.1	(0.0)
Other income (expense), net.....	0.0	0.3	0.1	0.1	0.2	0.0	(0.2)	0.1
Income before taxes.....	0.9	4.1	4.1	4.0	4.9	5.3	5.6	5.4
Income tax (benefit) provision....	(0.2)	0.8	1.3	0.7	1.5	1.6	1.7	0.7
Net income.....	1.0%	3.4%	2.9%	3.3%	3.4%	3.8%	3.9%	4.8%

Net sales increased from \$12.1 to \$20.6 million over the eight quarters in 1998 and 1999. During this period, net sales increased in each quarter, except in the third quarter of 1998 and the first quarter of 1999. Historically, net sales in the first quarter of every year have been the lowest in the year due to the buying patterns of our customers. Overall growth in net sales resulted from the continued growth in electronics manufacturing and our increase in market share.

Gross profits as a percentage of net sales during the last eight quarters have ranged between 38.4% and 40.8%. We outsourced our subassemblies in order to maximize our core competencies and utilize more flexible manufacturing processes.

Our selling, general and administrative has generally increased over the quarters to support our expanding worldwide customer base. Research, development and engineering is related to the development of new products, including our MLCC system. However, these operating costs have generally decreased as a percentage of net sales over the quarterly periods displayed.

Income from operations in this period has increased in absolute amounts in every quarter. Net income has risen every quarter, except in the third quarter of 1998, from \$126,000 in the first quarter of 1998 to \$985,000 in the fourth quarter of 1999.

Earnings per share, diluted increased from \$0.02 in the first quarter 1998 to \$0.14 in the last quarter 1999.

BTU INTERNATIONAL, INC.
 CONSOLIDATED BALANCE SHEETS
 (IN THOUSANDS, EXCEPT SHARE DATA)

	AS OF DECEMBER 31,	
	1999	1998
	-----	-----
ASSETS		
Current Assets:		
Cash and cash equivalents (Notes 1 and 11).....	\$12,431	\$10,594
Trade accounts receivable, less reserves of \$160 in 1999 and 1998 (Note 1).....	14,563	12,427
Inventories (Note 1).....	9,617	10,084
Other current assets (Note 6).....	678	411
	-----	-----
Total current assets	37,289	33,516
	-----	-----
Property, Plant and Equipment, at cost (Notes 1 and 3)		
Land.....	210	210
Buildings and improvements.....	7,329	7,186
Machinery and equipment.....	6,513	5,675
Furniture and fixtures.....	830	828
	-----	-----
Less-accumulated depreciation	14,882	13,899
	-----	-----
Net property, plant and equipment	5,541	4,740
	-----	-----
Other assets, net of accumulated amortization of \$441 in 1999 and \$434 in 1998.....	319	359
	-----	-----
Total Assets	\$43,149	\$38,615
	=====	=====
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Current maturities of long-term debt and capital lease obligations (Note 3).....	\$ 267	\$ 226
Trade accounts payable (Note 9).....	6,665	5,382
Customer deposits.....	--	124
Accrued expense (Note 2).....	3,664	2,823
	-----	-----
Total current liabilities	10,596	8,555
Long-term debt and capital lease obligations less current maturities (Notes 3 and 11).....	4,953	5,167
Deferred income taxes (Notes 1 and 6).....	1,797	1,756
	-----	-----
Total Liabilities	\$17,346	\$15,478
	-----	-----
Commitments and contingencies (Note 3)		
Stockholders' Equity (Note 8):		
Class A preferred stock, \$1.00 par value -- Authorized -- 2,000,000 shares Issued and outstanding -- none.....	--	--
Series preferred stock, \$1.00 par value -- Authorized -- 5,000,000 shares Issued and outstanding -- none.....	--	--
Common Stock, \$.01 par value -- Authorized -- 25,000,000 shares Issued -- 7,770,446, outstanding 6,794,536 in 1999 and Issued -- 7,695,924, outstanding 6,806,763 in 1998.....	78	77
Additional paid-in capital.....	20,543	20,322
Retained earnings.....	8,432	5,594
Less treasury stock at cost 975,910 and 889,161 shares, at December 31, 1999 and 1998, respectively.....	(3,538)	(3,166)
Accumulated other comprehensive income (Note 1).....	288	310
	-----	-----
Total stockholders' equity	25,803	23,137
	-----	-----
Total Liabilities and Stockholders' Equity	\$43,149	\$38,615
	=====	=====

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

BTU INTERNATIONAL, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
(IN THOUSANDS, EXCEPT PER SHARE DATA)

	YEARS ENDED DECEMBER 31,		
	1999	1998	1997
Net sales (Notes 1, 4, and 5).....	\$70,476	\$56,468	\$52,118
Cost of goods sold.....	42,478	33,985	30,431
Gross profit.....	27,998	22,483	21,687
Selling, general and administrative (Note 9).....	19,471	16,021	15,349
Research, development and engineering (Note 1).....	4,786	4,575	3,808
Restructuring charge.....	--	--	530
Operating income.....	3,741	1,887	2,000
Interest income.....	440	405	478
Interest expense (Note 3).....	(432)	(451)	(488)
Other income (expense).....	24	73	(341)
Income before provision for income taxes.....	3,773	1,914	1,649
Provision for income taxes (Notes 1 and 6).....	935	381	399
Net income.....	\$ 2,838	\$ 1,533	\$ 1,250
Earnings per share:			
Basic.....	\$ 0.42	\$ 0.22	\$ 0.17
Diluted.....	\$ 0.41	\$ 0.22	\$ 0.17
Weighted average number of shares outstanding:			
Basic shares.....	6,799	7,068	7,291
Effect of Dilutive Options.....	169	50	45
Diluted Shares.....	6,968	7,118	7,336

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

BTU INTERNATIONAL, INC.

CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY
(IN THOUSANDS, EXCEPT PER SHARE DATA)

	COMMON STOCK	ADDITIONAL PAID-IN CAPITAL	RETAINED EARNINGS	TREASURY STOCK	ACCUMULATED OTHER COMPREHENSIVE INCOME	TOTAL STOCKHOLDERS' EQUITY
BALANCE AT DECEMBER 31, 1996.....	\$76	\$20,115	\$2,811	\$(1,183)	\$388	\$22,207
Net income.....	--	--	1,250	--	--	1,250
Translation adjustment.....	--	--	--	--	(35)	(35)
Sales of common stock and exercise of stock options (Note 8).....	1	108	--	--	--	109
Tax benefit of stock options exercised.....	--	27	--	--	--	27
BALANCE AT DECEMBER 31, 1997.....	77	20,250	4,061	(1,183)	353	23,558
Net income.....	--	--	1,533	--	--	1,533
Translation adjustment.....	--	--	--	--	(43)	(43)
Sale of common stock and exercise of stock options (Note 8).....	--	72	--	--	--	72
Purchase of treasury stock.....	--	--	--	(1,983)	--	(1,983)
BALANCE AT DECEMBER 31, 1998.....	77	20,322	5,594	(3,166)	310	23,137
Net income.....	--	--	2,838	--	--	2,838
Translation adjustment.....	--	--	--	--	(22)	(22)
Sales of common stock and exercise of stock options (Note 8).....	1	187	--	--	--	188
Tax benefits of options exercised.....	--	34	--	--	--	34
Purchase of treasury stock.....	--	--	--	(372)	--	(372)
BALANCE AT DECEMBER 31, 1999.....	\$78	\$20,543	\$8,432	\$(3,538)	\$288	\$25,803

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(IN THOUSANDS)

	YEARS ENDED DECEMBER 31,		
	1999	1998	1997
Net income.....	\$2,838	\$1,533	\$1,250
Other comprehensive income			
Foreign currency translation adjustment.....	(22)	(43)	(35)
Comprehensive income.....	\$2,816	\$1,490	\$1,215

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

BTU INTERNATIONAL, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(IN THOUSANDS)

	YEARS ENDED DECEMBER 31,		
	1999	1998	1997
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net income.....	\$ 2,838	\$ 1,533	\$ 1,250
Adjustments to reconcile net income to net cash provided by (used in) operating activities:			
Depreciation and amortization.....	1,120	1,119	961
Deferred income taxes.....	41	(491)	44
Net changes in operating assets and liabilities:			
Accounts receivable.....	(2,136)	(93)	(1,704)
Inventories.....	467	(56)	(268)
Other current assets.....	(267)	713	537
Accounts payable.....	1,283	(631)	1,889
Customer deposits.....	(124)	(304)	(13)
Accrued expenses.....	841	227	523
Other assets.....	33	50	(193)
Net cash provided by operating activities.....	4,096	2,067	3,026
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchases of property, plant and equipment, net.....	(1,842)	(1,248)	(1,294)
Net cash used in investing activities.....	(1,842)	(1,248)	(1,294)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Principal payments under long-term debt and capital lease obligations.....	(245)	(144)	(300)
Issuance of common stock.....	188	72	109
Proceeds from mortgage reference.....	--	--	122
Tax benefit of stock options exercised.....	34	--	27
Purchase of treasury stock.....	(372)	(1,983)	--
Net cash used in financing activities.....	(395)	(2,055)	(42)
EFFECT OF EXCHANGE RATES ON CASH.....	(22)	(43)	(35)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS.....	1,837	(1,279)	1,655
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR.....	10,594	11,873	10,218
CASH AND CASH EQUIVALENTS AT END OF YEAR.....	\$12,431	\$10,594	\$11,873

Supplemental disclosures of cash flow information are included in Note 10.

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

BTU INTERNATIONAL, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 1999, 1998 AND 1997

(1) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

NATURE OF OPERATIONS

BTU International, Inc. and its wholly owned subsidiaries (the Company) are primarily engaged in the design, manufacture, sale, and service of thermal processing systems, which are used as capital equipment in various manufacturing processes, primarily in the electronics industry.

PRINCIPLES OF CONSOLIDATION AND THE USE OF ESTIMATES

The accompanying consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All material intercompany balances and transactions have been eliminated in consolidation. The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results could vary from these estimates.

CASH AND CASH EQUIVALENTS

The Company has classified certain liquid financial instruments, with original maturities of less than three months, as cash equivalents.

INVENTORIES

Inventories consist of material, labor and overhead and are valued at the lower of cost or market value. Cost is determined by the first-in, first-out (FIFO) method for all inventories.

Inventories consist of the following (in thousands):

	YEARS ENDED DECEMBER 31,	
	1999	1998
Raw Materials and manufactured components.....	\$4,431	\$ 4,970
Work-in-progress.....	3,532	3,395
Finished goods.....	1,654	1,719
	\$9,617	\$10,084
	=====	=====

PROPERTY, PLANT AND EQUIPMENT

The Company provides for depreciation using the straight-line method over a period sufficient to amortize the cost of the asset over its useful life. The estimated useful lives for depreciation purposes are as follows:

Buildings and improvements.....	8-25 years
Machinery and equipment.....	2-8 years
Furniture and fixtures.....	5-8 years

Maintenance and repairs are charged to operations as incurred. When equipment and improvements are sold or otherwise disposed of, the asset cost and accumulated depreciation are removed from the accounts, and the resulting gain or loss, if any, is included in the results of operations.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

INCOME TAXES

Deferred tax assets and liabilities are recognized for the expected future tax consequences of events that have been included in the consolidated financial statements or tax returns. The amounts of deferred tax assets or liabilities are based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse.

TRANSLATION OF FOREIGN CURRENCIES

Foreign currencies are translated in accordance with SFAS No. 52, "Foreign Currency Translation." Under this standard, assets and liabilities of the Company's foreign operations are translated into United States dollars at current exchange rates. Income and expense items are translated at weighted average rates of exchange prevailing during the year. Gains and losses arising from translation are accumulated as a separate component of stockholders' investment. Exchange gains and losses (if any) arising from transactions denominated in foreign currencies are included in income as incurred. Such exchange gains or losses were not material during the periods presented.

PATENTS

The Company has patents in the United States and certain foreign countries for certain of its products and processes. No value has been assigned to these patents in the accompanying consolidated financial statements.

REVENUE RECOGNITION

Revenue is recognized based upon completion of the earnings process, which typically occurs upon the shipment of product to the customer, except for large contracts that are not completed within the normal operating cycle of the business, which are accounted for on a percentage completion basis. Under the percentage completion method, revenues are recognized in proportion to costs incurred compared to total estimated costs and a provision is made for any anticipated loss. As of December 31, 1999 and 1998, \$0 and \$53,000, respectively, of revenue was recognized on the percentage of completion method for systems not yet shipped. During these years, revenue recognized using the percentage completion method included in net sales was 2.3% for 1999 and 6.1% for 1998.

RESEARCH, DEVELOPMENT AND ENGINEERING

Research, development and engineering costs are charged to expense as incurred.

EARNINGS PER SHARE INFORMATION

Earnings Per Share (EPS) is presented under two calculations, Basic and Diluted. Basic EPS is computed by dividing income available to common stockholders by the weighted-average number of common shares outstanding during the period. Diluted EPS is computed using the weighted average number of common and dilutive potential common shares outstanding during the period, using the treasury stock method. Options outstanding that were not included in the determination of diluted EPS, because they were antidilutive, were 289,778 in 1999, 27,800 in 1998 and 42,500 in 1997.

RECLASSIFICATION

Certain prior year financial statement information has been reclassified to conform with the current year presentation.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

COMPREHENSIVE INCOME

The Company classifies items of other comprehensive income by their nature in a financial statement and displays the accumulated balance of other comprehensive income separately from retained earnings and additional paid in capital in the equity section of the Balance Sheet. The only item of comprehensive income other than net income is translation gains and losses from foreign exchange, recorded in the equity section of the Balance Sheets. Comprehensive Income is presented in the accompanying consolidated statements of comprehensive income.

SEGMENT INFORMATION

The Company reports segment information as required by SFAS No. 131, "Disclosures about Segments of an Enterprise and Related Information." The chief operating decisions maker organizes segments within the company for making operating decisions and assessing performance. Reportable segments are based on products and services, geography, legal structure and management structure. (see Note 12)

SAB NO. 101 REVENUE RECOGNITION IN FINANCIAL STATEMENTS

In December 1999, the SEC issued Staff Accounting Bulletin (SAB) No. 101, "Revenue Recognition in Financial Statements," which provides additional guidance in applying generally accepted accounting principles for revenue recognition in company's consolidated financial statements. SAB No. 101 addresses several issues including the timing for recognizing revenue derived from arrangements that involve either contractual customer acceptance provisions or installation of the product occurs after shipment and transfer of title.

The Company's existing revenue recognition policy is to recognize revenue at the time the customer takes title of the product, generally at the time of shipment, because the Company has routinely met its installation obligations and obtained customer acceptance. Applying the requirements of SAB No. 101 to the present arrangements used in the Company's thermal processing equipment sales may result in a change in the Company's accounting policy for revenue recognition and the deferral of the revenue for some equipment sales until installation is complete and accepted by the customer. The Company is currently evaluating the impact that SAB No. 101 might have on its revenue recognition policies. However, there will be no impact on the Company's cash flows from operations as a result of this change.

The Company is required to report the impact of SAB No. 101, as amended by SAB No. 101A, no later than the second fiscal quarter of the fiscal year 2000. The effect of the change will be recognized as a cumulative effect of a change in accounting principle as of January 1, 2000, thus the first quarter of year 2000 financial results may be restated to the extent that SAB No. 101 is relevant and material. Prior year financial statements will not be restated. The Company is also considering potential changes to its standard contracts that could mitigate the impact of SAB No. 101 on a go forward basis.

BTU INTERNATIONAL, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

NOTE 2: ACCRUED EXPENSES

Accrued expenses at December 31, 1999 and 1998 consisted of the following (in thousands):

	1999	1998
	-----	-----
Accrued commissions.....	\$1,390	\$ 976
Accrued warranty.....	660	535
Accrued income taxes.....	255	281
Accrued bonus.....	519	60
Other.....	840	971
	-----	-----
	\$3,664	\$2,823
	=====	=====

(3) DEBT, CAPITAL LEASES, COMMITMENTS AND CONTINGENCIES

Debt at December 31, 1999 and 1998 consisted of the following (in thousands):

	1999	1998
	-----	-----
Mortgage note payable.....	\$5,089	\$5,312
Capital lease obligations, interest rates ranging from 10.2% to 11.1%, net of interest of \$38 and \$26 in 1999 and 1998, respectively.....	131	81
	-----	-----
	5,220	5,393
Less current maturities.....	267	226
	-----	-----
	\$4,953	\$5,167
	=====	=====

The mortgage note payable is secured by the Company's land and building and requires monthly payments of \$53,922, including interest at 8.125%. This mortgage note payable has a balloon payment of \$3,825,000 due and payable at maturity on July 1, 2004.

The capital lease obligations relate to various equipment leases used in the operation of the business.

Under the terms of the debt, the minimum repayments of long-term debt and capital lease obligations by year are as follows (in thousands):

	8.125%	CAPITAL	
	MORTGAGE	LEASES	TOTAL
	-----	-----	-----
2000.....	\$ 242	\$ 25	\$ 267
2001.....	263	29	292
2002.....	285	29	314
2003.....	309	22	331
2004.....	3,990	26	4,016
	-----	-----	-----
	\$5,089	\$131	\$5,220
	=====	=====	=====

At December 31, 1999, the Company has an unsecured revolving line of credit with a US bank which allows for aggregate borrowings and/or letters of credit of up to \$14,000,000. Borrowings are available to the Company at either the Bank's base rate or a Eurodollar rate, as elected by the Company. This loan facility is available to the Company until April 30, 2004, subject to compliance with certain financial covenants. At December 31, 1999, the Company was in compliance with all covenants of this agreement. As of December 31, 1999, no amounts were outstanding under this unsecured revolving line of credit.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

The Company conducts its UK operations in a facility that is under a long-term operating lease expiring in 2010. Rent expense under this lease was approximately \$143,000 in 1999, \$145,000 in 1998, and \$143,000 in 1997. In 1995, the Company sublet a portion of this leased space. The initial term of the sublease is five years. Under the terms of the sublease, the Company will receive approximately \$132,000 per year. At the end of the initial five year sublet period, the sublease can be extended at market rates for two subsequent and concurrent five year periods. As of December 31, 1999, the future minimum lease commitment for this facility is \$2,765,000, payable as follows: \$240,000 for the year 2000, \$273,000 for each of 2001, 2002, 2003 and 2004 and \$1,433,000 thereafter through 2010.

The Company is a party to a patent lawsuit it originated and to various claims arising in the normal course of business. Management believes the resolution of these matters will not have a material impact on the Company's results of operations or financial condition.

(4) FOREIGN OPERATIONS

The following table shows the amounts and percentages of the Company's revenues by geographic region, for the last three years:

	1999		1998		1997	
	-----		-----		-----	
United States.....	\$22,552	32%	\$19,946	35%	\$26,061	50%
Europe.....	18,324	26	13,446	24	11,862	23
Asia Pacific.....	21,143	30	16,295	29	12,512	24
Rest of World.....	8,457	12	6,781	12	1,683	3

(5) CONCENTRATION OF CREDIT RISK AND SIGNIFICANT CUSTOMERS

Statement of Financial Accounting Standards No. 105, "Disclosure of Information about Financial Instruments with Off-Balance-Sheet Risk and Financial Instruments with Concentrations of Credit Risk," requires disclosure of any significant off-balance-sheet and credit risk concentrations. The Company has no significant off-balance-sheet concentrations such as foreign exchange contracts, option contracts or other foreign hedging arrangements. The Company maintains the majority of its cash and cash equivalent balances with one financial institution.

One customer represented 18% of revenue in 1999. Two customers represented 14% and 13% respectively of revenue in 1998. One customer represented approximately 14% of revenues in 1997.

(6) INCOME TAXES

The components of income before provision for income taxes are as follows (in thousands):

	YEARS ENDED DECEMBER 31,		
	1999	1998	1997
	-----	-----	-----
Domestic.....	\$2,163	\$ 881	\$1,040
Foreign.....	1,610	1,033	609
	-----	-----	-----
Total.....	\$3,773	\$1,914	\$1,649
	=====	=====	=====

BTU INTERNATIONAL, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

For the years ended December 31, 1999, 1998 and 1997, the Company's provisions for income taxes were as shown below (in thousands):

	FEDERAL	STATE	FOREIGN	TOTAL
	-----	-----	-----	-----
December 31, 1999				
Current.....	\$ 662	\$ 177	\$55	\$ 894
Deferred.....	85	(44)	0	41
	-----	-----	---	-----
	\$ 747	\$ 133	\$55	\$ 935
	=====	=====	===	=====
December 31, 1998				
Current.....	\$ 491	\$ 345	\$36	\$ 872
Deferred.....	(216)	(275)	0	(491)
	-----	-----	---	-----
	\$ 275	\$ 70	\$36	\$ 381
	=====	=====	===	=====
December 31, 1997				
Current.....	\$ 308	\$ 47	\$ 0	\$ 355
Deferred.....	39	5	0	44
	-----	-----	---	-----
	\$ 347	\$ 52	\$ 0	\$ 399
	=====	=====	===	=====

The differences between the statutory United States federal income tax rate of 34% and the Company's effective tax rate are as follows (in thousands):

	YEARS ENDED DECEMBER 31,		
	1999	1998	1997
	-----	-----	-----
Tax provision at United States statutory rate.....	\$1,283	\$ 650	\$ 561
State and foreign income taxes, net of federal benefit....	142	94	48
Utilization of foreign net operating loss carryforwards...	(498)	(293)	(189)
Non-deductible and other.....	8	(70)	(21)
	-----	-----	-----
Total provision.....	\$ 935	\$ 381	\$ 399
	=====	=====	=====

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

Deferred income taxes and prepaid income taxes are comprised of the following at December 31, 1999 and 1998 (in thousands):

	1999	1998
	-----	-----
Revenues recognized for books, not tax.....	\$(2,860)	\$(3,814)
Accelerated tax depreciation.....	0	(68)
Other.....	(116)	(116)
	-----	-----
Total deferred liabilities.....	\$(2,976)	\$(3,998)
	=====	=====
Inventory reserves.....	331	371
Inventory capitalization.....	74	71
Accruals and other.....	577	460
Foreign net operating loss carryforward.....	0	498
Accelerated tax depreciation.....	65	0
Federal tax credit carryforwards.....	132	1,340
	-----	-----
Total deferred assets.....	1,179	2,740
	-----	-----
Total net deferred liability.....	(1,797)	(1,258)
Valuation allowance.....	0	(498)
	-----	-----
Net deferred income tax liability.....	\$(1,797)	\$(1,756)
	=====	=====

The valuation allowance at December 31, 1998 related to uncertainty surrounding the realization of the foreign net operating loss carryforwards. For the year ended December 31, 1999 the Company realized the use of the foreign net operating loss carryforwards. As of December 31, 1999, the Company has AMT credit carryforwards of \$132,000, which are subject to review and possible adjustment by the Internal Revenue Service. Included in other current assets is a refundable income tax receivable of \$344,000 as of December 31, 1999 and \$36,000 as of December 31, 1998. During 1999, the Company's UK subsidiary used the \$1,292,000 of net operating loss carryforwards available at December 31, 1998.

(7) EMPLOYEE BENEFITS

The Company has management incentive and profit sharing plans for its executives and all of its employees. These plans provide for bonuses upon the attainment of certain financial targets. Under these plans, \$688,000, \$100,000 and \$89,000 was expensed in 1999, 1998 and 1997, respectively.

The Company has a deferred 401(k) contribution plan that is available to cover all domestic employees of the Company who have met certain length of service requirements. Subject to non-discriminatory restrictions on highly compensated employees, participants can voluntarily contribute up to 17% of their compensation to the plan, and the Company, at its discretion, may match this contribution up to a stipulated percentage. The Company's expense under the plan was \$206,000, \$187,000, and \$170,000 for the years ended December 31, 1999, 1998 and 1997, respectively.

(8) STOCK OPTION AND PURCHASE PLANS

The Company has three stock option plans. The 1989 Stock Plan for Directors (1989 Plan) provides for stock options to certain directors of the Company. The 1993 Equity Incentive Plan (1993 Plan) provides for stock options for employees and the Company's non-employee directors. Under the terms of the 1993 Plan, other stock awards can also be granted at the discretion of the Company's Board of Directors. The 1998 Stock Option Plan for Non-Employee Directors (1998 Plan) provides for stock options to non-employee directors of the Company.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

Under each plan, the exercise price of the options is not less than fair market value at the date of the grants. The 1989 Plan options expire over seven years and the 1993 Plan options expire over periods not to exceed 10 years. The 1998 Plan options expire over a period not to exceed seven years. In May 1998 the shareholders approved the addition of 500,000 shares available to be awarded under the 1993 Plan and also approved the 1998 Plan with 50,000 shares available for future grants. Shares available for future stock option grants, pursuant to these plans, were 174,041 at December 31, 1999, 410,893 at December 31, 1998, and 127,763 at December 31, 1997.

In September 1998, the Board of Directors approved the repricing of employee stock options issued during 1996, 1997 and 1998. A total of 545,480 options were repriced to \$2.875 per share, which was the fair market value of the repricing, with a new vesting and expiration schedule.

A summary of all stock option activity for the years ended December 31, 1999, 1998 and 1997 is as follows:

	1999		1998		1997	
	NUMBER OF SHARES	WEIGHTED AVERAGE PRICE PER SHARE	NUMBER OF SHARES	WEIGHTED AVERAGE PRICE PER SHARE	NUMBER OF SHARES	WEIGHTED AVERAGE PRICE PER SHARE
Outstanding at beginning of year...	632,040	\$2.92	367,690	\$3.91	189,095	\$3.64
Granted.....	280,112	4.92	301,560	4.26	234,500	3.98
Exercised.....	(49,885)	2.36	(2,520)	1.88	(24,405)	2.50
Forfeited.....	(43,260)	2.93	(34,690)	3.65	(31,500)	3.90
Terminated due to repricing.....	--	--	(545,480)	4.24	--	--
Issued due to repricing.....	--	--	545,480	2.88	--	--
Outstanding at end of year.....	819,007	\$3.64	632,040	\$2.92	367,690	\$3.91
Options exercisable at end of year.....	166,043	\$3.05	43,380	\$2.64	66,790	\$2.92

At December 31, 1999 the outstanding options have exercise prices ranging from \$2.69 to \$5.50 and a weighted average remaining contractual life of 4.3 years.

The following table summarizes information for options outstanding and exercisable at December 31, 1999:

RANGE OF PRICES	OPTIONS OUTSTANDING			OPTIONS EXERCISABLE	
	NUMBER	WEIGHTED AVERAGE REMAINING LIFE	WEIGHTED AVERAGE EXERCISE PRICE	NUMBER	WEIGHTED AVERAGE EXERCISE PRICE
\$2.69 - 3.00	512,729	4.0 yrs	\$2.88	146,168	\$2.88
3.01 - 4.00	14,500	5.3 yrs	3.82	6,250	3.79
4.01 - 5.50	291,778	4.7 yrs	4.96	13,625	4.60
	819,007	4.3 yrs	3.64	166,043	3.05

The Company has an Employee Stock Purchase Plan. Under the terms of the plan, employees are entitled to purchase shares of common stock at the lower of 85% of fair market value at the beginning or the end of each six-month option period. A total of 300,000 shares has been reserved for issuance under this plan, of which 18,090 remain available at December 31, 1999. During 1999, a total of 23,157 shares were purchased at prices ranging from \$2.55 to \$4.14 per share.

The Company applies Accounting Principles Board Opinion No. 25 and related Interpretations in accounting for its stock option and purchase plans. Accordingly, no compensation cost has been recognized

BTU INTERNATIONAL, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

related to the plans. Had compensation cost for the plans been determined based on the fair value at the grant dates for the awards under these plans consistent with SFAS No. 123, "Accounting for Stock-Based Compensation", the Company's net income and net income per share would have been reduced to the pro forma amounts indicated below:

	YEARS ENDED DECEMBER 31,		
	1999	1998	1997
	(IN THOUSANDS, EXCEPT PER SHARE DATA)		
Net Income:			
As reported.....	\$2,838	\$1,533	\$1,250
Pro forma.....	2,455	1,514	1,140
Income per basic share:			
As reported.....	\$ 0.42	\$ 0.22	\$ 0.17
Pro forma.....	0.36	0.21	0.16
Income per diluted share:			
As reported.....	\$ 0.41	\$ 0.22	\$ 0.17
Pro forma.....	0.35	0.21	0.16

Pro forma compensation costs were estimated using the Black-Scholes option pricing model using the following weighted average assumptions for grants in 1999, 1998 and 1997, respectively; a dividend yield rate of 0 for each year; expected lives of 4.8, 4.9 and 5.0 years; expected volatility of 64.6%, 63.1% and 68.2%; and risk free interest rates of 6.2%, 4.8% and 6.4%. The weighted average fair value of options granted during 1999, 1998 and 1997 was \$2.91, \$1.97 and \$2.48, respectively.

As the SFAS No. 123 presentation has not been applied to options granted prior to January 1, 1995, the resulting pro forma reduction in net earnings and earnings per share may not be representative of what could be expected in future years.

(9) RELATED PARTY TRANSACTIONS

During 1999 and 1998, certain transactions were made between the Company and certain related parties, all of which management believes were at arms' length. These transactions included payments to one of the Company's directors for consulting services of \$15,000 and \$16,000 in 1999 and 1998, respectively. The Company also had related party transactions with respect to the purchase of certain software development and components from a company which is partially owned by one of the Company's key employees. The amount of contract software and hardware purchased from this party in the ordinary course of doing business was \$904,000 and \$775,000 in 1999 and 1998, respectively; as well, \$1,000 and \$66,000 is included in trade accounts payable on the Consolidated Balance Sheets as of December 31, 1999 and 1998, respectively.

(10) SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION

	FOR THE YEARS ENDED DECEMBER 31,		
	1999	1998	1997
	(IN THOUSANDS)		
Cash paid (received) during the year for:			
Interest.....	\$ 432	\$451	\$ 488
Income Taxes.....	1,172	32	(391)
Non-cash transactions:			
Capital asset and lease obligation additions.....	72	64	--

(11) DISCLOSURES ABOUT THE FAIR VALUE OF FINANCIAL INSTRUMENTS

The following methods and assumptions were used to estimate the fair value of each class of financial instrument for which it is practicable to estimate that value.

a. Cash and Cash Equivalents - The carrying amount of these assets on the Company's Consolidated Balance Sheets approximates their fair value because of the short maturities of these instruments.

b. Long-term Debt and Capital Lease Obligations - The fair value of long-term indebtedness as of December 31, 1999 and 1998 was approximately \$5,220,000 and \$5,527,000, respectively, based on a discounted cash flow analysis, using the prevailing cost of capital for the Company as of each date.

(12) SEGMENT REPORTING

Segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision-maker in deciding how to allocate resources and in assessing performance. The Company operates as a single business segment called thermal processing capital equipment.

The thermal processing capital equipment segment consists of the designing, manufacturing, selling and servicing of thermal processing equipment and related process controls for use in the electronics, power generation, automotive and other industries. This business segment includes the supply of solder reflow systems used for surface mount applications in printed circuit board assembly. Thermal processing equipment is used in: low temperature curing/encapsulation; hybrid integrated circuit manufacturing; integrated circuit packaging and sealing; and processing multi-chip modules. In addition, the thermal process equipment is used for sintering nuclear fuel for commercial power generation, as well as brazing and the sintering of ceramics and powdered metals, and the deposition of precise thin film coatings. The business segment's customers are multinational original equipment manufacturers and contract manufacturing companies.

The accounting policies of segment reporting are the same as those described in Note 1 "Summary of Significant Accounting Policies." The Company evaluates the performance of operating results taken as a whole. Geographic data concerning the thermal processing business segment is shown at Note 4.

REPORT OF INDEPENDENT PUBLIC ACCOUNTANT

To the Shareholders and Board of Directors of BTU International, Inc.:

We have audited the accompanying consolidated balance sheets of BTU International, Inc. (a Delaware corporation) and subsidiaries (the Company) as of December 31, 1999 and 1998, and the related consolidated statements of operations, stockholders' equity, comprehensive income and cash flows for each of the three years in the period ended December 31, 1999. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. 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 consolidated financial position of BTU International, Inc. and subsidiaries as of December 31, 1999 and 1998, and the consolidated results of their operations and their cash flows for each of the three years in the period ended December 31, 1999 in conformity with accounting principles generally accepted in the United States.

/s/ ARTHUR ANDERSEN LLP

ARTHUR ANDERSEN LLP

Boston, Massachusetts
February 4, 2000

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

Information relating to the executive officers of the Company is included in Item 4A of Part I.

Information relating to the directors of the Company is included under the caption "Election of Directors" in the 2000 Proxy Statement for BTU International, Inc. and is incorporated herein by reference.

Information related to compliance with Section 16(a) of the Exchange Act is included under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" in the 2000 Proxy Statement for BTU International, Inc. and is incorporated here by reference.

ITEM 11. EXECUTIVE COMPENSATION

Information relating to executive compensation is included under the caption "Executive Compensation" in the 2000 Proxy Statement for BTU International, Inc. and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

Information relating to the security ownership of certain beneficial owners and management is included under the caption "Beneficial Ownership of Shares" in the 2000 Proxy Statement for BTU International, Inc. and is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

None.

PART IV

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

- (a)1. Financial Statements. The financial statements listed in Item 8: FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA, above are filed as part of this Annual Report on Form 10-K.
 - 2. Financial Statement Schedule. The financial statement schedule II - VALUATION AND QUALIFYING ACCOUNTS is filed as part of this Annual Report on Form 10-K.
 - 3. Exhibits. The exhibits listed in the accompanying Exhibit Index are filed as part of this Annual Report on Form 10-K.
- (b) Reports on Form 8-K
- No reports on Form 8-K were filed in the fourth quarter of 1999.

REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS

To BTU International, Inc.:

We have audited in accordance with auditing standards generally accepted in the United States, the consolidated financial statements included in BTU International, Inc.'s (the Company's) annual report to stockholders incorporated by reference in this Form 10-K, and have issued our report thereon dated February 4, 2000. Our audit was made for the purpose of forming an opinion on those consolidated financial statements taken as a whole. The schedule listed in the preceding index is the responsibility of the Company's management and is presented for purposes of complying with the Securities and Exchange Commission's rules and are not part of the basic financial statements. This schedule has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, based on our audit, fairly states, in all material respects, the financial data required to be set forth therein in relation to the basic financial statements taken as a whole.

/s/ Arthur Andersen LLP

Arthur Andersen LLP

Boston, Massachusetts
February 4, 2000

BTU INTERNATIONAL, INC.
VALUATION AND QUALIFYING ACCOUNTS
(Dollars in Thousands)

For the Year Ended December 31, 1999

Description -----	Balance at beginning of period -----	Additions -----		Deductions- (A) -----	Balance at end of period -----
		Charged to costs and expenses -----	Charged to other accounts -----		
Allowance for doubtful accounts	\$160	\$--	\$--	\$--	\$160

For the Year Ended December 31, 1998

Description -----	Balance at beginning of period -----	Additions -----		Deductions- (A) -----	Balance at end of period -----
		Charged to costs and expenses -----	Charged to other accounts -----		
Allowance for doubtful accounts	\$160	\$--	\$--	\$--	\$160

For the Year Ended December 31, 1997

Description -----	Balance at beginning of period -----	Additions -----		Deductions- (A) -----	Balance at end of period -----
		Charged to costs and expenses -----	Charged to other accounts -----		
Allowance for doubtful accounts	\$160	\$--	\$--	\$--	\$160

(A) Amounts indicated as deductions are for amounts charged against these reserves in the ordinary course of business.

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.

BTU INTERNATIONAL, INC.

Date: March 30, 2000

By: /s/ PAUL J. VAN DER WANSEM
Paul J. van der Wansem
President, Chief Executive
Officer (principal executive
officer) and Director

Date: March 30, 2000

By: /s/ THOMAS P. KEALY
Thomas P. Kealy
Vice President Corporate
Controller and Chief
Accounting Officer (principal
financial and accounting officer)

Date: March 30, 2000

By:
Dr. Jeffrey Chuan Chu
Director

Date: March 30, 2000

By: /s/ DAVID A.B. BROWN
David A.B. Brown
Director

Date: March 30, 2000

By: /s/ JOSEPH F. WRINN
Joseph F. Wrinn
Director

EXHIBIT INDEX

The following designated exhibits are, as indicated below, either filed herewith or have heretofore been filed with the Securities and Exchange Commission under the Securities Act of 1933 and the Securities Exchange Act of 1934 and are referred to and incorporated herein by reference to the following SEC Filings: Registration Statement Filing on Form S-1 ("33-24882"), the annual report as reported on the 1989 Form 10-K ("1989 10-K"), the annual report as reported on the 1991 Form 10-K ("1991 10-K"), the annual report as reported on the 1992 Form 10-K ("1992 10-K"), the annual report as reported on the 1993 Form 10K ("1993 10-K"), the annual report as reported on the 1994 Form 10K ("1994 10-K"), Or the quarterly report as reported on 9-28-97 Form 10Q(9-28-97 10-Q) Or the quarterly report as reported on 6-28-98 Form 10Q(6-28-98 10-Q).

	Exhibit -----	SEC Docket -----
EXHIBIT 3.	ARTICLES OF INCORPORATION AND BY-LAWS	
Incorporated herein by reference:		
3.1	Certificate of Incorporation, as amended.	3.1 33-24882
3.2	By-Laws.	3.2 33-24882
EXHIBIT 4.	INSTRUMENTS DEFINING THE RIGHTS OF SECURITY HOLDERS, INCLUDING DEBENTURES	
Incorporated herein by reference:		
4.0	Specimen Common Stock Certificate.	4.0 33-24882
EXHIBIT 10.	MATERIAL CONTRACTS	
10.13	1988 Employee Stock Purchase Plan. *	10.13
10.15	1989 Stock Option Plan for Directors. *	10.15

10.37	BTU International, Inc. 1993 Equity Incentive Plan *	10.37	
10.39	BTU(UK) Limited and RD International (UK) Limited underlease, relating to Unit B15 Southwood Summit Centre	10.39	1994 10-K
10.42	Mortgage note between BTU International, Inc. and John Hancock Mutual Life Insurance Company, dated June 30, 1997	10.42	9-28-97 10-Q
10.43	Credit Agreement between BTU International, Inc. and US Trust, dated September 5, 1997	10.43	9-28-97 10-Q
10.44	Amendment to the 1993 Equity Incentive Plan*	10.44	
10.45	1998 Stock Option Plan for Non-Employee Directors*	10.45	
10.46	First Amendment to Credit Agreement between BTU International, Inc. and US Trust, dated December 16, 1999	10.46	
10.47	Amendment No. 1 to 1988 Employee Stock Purchase Plan dated June 15, 1989*	10.47	
10.48	Amendment No. 2 to 1988 Employee Stock Purchase Plan dated February 20, 1991.*	10.48	
10.49	Amendment No. 2 to 1993 Equity Incentive Plan*	10.49	
EXHIBIT 11.	STATEMENT RE: COMPUTATION OF PER SHARE EARNINGS		
	Filed herewith:		
	11.0 Calculation of net income per common share		
EXHIBIT 21.	SUBSIDIARIES OF THE REGISTRANT		
	Filed herewith:		
	21.0 Subsidiaries of the Registrant.		
EXHIBIT 23.	CONSENTS OF EXPERTS AND COUNSEL		
	Filed herewith:		
	23.1 Consent of Arthur Andersen LLP		
EXHIBIT 27.	FINANCIAL DATA SCHEDULE		
	Filed herewith:		
	27.0 Financial Data Schedule		

* Indicates management contract or compensatory plan or arrangement.

BTU INTERNATIONAL, INC.
1988 EMPLOYEE STOCK PURCHASE PLAN

1. PURPOSE OF PLAN.

This 1988 Employee Stock Purchase Plan (the "Plan") is intended to provide a method by which eligible employees of BTU International, Inc. ("BTU") and its participating subsidiaries (BTU and such subsidiaries being hereinafter referred to as the "Company") may use voluntary, systematic payroll deductions to purchase shares of BTU Common Stock ("Stock") and thereby acquire an interest in the future of the Company. For purposes of the Plan, a subsidiary is any corporation in which BTU owns, directly or indirectly, stock possessing 50% or more of the total combined voting power of all classes of stock and which has been designated by the Board (as defined in Section 16) as a participating subsidiary.

2. OPTIONS TO PURCHASE STOCK

Under the Plan, there is available an aggregate of not more than 100,000 shares of Stock (subject to adjustment as provided in Section 15) for sale pursuant to the exercise of options ("options") granted under the Plan to employees (within the meaning of Section 3401(c) of the Internal Revenue Code of 1986 (the "Code")) of the Company ("employees") who meet the eligibility requirements set forth in Section 3 hereof ("eligible employees"). The Stock to be delivered upon exercise of options under the Plan may be either shares of BTU authorized but unissued Stock or shares of reacquired Stock, as the Board shall determine.

3. ELIGIBLE EMPLOYEES

Except as otherwise provided below, each employee who has completed six months or more of continuous service in the employ of the Company shall be eligible to participate in the Plan.

- (a) Any employee who immediately after the grant of an option to him would (in accordance with the provisions of Sections 423 and 425 (d) of the Code) own Stock possessing 5% or more of the total combined voting power or value of all classes of Stock of the employer corporation or of its parent or subsidiary corporations, as defined in Section

425 of the Code, shall not be eligible to receive an option to purchase stock pursuant to the Plan.

- (b) No employee shall be granted an option under the Plan which would permit his rights to purchase shares of stock under all employee stock purchase plans of the Company and any parent and subsidiary corporations to accrue at a rate which exceeds \$25,000 in fair market value of such stock (determined at the time the option is granted) for each calendar year during which any such option granted to such employee is outstanding at any time, as provided in Sections 423 and 425 of the Code.
- (c) No employee shall be eligible to participate in the Plan unless such employee's customary employment with the Company is in excess of twenty hours in each week and in excess of five months in each calendar year.

4. METHOD OF PARTICIPATION

The period July 1, 1989 to December 31, 1989, and thereafter the periods January 1 to June 30, and July 1 to December 31 of each year shall be option periods. Each person who will be an eligible employee on the first day of any option period may elect to participate in the Plan by executing and delivering to BTU, at least 15 days prior to such day, a payroll deduction authorization in accordance with Section 5. Such employee shall thereby become a participant ("participant") on the first day of such option period and shall remain a participant until his participation is terminated as provided in the Plan.

5. PAYROLL DEDUCTION

The payroll deduction authorization shall request withholding at a rate of not less than 0.5% nor more than 10% (increasing in increments of 0.5%) from the participant's Compensation by means of substantially equal payroll deductions over the option period. For purposes of the Plan, "Compensation" shall mean all regular base compensation paid to the participant by the Company and currently includible in his gross income, including any withholding or deductions, but excluding bonuses, commissions, incentive compensation and other similar amounts. A participant may change the withholding rate of his payroll deduction authorization by written notice delivered to BTU at least 15 days prior to the first day of the option period as to which the change is to be effective. All amounts withheld in accordance with a

participant's payroll deduction authorization shall be credited to a withholding account for such participant.

6. GRANT OF OPTIONS

Each person who is a participant on the first day of an option period shall as of such day be granted an option for such period. Such option shall be for the number of whole shares of Stock to be determined by dividing (a) the balance in the participant's withholding account on the last day of the option period, by (b) the purchase price per share of the Stock determined under Section 7. The Board shall reduce, on a substantially proportionate basis, the number of shares of Stock receivable by each participant upon exercise of his option for an option period in the event that the number of shares then available under the Plan is otherwise insufficient.

7. PURCHASE PRICE

The purchase price of Stock issued pursuant to the exercise of an option shall be 85% of the fair market value of the Stock at (a) the time of grant of the option or (b) the time at which the option is deemed exercised, whichever is less. Fair market value shall mean the Closing Price of the Stock. The "Closing Price" of Stock on any business day shall be the last sale price as reported on the principal market on which the Stock is traded or, if no last sale is reported, then the mean between the highest bid and lowest asked prices on that day. A good faith determination by the Board as to fair market value shall be final and binding.

8. EXERCISE OF OPTIONS

If any employee is a participant in the Plan on the last business day of an option period, he shall be deemed to have exercised the option granted to him for that period. Upon such exercise, the Company shall apply the balance of the participant's withholding account to the purchase of the number of whole shares of Stock determined under Section 6 and as soon as practicable thereafter, BTU shall issue and deliver certificates for said shares to the participant. No fractional shares shall be issued hereunder. Any balance of a participant's withholding account shall be returned to the participant, except that any such balance representing a fractional share shall be retained in the withholding account and applied to the next option period.

9. INTEREST.

No interest will be payable on withholding accounts.

10. CANCELLATION AND WITHDRAWAL

A participant who holds an option under the Plan may at any time prior to exercise thereof under Section 8 cancel all (but not less than all) of his options by written notice delivered to BTU. Upon such cancellation, the balance in his withholding account shall be returned to him in the month following withdrawal.

A participant may terminate his payroll deduction authorization as of any date by written notice delivered to BTU and shall thereby cease to be a participant as of such date. Any participant who voluntarily terminates his payroll deduction authorization prior to the last business day of an option period shall be deemed to have cancelled his option.

11. TERMINATION OF EMPLOYMENT

Except as provided in the immediately following sentence, upon the termination of a participant's service with the Company for any reason, including without limitation death, retirement, resignation, layoff or discharge, he shall cease to be a participant, and any option held by him under the Plan shall be deemed cancelled, the balance of his withholding account shall be returned to him, and he shall have no further rights under the Plan. Notwithstanding the immediately preceding sentence, in the event that a participant commences a leave of absence during an option period and such leave of absence has been approved by the Board, such participant shall be eligible to participate in the Plan with respect to such option period to the extent of payroll deductions withheld during such option period.

12. LIMITATIONS ON RESALE

The Plan is intended to provide to employees of BTU a favorable opportunity to acquire shares of Stock at prices below the prevailing current market price so that they will be able to participate as stockholders in BTU, and this purpose would not be furthered if participants disposed of Stock acquired pursuant to the Plan immediately after its acquisition. Therefore, no participant shall sell or otherwise dispose of any Stock acquired pursuant to the Plan if such disposition would occur within the period beginning at the end of the option period with respect to which such Stock was acquired and ending on the date six months later unless such participant notifies BTU in writing of such intended disposition and the number of shares of Stock of which such participant intends to dispose and unless such notice is received by BTU not less than 15 days prior to such intended disposition. Upon receipt of such notice, BTU shall automatically have the option, exercisable at any time prior

to the fifteenth day after such notice has been received by BTU, to repurchase from such participant the number of shares of Stock specified in such notice at a price per share equal to the price at which such participant acquired such shares from BTU pursuant to the Plan. No interest will be payable on any amounts so paid by BTU to any participant. Each certificate representing shares of Stock delivered pursuant to the Plan shall bear an appropriate legend to give notice of the restrictions on transfer contained in this Section 12.

13. PARTICIPANT'S RIGHTS NOT TRANSFERABLE

All participants granted options under the Plan shall have the same rights and privileges, and each participant's rights and privileges under any option granted under the Plan shall be exercisable during his lifetime only by him, and shall not be sold, pledged, assigned, or transferred in any manner. In the event any participant violates the terms of this Section, any options held by him may be terminated by the Company and upon return to the participant of the balance of his withholding account, all his rights under the Plan shall terminate.

14. EMPLOYMENT RIGHTS

Nothing contained in the provisions of the Plan shall be construed to give to any employee the right to be retained in the employ of the Company or to interfere with the right of the Company to discharge any employee at any time; nor shall it be construed to give the Company the right to require any employee to remain in its employ or to interfere with any employee's right to terminate his employment at any time.

15. CHANGE IN CAPITALIZATION

In the event of any change in the outstanding Stock of BTU by reason of a stock dividend, split-up, recapitalization, merger, consolidation, reorganization, or other capital change, the aggregate number and class of shares available under the Plan and the number and class of shares under option but not exercised, the option price, and the share limit provided for in Section 6 shall be appropriately adjusted.

16. ADMINISTRATION OF PLAN

The Plan shall be administered by the Board of Directors of BTU (the "Board"), which shall have the right to determine any questions which may arise regarding the interpretation and application of the provisions of the Plan and to make, administer, and interpret such rules and regulations as it shall deem necessary or advisable.

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BTU INTERNATIONAL, INC.

1989 STOCK OPTION PLAN FOR DIRECTORS

1. PURPOSE

The purpose of this 1989 Stock Option Plan for Directors (the "Plan") is to advance the interests of BTU International, Inc. (the "Company") by enhancing the ability of the Company to attract and retain non-employee directors who are in a position to make significant contributions to the success of the Company and to reward directors for such contributions through ownership of shares of the Company's common stock (the "Stock").

2. ADMINISTRATION

The Plan shall be administered by a committee (the "Committee") of the Board of Directors (the "Board") of the Company designated by the Board for that purpose. Unless and until a Committee is appointed the Plan shall be administered by the entire Board, and references in the Plan to the "Committee" shall be deemed references to the Board. The Committee shall have authority, not inconsistent with the express provisions of the Plan, (a) to grant options in accordance with the Plan to such directors as are eligible to receive options; (b) to prescribe the form or forms of instruments evidencing options and any other instruments required under the Plan and to change such forms from time to time; (c) to adopt, amend and rescind rules and regulations for the administration of the Plan; and (d) to interpret the Plan and to decide any questions and settle all controversies and disputes that may arise in connection with the Plan. Such determinations of the Committee shall be conclusive and shall bind all parties. Subject to Section 8, the Committee shall also have the authority, both generally and in particular instances, to waive compliance by a director with any obligation to be performed by him or her under an option and to waive any condition or provision of an option.

3. EFFECTIVE DATE AND TERM OF PLAN

The Plan shall become effective on the date on which the Plan is approved by the Board of Directors of the Company, but the Plan and any options granted pursuant to the Plan shall be subject to the later approval thereof by the shareholders of the Company. No option shall be granted under the Plan after the completion of ten years from the date on which the Plan was adopted by the Board, but options previously granted may extend beyond that date.

4. SHARES SUBJECT TO THE PLAN

(a) Number of Shares. Subject to adjustment as provided in Section 4(c), the aggregate number of shares of Stock that may be delivered upon the exercise of options granted under the Plan shall be 20,000. If any option granted under the Plan terminates without having been exercised in full, the number of shares of Stock as to which such option was not exercised shall be available for future grants within the limits set forth in this Section 4(a).

(b) Shares to be Delivered. Shares delivered under the Plan shall be authorized but unissued Stock or, if the Board so decides in its sole discretion, previously issued Stock acquired by the Company and held in treasury. No fractional shares of Stock shall be delivered under the Plan.

(c) Changes in Stock. In the event of a stock dividend, stock split or combination of shares, recapitalization or other change in the Company's capital stock, the number and kind of shares of stock or securities of the Company subject to options then outstanding or subsequently granted under the Plan, the maximum number of shares or securities that may be delivered under the Plan, the exercise price, and other relevant provisions shall be appropriately adjusted by the Committee, whose determination shall be binding on all persons.

5. ELIGIBILITY FOR OPTIONS

Directors eligible to receive options under the Plan ("Eligible Directors") shall be any director who (i) is not an employee of the Company, and (ii) is not a holder of more than 5% of the outstanding shares of the Stock or a person who is in control of such holder.

6. TERMS AND CONDITIONS OF OPTIONS

(a) Number of Options. Eligible Directors, excluding those who are directors on the date of adoption of the Plan, shall be awarded an initial grant covering 2,000 shares of Stock on the date of his or her first election.

Following the initial grants, each Eligible Director (including persons who were directors on the date of adoption of the Plan) shall be awarded options covering 500 shares of Stock on April 30, 1990 and each anniversary thereof, provided such individual is then an Eligible Director. Each grant made prior to shareholder approval of this Plan shall be subject to shareholder approval, and no such option shall be exercisable prior to that time.

(b) Exercise Price. The exercise price of each option shall be 100% of the fair market value per share of the Stock at the time the option is granted, but not less, in the case of an original issue of authorized stock, than par value per share. For this purpose, "fair market value" shall have the same meaning as it does in the provisions of the Internal Revenue Code (the "Code") and the regulations thereunder applicable to incentive options.

(c) Duration of Options. The latest date on which an option may be exercised (the "Final Exercise Date") shall be the date which is seven years from the date the option was granted.

(d) Exercise of options.

(1) Each option shall become exercisable in accordance with the following formula:

- (A) One year after the date of the grant, the option shall become exercisable to the extent of twenty-five percent (25%) of the shares covered thereby, and
- (B) On each of the second, third and fourth anniversaries of the date of the grant the option shall become exercisable as to an additional twenty-five percent (25%) of the shares covered thereby.

(2) Any exercise of an option shall be in writing, signed by the proper person and delivered or mailed

to the Company, accompanied by (a) the option certificate and any other documents required by the Committee and (b) payment in full for the number of shares for which the option is exercised.

- (3) If an option is exercised by the executor or administrator of a deceased director, or by the person or persons to whom the option has been transferred by the director's will or the applicable laws of descent and distribution, the Company shall be under no obligation to deliver Stock pursuant to such exercise until the Company is satisfied as to the authority of the person or persons exercising the option.

(e) Payment for and Delivery of Stock. Stock purchased under the Plan shall be paid for as follows: (i) in cash or by certified check, bank draft or money order payable to the order of the Company, (ii) through the delivery of shares of Stock having a fair market value on the last business day preceding the date of exercise equal to the purchase price or (iii) by a combination of cash and Stock as provided in clauses (i) and (ii) above.

An option holder shall not have the rights of a shareholder with regard to awards under the Plan except as to Stock actually received by him under the Plan.

The Company shall not be obligated to deliver any shares of Stock (a) until, in the opinion of the Company's counsel, all applicable federal and state laws and regulations have been complied with, and (b) if the outstanding Stock is at the time listed on any stock exchange, until the shares to be delivered have been listed or authorized to be listed on such exchange upon official notice of issuance, and (c) until all other legal matters in connection with the issuance and delivery of such shares have been approved by the Company's counsel. If the sale of Stock has not been registered under the Securities Act of 1933, as amended, the Company may require, as a condition to exercise of the option, such representations or agreements as counsel for the Company may consider appropriate to avoid violation of such Act and may require that the certificates evidencing such Stock bear an appropriate legend restricting transfer.

(f) Nontransferability of Options. No option may be transferred other than by will or by the laws of descent and

distribution, and during a director's lifetime an option may be exercised only by him or her.

(g) Death. Upon the death of any Eligible Director granted options under this Plan, all options not then exercisable shall terminate. All options held by the director that are exercisable immediately prior to death may be exercised by his or her executor or administrator, or by the person or persons to whom the option is transferred by will or the applicable laws of descent and distribution, at any time within six months after the director's death (subject, however, to the limitations of Section 6(c) regarding the maximum exercise period for such option). After completion of that six-month period, such options shall terminate to the extent not previously exercised.

(h) Other Termination of Status of Director. If a director's service with the Company terminates for any reason other than death, all options held by the director that are not then exercisable shall terminate. Options that are exercisable on the date of termination shall continue to be exercisable for a period of three months (subject to Section 6(c)), but shall terminate immediately if the director was removed for cause or resigned under circumstances which in the opinion of the Committee casts such discredit on him as to justify termination of his options. After completion of that three-month period, such options shall terminate to the extent not previously exercised, expired or terminated.

(i) Mergers, etc. Subject to Section 7, in the event of any merger or consolidation involving the Company, any sale of substantially all of the Company's assets or a dissolution or liquidation of the Company all options hereunder will terminate, but at least 20 days prior to the effective date of any such merger, sale, dissolution, or liquidation, the Committee shall make all options outstanding hereunder immediately exercisable, provided that, unless the event will give rise to a Change of Control (as hereinafter defined) or it is anticipated that a Change of Control will coincide with or follow the event, the Committee may instead arrange that the successor or surviving corporation, if any, grant replacement options.

7. CHANGE OF CONTROL

Notwithstanding any other provision of this Plan, in the event of a Change of Control of the Company as defined in Exhibit A hereto each option held by each Eligible Director will immediately become fully exercisable.

8. EFFECT, DISCONTINUANCE, CANCELLATION, AMENDMENT AND TERMINATION

Neither adoption of the Plan nor the grant of options to a director shall affect the Company's right to grant to such director options that are not subject to the Plan, to issue to such directors Stock as a bonus or otherwise, or to adopt other plans or arrangements under which Stock may be issued to directors.

The Committee may at any time discontinue granting options under the Plan. The Committee may at any time or times amend the Plan for the purpose of satisfying any changes in applicable laws or regulations or for any other purpose which may at the time be permitted by law, or may at any time terminate the Plan as to any further grants of options, provided that (except to the extent expressly required or permitted herein above) no such amendment shall, without the approval of the shareholders of the Company, (a) increase the maximum number of shares available under the Plan, (b) increase the number of options granted to Eligible Directors, (c) amend the definition of Eligible Director so as to enlarge the group of directors eligible to receive options under the Plan, (d) reduce the price at which options may be granted, (e) change or extend the times at which options may be granted, or (f) amend the provisions of this Section 8, and no such amendment shall adversely affect the rights of any director (without his or her consent) under any option previously granted.

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EXHIBIT A

A Change of Control will occur for purposes of this Plan if (i) any individual, corporation, partnership, company or other entity (a "Person") becomes the "beneficial owner" (as defined in Rule 13d-3 under the Securities Exchange Act of 1934) of securities of the Company representing more than 30% of the combined voting power of the Company's then outstanding securities (other than as a result of acquisitions of such securities from the Company), (ii) there is a change of control of the Company of a kind which would be required to be reported under Item 6(e) of Schedule 14A of Regulation 14A promulgated under the Securities Exchange Act of 1934 (the "Act") (or a similar item in a similar schedule or form), whether or not the Company is then subject to such reporting requirement, (iii) the Company is a party to, or the stockholders approve, a merger, consolidation, or other reorganization (other than (a) a merger, consolidation or other reorganization which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent, either by remaining outstanding or by being converted into vesting securities of the surviving entity, more than 50% of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger, consolidation, or other reorganization, or (b) a merger, consolidation, or other reorganization effected to implement a recapitalization of the Company, or similar transaction, in which no Person acquires more than 20% of the combined voting power of the Company's then outstanding securities), a sale of all or substantially all assets, or a plan of liquidation, or (iv) individuals who, at the date hereof, constitute the Board cease for any reason to constitute a majority thereof, provided, however, that any director who is not in office at the date hereof but whose election by the Board or whose nomination for election by the Company's shareholders was approved by a vote of at least a majority of the directors then still in office who either were directors at the date hereof or whose election or nomination for election was previously so approved (other than an election or nomination of an individual whose initial assumption of office is in connection with an actual or threatened election contest relating to the election of the Directors of the Company, as such terms are used in Rule 14a-11 of Regulation 14A promulgated under the Act) shall be deemed to have been in office at the date hereof for purposes of this definition.

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Notwithstanding the foregoing provisions of this Exhibit A, a "Change of Control" will not be deemed to have occurred solely because of the acquisition of securities of the Company (or any reporting requirements under the Act relating thereto) by an employment benefit plan maintained by the Company for its employees.

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BTU INTERNATIONAL, INC.

1993 EQUITY INCENTIVE PLAN

1. PURPOSE

The purpose of this 1993 Equity Incentive Plan (the "Plan") is to advance the interests of BTU International, Inc. (the "Company") by enhancing its ability to attract and retain employees and other persons or entities who are in a position to make significant contributions to the success of the Company and its subsidiaries through ownership of shares of the Company's common stock ("Stock").

The Plan is intended to accomplish these goals by enabling the Company to grant Awards in the form of Options, Stock Appreciation Rights, Restricted Stock or Unrestricted Stock Awards, Deferred Stock Awards, Performance Awards, Loans or Supplement Grants, or combinations thereof, all as more fully described below.

2. ADMINISTRATION

The administrator of the Plan (the "Administrator") will be the Board of Directors of the Company (the "Board") or a committee of the Board. The Administrator will have authority, not inconsistent with the express provisions of the Plan and in addition to other authority granted under the Plan, to (a) grant Awards at such time or times as it may choose; (b) determine the size of each Award, including the number of shares of Stock subject to the Award; (c) determine the type or types of each Award; (d) determine the terms and conditions of each Award; (e) waive compliance by a Participant (as defined below) with any obligations to be performed by the Participant under an Award and waive any term or condition of an Award; (f) amend or cancel an existing Award in whole or in part (and if an award is canceled, grant another Award in its place on such terms as the Administrator shall specify), except that the Administrator may not, without the consent of the holder of an Award, take any action under this clause with respect to such Award if such action would adversely affect the rights of such holder; (g) prescribe the form or forms of instruments that are required or deemed appropriate under the Plan, including any written notices and elections required of Participants, and change such forms from time to time; (h) adopt, amend and rescind rules and regulations for the administration of the Plan; and (i) interpret the Plan and decide any questions and settle all controversies and disputes that may arise in connection with the Plan. Such

determinations and actions of the Administrator, and all other determinations and actions of the Administrator made or taken under authority granted by any provision of the Plan, will be conclusive and will bind all parties. Nothing in this paragraph shall be construed as limiting the power of the Administrator to make adjustments under Section 7.3 or Section 8.6.

The Administrator may, in its discretion, delegate some or all of its powers with respect to the Plan to a committee (the "Committee"), in which event all references (as appropriate) to the Administrator hereunder shall be deemed to refer to the Committee. The Committee, if one is appointed, shall consist of at least two directors. A majority of the members of the Committee shall constitute a quorum, and all determinations of the Committee shall be made by a majority of its members. Any determination of the Committee under the Plan may be made without notice or meeting of the Committee by a writing signed by a majority of the Committee members. On and after registration of the Stock under the Securities Exchange Act of 1934 (the "1934 Act"), the Administrator shall delegate the power to select directors and officers to receive Awards under the Plan and the timing, pricing and amount of such Awards to a committee of two or more directors, all members of which shall be disinterested persons within the meaning of Rule 16b-3 promulgated under Section 16 of the 1934 Act.

3. EFFECTIVE DATE AND TERM OF PLAN

The Plan will become effective on the date on which it is approved by the stockholders of the Company. Grants of Awards under the plan may be made prior to that date (but after Board adoption of the Plan), subject to such approval of the Plan.

No Award may be granted under the Plan after February 1, 2003, but Awards previously granted may extend beyond that date.

4. SHARES SUBJECT TO THE PLAN

Subject to the adjustment as provided in Section 8.6 below, the aggregate number of shares of Stock that may be delivered under the Plan will be 541,183. If any Award requiring exercise by the Participant for delivery of Stock terminates without having been exercised in full, or if any Award payable in Stock or cash is satisfied in cash rather than Stock, the number of shares of Stock as to which such Award was not exercised or for which cash was substituted will be available for future grants.

Stock delivered under the Plan may be either authorized but unissued Stock or previously issued Stock acquired by the Company and held in treasury. No fractional shares of Stock will be delivered under the Plan.

The Administrator shall establish the maximum number of Awards that may be granted as cash-only Awards intended to qualify under Rule 16a-1(c)(3)(i) promulgated under Section 16 of the 1934 Act prior to the issuance of any such Awards.

5. ELIGIBILITY AND PARTICIPATION

Those eligible to receive Awards under the Plan ("Participants") will be persons in the employ of the Company or any of its subsidiaries ("Employees") and other persons or entities (including without limitation non-Employee directors of the Company or a subsidiary of the Company) who, in the opinion of the Administrator, are in a position to make a significant contribution to the success of the Company or its subsidiaries. A "subsidiary" for purposes of the Plan will be a corporation in which the Company owns, directly or indirectly, stock possessing 50% or more of the total combined voting power of all classes of stock.

6. TYPES OF AWARDS

6.1. OPTIONS

(a) Nature of Options. An Option is an Award entitling the recipient on exercise thereof to purchase Stock at a specified exercise price.

Both "incentive stock options," as defined in Section 422 of the Internal Revenue Code of 1986, as amended (the "Code") (any Option intended to qualify as an incentive stock option being hereinafter referred to as an "ISO"), and Options that are not incentive stock options, may be granted under the Plan. ISOs shall be awarded only to Employees.

(b) Exercise Price. The exercise price of an Option will be determined by the Administrator subject to the following:

(1) The exercise price of an ISO shall not be less than 100% (110% in the case of an ISO granted to a ten-percent shareholder) of the fair market value of the Stock subject to the Option, determined as of the time the Option is granted. A "ten-percent shareholder" is any person who at the time of grant owns, directly or indirectly, or is deemed to own by reason of the attribution rules of section 424(d) of the Code, stock possessing more than 10% of the

total combined voting power of all classes of stock of the Company or of any of its subsidiaries.

(2) In no case may the exercise price paid for Stock which is part of an original issue of authorized Stock be less than the par value per share of the Stock.

(3) The Administrator may reduce the exercise price of an Option at any time after the time of grant, but in the case of an Option originally awarded as an ISO, only with the consent of the Participant.

(c) Duration of Options. The latest date on which an Option may be exercised will be the tenth anniversary (fifth anniversary, in the case of an ISO granted to a ten-percent shareholder) of the day immediately preceding the date the Option was granted, or such earlier date as may have been specified by the Administrator at the time the Option was granted.

(d) Exercise of Options. Options granted under any single Award will become exercisable at such time or times, and on such conditions, as the Administrator may specify. The Administrator may at any time and from time to time accelerate the time at which all or any part of the Option may be exercised.

Any exercise of an Option must be in writing, signed by the proper person and delivered or mailed to the Company, accompanied by (1) any documents required by the Administrator and (2) payment in full in accordance with paragraph (e) below for the number of shares for which the Option is exercised.

(e) Payment for Stock. Stock purchased on exercise of an Option must be paid for as follows: (1) in cash or by check (acceptable to the Company in accordance with guidelines established for this purpose), bank draft or money order payable to the order of the Company or (2) if so provided by the Administrator (not later than the time of grant, in the case of an ISO) (i) through the delivery of shares of Stock which have been outstanding for at least six months (unless the Administrator expressly approves a shorter period) and which have a fair market value on the last business day preceding the date of exercise equal to the exercise price, or (ii) by delivery of a promissory note of the Option holder to the Company, payable on such terms as are specified by the Administrator, or (iii) by delivery of an unconditional and irrevocable undertaking by a broker to deliver promptly to the Company sufficient funds to pay the exercise price, or (iv) by any combination of the permissible forms of payment; provided, that if the Stock delivered upon exercise of the Option is an original issue of authorized Stock, at least so much of the exercise price as represents the par value of such Stock must be paid other than by the Option holder's promissory note or personal check.

(f) Discretionary Payments. If the fair market value of shares of Stock subject to an Option (other than an Option which is in tandem with a Stock Appreciation Right as described in Section 6.2 below) exceeds the exercise price of the Option at the time of its exercise, the Administrator may cancel the Option and cause the Company to pay in cash or in shares of Common Stock (at a price per share equal to the fair market value per share) to the person exercising the Option an amount equal to the difference between the fair market value of the Stock which would have been purchased pursuant to the exercise (determined on the date the Option is cancelled) and the aggregate exercise price which would have been paid. The Administrator may exercise its discretion to take such action only if it has received a written request from the person exercising the Option, but such a request will not be binding on the Administrator.

6.2. Stock Appreciation Rights.

(a) Nature of Stock Appreciation Rights. A Stock Appreciation Right is an Award entitling the recipient on exercise of the Right to receive an amount, in cash or Stock or a combination thereof (such form to be determined by the Administrator), determined in whole or in part by reference to appreciation in Stock value.

In general, a Stock Appreciation Right entitles the Participant to receive, with respect to each share of Stock as to which the Right is exercised, the excess of the share's fair market value on the date of exercise over its fair market value on the date the Right was granted. However, the Administrator may provide at the time of grant that the amount the recipient is entitled to receive will be adjusted upward or downward under rules established by the Administrator to take into account the performance of the Stock in comparison with the performance of other stocks or an index or indices of other stocks. The Administrator may also grant Stock Appreciation Rights providing that following a change in control of the Company, as determined by the Administrator, the holder of such Right will be entitled to receive, with respect to each share of Stock subject to the Right, an amount equal to the excess of a specified value (which may include an average of values) for a share of Stock during a period preceding such change in control over the fair market value of a share of Stock on the date the Right was granted.

(b) Grant of Stock Appreciation Rights. Stock Appreciation Rights may be granted in tandem with, or independently of, Options granted under the Plan. A Stock Appreciation Right granted in tandem with an Option which is not an ISO may be granted either at or after the time the Option is granted. A Stock Appreciation Right granted in tandem with an ISO may be granted only at the time the Option is granted.

(c) Rules Applicable to Tandem Awards. When Stock Appreciation Rights are granted in tandem with Options, the following will apply:

(1) The Stock Appreciation Right will be exercisable only at such time or times, and to the extent, that the related Option is exercisable and will be exercisable in accordance with the procedure required for exercise of the related Option.

(2) The Stock Appreciation Right will terminate and no longer be exercisable upon the termination or exercise of the related Option, except that a Stock Appreciation Right granted with respect to less than the full number of shares covered by an Option will not be reduced until the number of shares as to which the related Option has been exercised or has terminated exceeds the number of shares not covered by the Stock Appreciation Right.

(3) The Option will terminate and no longer be exercisable upon the exercise of the related Stock Appreciation Right.

(4) The Stock Appreciation Right will be transferable only with the related Option.

(5) A Stock Appreciation Right granted in tandem with an ISO may be exercised only when the fair market value of the Stock subject to the Option exceeds the exercise price of such option.

(d) Exercise of Independent Stock Appreciation Rights. A Stock Appreciation Right not granted in tandem with an Option will become exercisable at such time or times, and on such conditions, as the Administrator may specify. The Administrator may at any time accelerate the time at which all or any part of the Right may be exercised.

Any exercise of an independent Stock Appreciation Right must be in writing, signed by the proper person and delivered or mailed to the Company, accompanied by any other documents required by the Administrator.

6.3. Restricted and Unrestricted Stock.

(a) Nature of Restricted Stock Award. A Restricted Stock Award entitles the recipient to acquire, for a purchase price equal to at least par value, shares of Stock subject to the restrictions described in paragraph (d) below ("Restricted Stock").

(b) Acceptance of Award. A Participant who is granted a Restricted Stock Award will have no rights with respect to such Award unless the Participant accepts the Award by written instrument delivered or mailed to the Company accompanied by payment in full of the specified purchase price, if any, of the shares covered by the Award. Payment may be by certified or bank check or other instrument acceptable to the Administrator.

(c) Rights as a Stockholder. A Participant who receives Restricted Stock will have all the rights of a stockholder with respect to the Stock, including voting and dividend rights, subject to the restrictions described in paragraph (d) below and any other conditions imposed by the Administrator at the time of grant. Unless the Administrator otherwise determines, certificates evidencing shares of Restricted Stock will remain in the possession of the Company until such shares are free of all restrictions under the Plan.

(d) Restrictions. Except as otherwise specifically provided by the Plan, Restricted Stock may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of, and if the Participant ceases to be a Participant by reason of death or otherwise suffers a Status Change (as defined at Section 7.2 below) for any reason, must be offered to the Company for purchase for the amount of cash paid for the Stock, or forfeited to the Company if no cash was paid. These restrictions will lapse at such time or times, and on such conditions, as the Administrator may specify. The Administrator may at any time accelerate the time at which the restrictions on all or any part of the shares will lapse.

(e) Notice of Election. Any Participant making an election under Section 83(b) of the Code with respect to Restricted Stock must provide a copy thereof to the Company within 10 days of the filing of such election with the Internal Revenue Service.

(f) Other Awards Settled with Restricted Stock. The Administrator may, at the time any Award described in this Section 6 is granted, provide that any or all the Stock delivered pursuant to the Award will be Restricted Stock.

(g) Unrestricted Stock. The Administrator may, in its sole discretion, approve the sale to any Participant of shares of Stock free of restrictions under the Plan for a price which is not less than the par value of the Stock.

6.4. Deferred Stock.

A Deferred Stock Award entitles the recipient to receive shares of Stock to be delivered in the future. Delivery of the Stock will take place at such time or times, and on such conditions, as the Administrator may specify. The Administrator

may at any time accelerate the time at which delivery of all or any part of the Stock will take place. At the time any Award described in this Section 6 is granted, the Administrator may provide that, at the time Stock would otherwise be delivered pursuant to the Award, the Participant will instead receive an instrument evidencing the Participant's right to future delivery of Deferred Stock.

6.5. Performance Awards; Performance Goals.

(a) Nature of Performance Awards. A Performance Award entitles the recipient to receive, without payment, an amount in cash or Stock or a combination thereof (such form to be determined by the Administrator) following the attainment of Performance Goals. Performance Goals may be related to personal performance, corporate performance, departmental performance or any other category of performance deemed by the Administrator to be important to the success of the Company. The Administrator will determine the Performance Goals, the period or period during which performance is to be measured and all other terms and conditions applicable to the Award.

(b) Other Awards Subject to Performance Condition. The Administrator may, at the time any Award described in this Section 6 is granted, impose the condition (in addition to any conditions specified or authorized in this Section 6 or any other provision of the Plan) that Performance Goals be met prior to the Participant's realization of any payment or benefit under the Award.

6.6. Loans and Supplemental Grants.

(a) Loans. The Company may make a loan to a Participant ("Loan"), either on the date of or after the grant of any Award to the Participant. A Loan may be made either in connection with the purchase of Stock under the Award or with the payment of any Federal, state or local income tax with respect to income recognized as a result of the Award. The Administrator will have full authority to decide whether to make a Loan and to determine the amount, terms and conditions of the Loan, including the interest rate (which may be zero), whether the Loan is to be secured or unsecured or with or without recourse against the borrower, the terms on which the Loan is to be repaid and the conditions, if any, under which it may be forgiven.

(b) Supplemental Grants. In connection with any Award, the Administrator may at the time such Award is made or at a later date, provide for and grant a cash award to the Participant ("Supplemental Grant") not to exceed an amount equal to (1) the amount of any federal, state and local income tax on income for which the Participant may be liable with respect to the Award, determined by assuming taxation at the highest marginal rate,

plus (2) an additional amount on a grossed-up basis intended to make the Participant whole on an after-tax basis after discharging all the Participant's income tax liabilities arising from all payments under this Section 6. Any payments under this subsection (b) will be made at the time the Participant incurs Federal income tax liability with respect to the Award.

7. EVENTS AFFECTING OUTSTANDING AWARDS

7.1. Death.

If a Participant dies, the following will apply:

(a) All Options and Stock Appreciation Rights held by the Participant immediately prior to death, to the extent then exercisable, may be exercised by the Participant's executor or administrator or the person or persons to whom the Option or Right is transferred by will or the applicable laws of descent and distribution, at any time within the one year-period ending with the first anniversary of the Participant's death (or such shorter or longer period as the Administrator may determine), and shall thereupon terminate. In no event, however, shall an Option or Stock Appreciation Right remain exercisable beyond the latest date on which it could have been exercised without regard to this Section 7. Except as otherwise determined by the Administrator, all Options and Stock Appreciation Rights held by a Participant immediately prior to death that are not then exercisable shall terminate at death.

(b) Except as otherwise determined by the Administrator, all Restricted Stock held by the Participant must be transferred to the Company (and, in the event the certificates representing such Restricted Stock are held by the Company, such Restricted Stock will be so transferred without any further action by the Participant) in accordance with Section 6.3 above.

(c) Any payment or benefit under a Deferred Stock Award, Performance Award, or Supplemental Grant to which the Participant was not irrevocably entitled prior to death will be forfeited and the Award canceled as of the time of death, unless otherwise determined the Administrator.

7.2. Termination of Service (Other Than By Death).

If a Participant who is an Employee ceases to be an Employee for any reason other than death, or if there is a termination (other than by reason of death) of the consulting, service or similar relationship in respect of which a non-Employee Participant was granted an Award hereunder (such termination of the employment or other relationship being hereinafter referred to as a "Status Change"), the following will apply:

(a) Except as otherwise determined by the Administrator, all Options and Stock Appreciation Rights held by the Participant that were not exercisable immediately prior to the Status Change shall terminate at the time of the Status Change. Any Options or Rights that were exercisable immediately prior to the Status Change will continue to be exercisable for a period of three months (or such shorter or longer period as the Administrator may determine), and shall thereupon terminate, unless the Award provides by its terms for immediate termination in the event of a Status Change or unless the Status Change results from a discharge for cause which in the opinion of the Administrator casts such discredit on the Participant as to justify immediate termination of the Award. In no event, however, shall an Option or Stock Appreciation Right remain exercisable beyond the latest date on which it could have been exercised without regard to this Section 7. For purposes of this paragraph, in the case of a Participant who is an Employee, a Status Change shall not be deemed to have resulted by reason of (i) a sick leave or other bona fide leave of absence approved for purposes of the Plan by the Administrator, so long as the Employee's right to reemployment is guaranteed either by statute or by contract, or (ii) a transfer of employment between the Company and a subsidiary or between subsidiary, or to the employment of a corporation (or a parent or subsidiary corporation of such corporation) issuing or assuming an option in a transaction to which section 424(a) of the Code applies.

(b) Except as otherwise determined by the Administrator, all Restricted Stock held by the Participant at the time of the Status Change must be transferred to the Company (and, in the event the certificates representing such Restricted Stock are held by the Company, such Restricted Stock will be so transferred without any further action by the Participant) in accordance with Section 6.3 above.

(c) Any payment or benefit under a Deferred Stock Award, Performance Award, or Supplemental Grant to which the Participant was not irrevocably entitled prior to the Status Change will be forfeited and the Award cancelled as of the date of such Status Change unless otherwise determined by the Administrator.

7.3. Certain Corporate Transactions.

In the event of a consolidation or merger in which the Company is not the surviving corporation or which results in the acquisition of substantially all the Company's outstanding Stock by a single person or entity or by a group of persons and/or entities acting in concert, or in the event of the sale or transfer of substantially all the Company's assets or a dissolution or liquidation of the Company (a "covered transaction"), all outstanding Awards will terminate as of the

effective date of the covered transaction. Prior to the effective date of the covered transaction, the Administrator in its sole discretion may, with respect to any or all Awards (or any portion thereof) then outstanding:

(a) (1) in the case of Options and Stock Appreciation Rights, make them exercisable in full, (2) remove the restrictions from shares of Restricted Stock, (3) cause the Company to make payment and provide benefits, in whole or in part, under Deferred Stock Awards, Performance Awards, and Supplemental Grants which would have been made or provided with the passage of time had the transaction not occurred and the Participant not suffered a Status Change (or died), (4) remove any performance-related or other conditions, and (5) forgive all or any portion of the principal of or interest on a Loan; or

(b) with respect to an outstanding Award held by a Participant who, following the covered transaction, will be employed by or otherwise providing services to a corporation which is a surviving or acquiring corporation in such transaction or an affiliate of such a corporation, arrange to have such surviving or acquiring corporation or affiliate grant to the Participant a replacement award which, in the judgment of the Administrator, is substantially equivalent to the Award;

provided, that nothing in this Section 7.3 shall be construed as obligating the Administrator to take any action under either (a) or (b) above.

8. GENERAL PROVISIONS

8.1. Documentation of Awards.

Awards will be evidenced by such written instruments, if any, as may be prescribed by the Administrator from time to time. Such instruments may be in the form of agreements to be executed by both the Participant and the Company, or certificates, letters or similar instruments, which need not be executed by the Participant but acceptance of which will evidence agreement to the terms thereof.

8.2. Rights as a Stockholder, Dividend Equivalents.

Except as specifically provided by the Plan, the receipt of an Award will not give a Participant rights as a stockholder; the participant will obtain such rights, subject to any limitations imposed by the Plan or the instrument evidencing the Award, upon actual receipt of Stock. However, the Administrator may, on such conditions as it deems appropriate, provide that a Participant will receive a benefit in lieu of cash dividends that would have been payable on any or all Stock subject to the Participant's

Award had such Stock been outstanding. Without limitation, the Administrator may provide for payment to the Participant of amounts representing such dividends, either currently or in the future, or for the investment of such amounts on behalf of the Participant.

8.3. Conditions or Delivery of Stock.

The Company will not be obligated to deliver any shares of Stock pursuant to the Plan or to remove restriction from shares previously delivered under the Plan (a) until all conditions of the Award have been satisfied or removed, (b) until, in the opinion of the Company's counsel, all applicable federal and state laws and regulations have been complied with, (c) if the outstanding Stock is at the time listed on any stock exchange or national market system, until the shares to be delivered have been listed or authorized to be listed on such exchange or system upon official notice of issuance, and (d) until all other legal matters in connection with the issuance and delivery of such shares have been approved by the Company's counsel. If the sale of Stock has not been registered under the Securities Act of 1933, as amended, the Company may require, as a condition to exercise of the Award, such representations or agreements as counsel for the Company may consider appropriate to avoid violation of such Act and may require that the certificates evidencing such Stock bear an appropriate legend restricting transfer.

If an Award is exercised by the Participant's legal representative, the Company will be under no obligation to deliver Stock pursuant to such exercise until the Company is satisfied as to the authority of such representative.

8.4. Tax Withholding.

The Company will withhold from any cash payment made pursuant to an Award an amount sufficient to satisfy all federal, state and local withholding tax requirements (the "withholding requirements").

In the case of an Award pursuant to which Stock may be delivered, the Administrator will have the right to require that the Participant or other appropriate person remit to the Company an amount sufficient to satisfy the withholding requirements, or make other arrangements satisfactory to the Administrator with regard to such requirements, prior to the delivery of any Stock. If and to the extent that such withholding is required, the Administrator may permit the Participant or such other person to elect at such time and in such manner as the Administrator provides to have the Company hold back from the shares to be delivered, or to deliver to the Company, Stock having a value calculated to satisfy the withholding requirement. In the

alternative, the Administrator may, at the time of grant of any such Award, require that the Company withhold from any shares to be delivered Stock with a value calculated to satisfy applicable tax withholding requirements.

If at the time an ISO is exercised the Administrator determines that the Company could be liable for withholding requirements with respect to a disposition of the Stock received upon exercise, the Administrator may require as a condition of exercise that the person exercising the ISO agree (a) to inform the Company promptly of any disposition (within the meaning of section 424(c) of the Code) of Stock received upon exercise, and (b) to give such security as the Administrator deems adequate to meet the potential liability of the Company for the withholding requirements and to augment such security from time to time in any amount reasonably deemed necessary by the Administrator to preserve the adequacy of such security.

8.5. Nontransferability of Awards.

No Award (other than an Award in the form of an outright transfer of cash or Unrestricted Stock) may be transferred other than by will or by the laws of descent and distribution, and during an employee's lifetime an Award requiring exercise may be exercised only by the Participant (or in the event of the Participant's incapacity, the person or persons legally appointed to act on the Participant's behalf).

8.6. Adjustments in the Event of Certain Transactions.

(a) In the event of a stock dividend, stock split or combination of shares, recapitalization or other change in the Company's capitalization after the effective date of the Plan, the Administrator will make appropriate adjustments to the maximum number of shares that may be delivered under the Plan under Section 4 above, and will also make appropriate adjustments to the number and kind of shares of stock or securities subject to Awards then outstanding or subsequently granted, any exercise prices relating to Awards and any other provision of Awards affected by such change.

(b) The Administrator may also make adjustments of the type described in paragraph (a) above to take into account material changes in law or in accounting practices or principles, distributions to common stockholders other than stock dividends or normal cash dividends, mergers, consolidations, acquisitions, dispositions or similar corporate transactions, or any other event, if the Administrator determines that adjustments are appropriate to avoid distortion in the operation of the Plan.

8.7. EMPLOYMENT RIGHTS, ETC.

Neither the adoption of the Plan nor the grant of Awards will confer upon any person any right to continued retention by the Company or any subsidiary as an Employee or otherwise, or affect in any way the right of the Company or subsidiary to terminate an employment, service or similar relationship at any time. Except as specifically provided by the Administrator in any particular case, the loss of existing or potential profit in Awards granted under the Plan will not constitute an element of damages in the event of termination of an employment, service or similar relationship even if the termination is in violation of an obligation of the Company to the Participant.

8.8. DEFERRAL OF PAYMENTS.

The Administrator may agree at any time, upon request of the Participant, to defer the date on which any payment under an Award will be made.

8.9. PAST SERVICES AS CONSIDERATION.

Where a Participant purchases Stock under an Award for a price equal to the par value of the Stock the Administrator may determine that such price has been satisfied by past services rendered by the Participant.

9. EFFECT, DISCONTINUANCE, CANCELLATION, AMENDMENT AND TERMINATION

Neither adoption of the Plan nor the grant of Awards to a Participant will affect the Company's right to grant to such Participant awards that are not subject to the Plan, to issue to such Participant Stock as a bonus or otherwise, or to adopt other plans or arrangements under which Stock be issued to Employees.

The Administrator may at any time or times amend the Plan or any outstanding Award for any purpose which may at the time be permitted by law, or may at any time terminate the Plan as to any further grants of Awards, provided that (except to the extent expressly required or permitted by the Plan) no such amendment will, without the approval of the stockholders of the Company, effectuate a change for which stockholder approval is required in order for the Plan to continue to qualify for the award of ISOs under section 422 of the Code and to continue to qualify under Rule 16b-3 promulgated under Section 16 of the 1934 Act.

APPROVAL OF AMENDMENT NO. 1 TO THE 1993 EQUITY INCENTIVE PLAN

The 1993 Equity Incentive Plan (the "Incentive Plan") is administered by the Compensation Committee and is designed to advance the Company's interests by enhancing its ability to attract and retain employees and others in a position to make significant contributions to the success of the Company through ownership of shares of Common Stock. A total of 541,183 shares of Common Stock which became available due to the expiration of the previous 1982 Stock Option Plan, have been reserved for issuance under the Incentive Plan, subject to adjustment for stock dividends and similar events. As of April 7, 1997 there were 324,053 shares of Common Stock available for award. The closing price of the Common Stock on that date was \$ 2.75.

The Incentive Plan was adopted by the Board of Directors on February 22, 1993. Stockholders approved the Incentive Plan at the Annual Meeting of Stockholders held on May 14, 1993. On April 23, 1997, the Board of Directors adopted Amendment No. 1 to the Incentive Plan (the "Amendment") which provides for per-individual limitations on the number of shares of Common Stock issuable upon exercise of options and stock appreciation rights ("SARs") under the Incentive Plan in order to comply with Section 162(m) of the Internal Revenue Code. Stockholders are being requested to approve the Amendment at the Annual Meeting. If the Amendment is not approved by the Stockholders, no additional grants of options or SARs under the Incentive Plan will be permitted to be made to the Named Executive Officers. The following summary, of the Incentive Plan and the Amendment is qualified in its entirety by the full text of the Incentive Plan and the Amendment which are available without charge upon request to Thomas P. Kealy, Vice President, Corporate Controller and Chief Accounting Officer.

GENERAL

Under the Incentive Plan, the Compensation Committee may grant stock options (both incentive stock options and nonstatutory options), stock appreciation rights, restricted stock, unrestricted stock, deferred stock grants, and performance awards, as well as loans in connection with such grants and awards and cash payments intended to offset income taxes due with respect to any such grant or award. Awards under the Incentive Plan may also include provision for the payment of dividend equivalents with respect to the shares subject to the awards. Employees of the Company and its subsidiaries and other persons or entities who, in the Compensation Committee's opinion, are in a position to make a significant contribution to the success of the Company are eligible to receive awards under the Incentive Plan. The Amendment provides that (i) the maximum number of shares of Common Stock for which options may be granted to any individual in any year of the Incentive Plan shall be 250,000 and (ii) the maximum number of shares of Common Stock subject to stock appreciation rights granted to an individual in any year of the Incentive Plan shall likewise be 250,000. These per-individual limitations are intended to be construed and applied consistent with the rules and regulations under Section 162(m) of the Internal Revenue Code.

Stock Options. The exercise price of an incentive stock option granted under the Incentive Plan may not be less than 100% (110% in the case of ten percent shareholders) of the fair market value of the Common Stock at the time of grant. The exercise price of a nonstatutory option granted under the Incentive Plan is determined by the Compensation Committee. The Compensation Committee sets the term of each option, which cannot exceed ten years from grant (five years from grant in the case of an incentive stock option granted to a ten percent shareholder), and specifies the time or times each option will be exercisable. The exercise price may be paid in cash or check acceptable to the Company. Subject to certain additional limitations, the Compensation Committee may also permit the exercise price to be paid by tendering shares of Common Stock, by using a promissory note, by delivering to the Company an undertaking by a broker to deliver promptly sufficient funds to pay the exercise price, or a combination of the foregoing.

Stock Appreciation Rights (SARs). SARs may be granted either alone or in tandem with stock option grants. Each SAR, entitles the participant, in general, to receive upon exercise the excess of a share's fair market value at the date of exercise over the share's fair market value on the date the SAR, was granted. The Incentive Plan also provides for SARs entitling the participant, upon exercise, to receive an amount based on certain other measures, including SARs that entitle the recipient to receive, following a change in control or the Company as determined by the Compensation Committee, an amount measured by specified values or averages of values prior to the change in control. If an SAR is granted in tandem with an option, the SAR will be exercisable only to the extent the option is exercisable. To the extent the option is exercised, the accompanying SAR will cease to be exercisable, and vice versa.

Stock Awards. The Incentive Plan provides for awards of nontransferable shares of restricted Common Stock subject to forfeiture as well as of unrestricted shares of Common Stock. Restricted Common Stock must be forfeited to the Company if the participant ceases to be an employee before the restriction lapse. Other awards under the Incentive Plan may also be settled with restricted Common Stock.

The Incentive Plan also provides for deferred grants entitling the recipient to receive shares of Common Stock in the future at such times and on such conditions as the Compensation Committee may specify and performance awards entitling the recipient to receive cash or Common Stock following the attainment of performance goals determined by the Compensation Committee. Performance conditions and provisions for deferred stock may also be attached to other awards under the Incentive Plan.

The Compensation Committee may approve loans from the Company in connection with the purchase of Common Stock under an award or the payment of taxes in connection with an award, and may provide for outright cash grants to make participants whole for certain taxes. A loan under the Incentive Plan will have such provision as the Compensation Committee determines but may not have a term exceeding ten years.

Except as otherwise provided by the Compensation Committee, if a participant dies, options and SARs exercisable immediately prior to death may be exercised by the participant's executor, administrator or transferee during a period of one year following such death (or for the remainder of the original term, if less). Options and SARs not exercisable at a participant's death terminate. Outstanding awards of Restricted Stock must be transferred to the Company upon a participant's death and, similarly, Deferred Stock grants, performance awards and supplemental awards to which a participant is not irrevocably entitled will be forfeited unless otherwise provided.

In the case of termination of a participant's association with the Company for reasons other than death, options and SARs remain exercisable, to the extent they were exercisable immediately prior to termination, for three months (or for the remainder of their original term, if less), shares of Restricted Stock must be resold to the Company and other awards terminate, except as otherwise provided.

In the case of certain mergers, consolidations or other transactions in which the Company is acquired or is liquidated, all outstanding awards will terminate. The Compensation Committee may, however, in its discretion cause unvested awards to vest or become exercisable, remove performance or other conditions on the exercise of or vested right to an award, or in certain circumstances provide for replacement awards.

FEDERAL TAX EFFECTS

The following discussion summarizes certain federal income tax consequences of the exercise and receipt of options under the Incentive Plan. The summary does not purport to cover federal employment tax or other federal tax consequences that may be associated with the plans, nor does it cover state, local or non-U.S., taxes.

Incentive Stock Options. In general, an optionee realizes no taxable income upon the grant or exercise of an incentive stock option ("ISO"). However, the exercise of an ISO may result in an alternative minimum tax liability to the optionee. With certain exceptions, a disposition of shares purchased under an ISO within two years from the date of grant or within one year after exercise produces ordinary income to the optionee (and a deduction to the Company) equal to the value of the shares at the time of exercise less the exercise price. Any additional gain recognized in the disposition is treated as a capital gain for which the Company is not entitled to a deduction. If the optionee does not dispose of the shares until after the expiration of these one-and two-year holding periods, any gain or loss recognized upon a subsequent sale is treated as a long-term capital gain or loss for which the Company is not entitled to a deduction.

Nonstatutory Options. In general, in the case of a nonstatutory option, the optionee has no taxable income at the time of grant but realizes income in connection with exercise of the option in an amount equal to the excess (at time of exercise) of the fair market value of the shares acquired upon exercise over the exercise price; a corresponding deduction is available to the Company; and upon a subsequent sale or exchange of the shares, appreciation and depreciation after the date of exercise is treated as capital gain or loss for which the Company is not entitled to a deduction.

In general, an ISO that is exercised more than three months after termination of employment (other than termination by reason of death) is treated as a nonstatutory option. ISOs granted after 1986 are also treated as nonstatutory options to the extent they first become exercisable by an individual in any calendar year for shares having a fair market value (determined as of the date of grant) in excess of \$100,000.

Under the so-called "golden parachute" provisions of the Internal Revenue Code, options that vest in connection with a change in control of the Company may be required to be valued and taken into account in determining whether the participant has received payments in the nature of compensation that are contingent on the change in control ("parachute payments") equal to or greater than three times the participant's average compensation for the five years ended prior to the year in which the change in control occurs. If this limit is exceeded, the excess of the participant's parachute payments over one times the five-year average base amount may be subject to an additional 20% federal tax and may be nondeductible to the Company.

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AMENDMENT NO. 1
BTU INTERNATIONAL, INC.
1993 EQUITY INCENTIVE PLAN

1. REFERENCE TO THE PLAN.

Reference is hereby made to the BTU international, Inc. (the "Company") 1993 Equity Incentive Plan (the "Plan"). Terms defined in the Plan and not otherwise defined herein are used herein with the meanings so defined.

2. AMENDMENT TO THE PLAN.

Subject to approval by the stockholders of the Company, Section 4 of the Plan is hereby amended by adding the following paragraph at the end thereof:

"The maximum number of shares of Stock for which Options may be granted to any individual in any one year shall be 250,000. The maximum number of shares of Stock subject to Stock Appreciation Rights granted to an individual in any one year shall likewise be 250,000. The per-individual limitations described in this paragraph shall be construed and applied consistent with the rules and regulations under Section 162(m) of the Internal Revenue Code."

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BTU INTERNATIONAL, INC.

1998 STOCK OPTION PLAN FOR NON-EMPLOYEE DIRECTORS

1. PURPOSE

The purpose of this 1998 Stock Option Plan for Non-Employee Directors (the "Plan") is to advance the interests of BTU International, Inc. (the "Company") by enhancing the ability of the Company to attract and retain non-employee directors who are in a position to make significant contributions to the success of the Company and to reward directors for such contributions through the awarding of options ("Options") to purchase shares of the Company's common stock (the "Stock").

2. ADMINISTRATION

The Plan shall be administered by a committee (the "Committee") of the Board of Directors (the "Board") of the Company designated by the Board for that purpose. Unless and until a Committee is appointed the Plan shall be administered by the entire Board, and references in the Plan to the "Committee" shall be deemed references to the Board. The Committee shall have authority, not inconsistent with the express provisions of the Plan, (a) to grant Options in accordance with the Plan to such directors as are eligible to receive Options; (b) to prescribe the form or forms of instruments evidencing Options and any other instruments required under the Plan and to change such forms from time to time; (c) to adopt, amend and rescind rules and regulations for the administration of the Plan; and (d) to interpret the Plan and to decide any questions and settle all controversies and disputes that may arise in connection with the Plan. Such determinations of the Committee shall be conclusive and shall bind all parties. Subject to Section 7, the Committee shall also have the authority, both generally and in particular instances, to waive compliance by a director with any obligation to be performed by him or her under an Option and to waive any condition or provision of an Option.

3. EFFECTIVE DATE AND TERM OF PLAN

The Plan shall become effective on the date on which the Plan is approved by the Board of Directors of the Company, subject to approval by the stockholders of the Company. No Option shall be granted under the Plan after the completion of ten years from the date on which the Plan was adopted by the Board, but Options previously granted may extend beyond that date.

4. SHARES SUBJECT TO THE PLAN

(a) Number of Shares. Subject to adjustment as provided in Section 4(c), the aggregate number of shares of Stock that may be delivered upon the exercise of Options granted under the Plan shall be 50,000. If any Option granted under the Plan terminates without having been exercised in full, the number of shares of Stock as to which such Option was not exercised shall be available for future grants within the limits set forth in this Section 4(a).

(b) Shares to be Delivered. Shares delivered under the Plan shall be authorized but unissued Stock or, if the Board so decides in its sole discretion, previously issued Stock acquired by the Company and held in treasury. No fractional shares of Stock shall be delivered under the Plan.

(c) Changes in Stock. In the event of a stock dividend, stock split or combination of shares, recapitalization or other change in the Company's capital stock, after the effective date of the Plan, the number and kind of shares of stock or securities of the Company subject to Options then outstanding or subsequently granted under the Plan, the maximum number of shares or securities that may be delivered under the Plan, the exercise price, and other relevant provisions shall be appropriately adjusted by the Committee, whose determination shall be binding on all persons.

The Committee may also adjust the number of shares subject to outstanding awards and the exercise price and the terms of outstanding awards to take into consideration material changes in accounting practices or principles, extraordinary dividends, consolidations or mergers (except those described in Section 6(j)), acquisitions or dispositions of stock or property or any other event if it is determined by the Board that such adjustment is appropriate to avoid distortion in the operation of the Plan.

5. ELIGIBILITY FOR OPTIONS

A Director eligible to receive Options under the Plan (an "Eligible Director") shall be any director who is not an employee of the Company or of any subsidiary of the Company, and (ii) is not a holder of more than 5% of the outstanding shares of the Stock, or a person who is in control of such holder.

6. TERMS AND CONDITIONS OF OPTIONS

(a) Formula Options. On the date that the Board approves this Plan, each person who is then an Eligible Director shall be awarded on such date an Option covering 1,000 shares of Stock, subject to stockholder approval of the Plan. Each Eligible Director elected for the first time thereafter shall also be awarded on the date of his or her first election an Option covering 2,000 shares of Stock. Thereafter, immediately following the annual meeting of stockholders, each Eligible Director shall be awarded an Option covering 1,000 shares of Stock. The Options awarded under this paragraph (a) are referred to as "Formula Options."

(b) Discretionary Options. The Committee shall also have the authority under this Plan to award Options to purchase Stock to Eligible Directors in such amounts and on such terms not inconsistent with this Plan as it shall determine at the time of the award. The Options awarded under this paragraph (b) are referred to herein as "Discretionary Options."

(c) Exercise Price. The exercise price of each Formula Option shall be 100% of the fair market value per share of the Stock at the time the Option is granted. The exercise price of each Discretionary Options shall be set by the Committee. In no event, however, shall the Option price be less, in the case of an original issue of authorized stock, than par value per share. For purposes of this paragraph, the fair market value of a share of Stock will be the mean between the high and low sale prices as reported on the principal market on which the Stock is traded or, if no sales are reported, the fair market value as determined in good faith by the Committee.

(d) Duration of Options. The latest date on which a Option may be exercised (the "Final Exercise Date") shall be (i) in the case of Formula Options, the date which is seven years from the date the Option was granted and (ii) in the case of Discretionary Options, such date as the Committee may determine, but in no event later than seven years from the date the Option was granted.

(e) Exercise of Options.

- (1) Each Formula Option shall become exercisable as to one-fourth of the shares covered thereby on each anniversary of the date of the grant. Each Discretionary Option shall become exercisable at such time or times as the Committee shall determine.
- (2) Any exercise of an Option shall be in writing, signed by the proper person and delivered or mailed to the Company, accompanied by (i) any

documentation required by the Committee and (ii) payment in full for the number of shares for which the Option is exercised.

- (3) If an Option is exercised by the executor or administrator of a deceased director, or by the person or persons to whom the Option has been transferred by the director's will or the applicable laws of descent and distribution, the Company shall be under no obligation to deliver Stock pursuant to such exercise until the Company is satisfied as to the authority of the person or persons exercising the Option.

(f) Payment for and Delivery of Stock. Stock purchased under the Plan shall be paid for as follows: (i) in cash or by check (acceptable to the Company in accordance with guidelines established for this purpose), bank draft or money order payable to the order of the Company or (ii) if so permitted by the Committee, (A) through the delivery of shares of Stock (which, in the case of shares of Stock acquired from the Company, have been outstanding for at least six months) having a fair market value on the last business day preceding the date of exercise equal to the purchase price or (B) by having the Company hold back from the shares transferred upon exercise Stock having a fair market value on the last business day preceding the date of exercise equal to the purchase price or (C) by delivery of a promissory note of the Option holder to the Company, such note to be payable on such terms as are specified or (D) by delivery of an unconditional and irrevocable undertaking by a broker to deliver promptly to the Company sufficient funds to pay the exercise price or (E) by any combination of the permissible forms of payment; provided, that if the Stock delivered upon exercise of the Option is an original issue of authorized Stock, at least so much of the exercise price as represents the par value of such Stock shall be paid other than with a personal check or promissory note of the Option holder.

An Option holder shall not have the rights of a shareholder with regard to awards under the Plan except as to Stock actually received by him or her under the Plan.

The Company shall not be obligated to deliver any shares of Stock (a) until, in the opinion of the Company's counsel, all applicable federal and state laws and regulations have been complied with, and (b) if the outstanding Stock is at the time listed on any stock exchange, until the shares to be delivered have been listed or authorized to be listed on such exchange upon official notice of issuance, and (c) until all other legal matters in connection with the issuance and delivery of such shares have been approved by the Company's counsel. If the sale of Stock has not been registered under the Securities Act of 1933, as amended, the Company may require, as a condition to exercise of the Option, such representations or agreements as counsel for the Company may consider appropriate to avoid violation of such Act and may require that the certificates evidencing such Stock bear an appropriate legend restricting transfer.

(g) Nontransferability of Options. Except as the Committee shall otherwise provide, no Option may be transferred other than by will or by the laws of descent and distribution, and during a director's lifetime an Option may be exercised only by him or her.

(h) Death. Except as the Committee shall otherwise provide, upon the death of any director granted Options under this Plan, all Options not then exercisable shall terminate. All Options held by the director that are exercisable immediately prior to death may be exercised by his or her executor or administrator, or by the person or persons to whom the Option is transferred by will or the applicable laws of descent and distribution, at any time within six months after the director's death (subject, however, to the limitations of Section 6(d) regarding the maximum exercise period for such Option). After completion of that six-month period, such Options shall terminate to the extent not previously exercised.

(i) Other Termination of Service. Except as the Committee shall otherwise provide, if a director's service with the Company terminates for any reason other than death, all Options held by the director that are not then exercisable shall terminate. Options that are exercisable on the date of termination shall continue to be exercisable for a period of three months (subject to Section 6(d)), but shall terminate immediately if the director was removed for cause or resigned under circumstances which, in the opinion of the Committee, casts such discredit on him or her as to justify termination of his Options. After completion of that three-month period, such Options shall terminate to the extent not previously exercised, expired or terminated.

(j) Mergers, etc. Subject to the second paragraph of this paragraph 6(j), in the event of a consolidation or merger in which the Company is not the surviving corporation (other than a consolidation or merger in which the holders of Stock of the Company acquire a majority of the voting stock of the surviving corporation) or which results in the acquisition of substantially all the Company's outstanding Stock by a single person or entity or by a group of persons and/or entities acting in concert, or in the event of a sale or transfer of substantially all of the Company's assets or a dissolution or liquidation of the Company, all Options hereunder will terminate, but 20 days prior to the anticipated effective date of any such merger, consolidation, sale, dissolution, or liquidation, all Options outstanding hereunder that are not otherwise exercisable shall become immediately exercisable, provided, that if the transaction is a merger or consolidation that is accounted for as a pooling of interests the Committee shall arrange to have the successor or surviving corporation assume all Options outstanding under this Plan, with such adjustments to the number of shares covered by such Options and the exercise price thereof as may be necessary to reflect the exchange ratio provided for in the transaction. Such assumed options shall otherwise be on terms and conditions substantially equivalent to those set forth in this Plan, shall be immediately exercisable and, except as to Eligible

Directors who become directors of the acquiring or surviving corporation, shall terminate on the 180th day following the consummation of the transaction. Options held by Eligible Directors who become directors of the acquiring or surviving corporation shall be governed, mutatis mutandis, by the provisions of this Plan and the agreement evidencing the Option surrendered in substitution.

Notwithstanding any other provision of this Plan, in the event of a Change in Control of the Company as defined in Exhibit A hereto each Option held by each Eligible Director will immediately become fully exercisable.

7. EFFECT, DISCONTINUANCE, CANCELLATION, AMENDMENT, TERMINATION AND EFFECTIVENESS

Neither adoption of the Plan nor the grant of Options to a director shall affect the Company's right to grant to such director Options that are not subject to the Plan, to issue to such directors Stock as a bonus or otherwise, or to adopt other plans or arrangements under which Stock may be issued to directors.

The Committee may at any time terminate the Plan as to any further grants of Options. The Committee may at any time or times, amend the Plan for any purpose which may at the time be permitted by law, but no such amendment shall adversely affect the rights of any Optionee (without the Optionee's consent) under any Option previously granted.

EXHIBIT A

A Change in Control will occur for purposes of this Plan if (i) any individual, corporation, partnership, company or other entity (a "Person") becomes the "beneficial owner" (as defined in Rule 13d-3 under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) of securities of the Company representing more than 30% of the combined voting power of the Company's then outstanding securities (other than as a result of acquisitions of such securities from the Company), (ii) there is a change in control of the Company of a kind which would be required to be reported under Item 6(e) of Schedule 14A of Regulation 14A promulgated under the Exchange Act (or a similar item in a similar schedule or form), whether or not the Company is then subject to such reporting requirement, (iii) the Company is a party to, or the stockholders approve, a merger, consolidation, or other reorganization (other than (a) a merger, consolidation or other reorganization which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent, either by remaining outstanding or by being converted into voting securities of the surviving entity, more than 50% of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger, consolidation, or other reorganization, or (b) a merger, consolidation, or other reorganization effected to implement a recapitalization of the Company, or similar transaction, in which no Person acquires more than 20% of the combined voting power of the Company's then outstanding securities), a sale of all or substantially all assets, or a plan of liquidation, or (iv) individuals who, at the date hereof, constitute the Board cease for any reason to constitute a majority thereof, provided, however, that any director who is not in office at the date hereof but whose election by the Board or whose nomination for election by the Company's shareholders was approved by a vote of at least a majority of the directors then still in office who either were directors at the date hereof or whose election or nomination for election was previously so approved (other than an election or nomination of an individual whose initial assumption of office is in connection with an actual or threatened election contest relating to the election of the Directors of the Company, as such terms are used in Rule 14a-11 of Regulation 14A promulgated under the Exchange Act) shall be deemed to have been in office at the date hereof for purposes of this definition.

Notwithstanding the foregoing provisions of this Exhibit A, a "Change in Control" will not be deemed to have occurred solely because of the acquisition of beneficial ownership of securities of the Company by an employment benefit plan maintained by the Company for its employees.

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FIRST AMENDMENT TO CREDIT AGREEMENT

AGREEMENT AND AMENDMENT made as of the 16th day of December, 1999, by and between USTrust ("Lender") and BTU International, Inc. ("Borrower").

WHEREAS, Lender and Borrower are parties to a Credit Agreement dated September 5, 1997 (the "Credit Agreement") and certain other Loan Documents (as defined in the Credit Agreement) under which Lender has made loans and extended credit, from time to time, to Borrower;

WHEREAS, the Borrowers have requested that Lender agree to amend the Credit Agreement to, among other things, extend the Termination Date under the Credit Agreement and modify the Debt Service Coverage Ratio;

WHEREAS, Lender is prepared to agree to the foregoing amendments but only on the terms and subject to the conditions set forth herein,

NOW, THEREFORE, based on these premises, and in consideration of the mutual promises herein contained, and other good and valuable consideration the receipt and sufficiency of which are hereby acknowledged, Lender and Borrowers hereby agree:

SECTION 1. DEFINITIONS.

Capitalized terms not defined herein shall have the meanings ascribed to them in the Credit Agreement.

SECTION 2. AMENDMENTS TO CREDIT AGREEMENT. Borrower and Lender agree that the Credit Agreement is amended as follows:

- 2.1 Section 5.5(d) of the Credit Agreement is deleted and replaced with the following:

"(d) Debt Service Coverage Ratio. Allow the ratio of (i) EBITDA of Borrower minus unfinanced Capital Expenditures minus cash income taxes paid that apply to the current year's Earnings minus Dividends and Distributions, to (ii) Borrower's interest expense plus Current Maturities of Long Term Debt, calculated retrospectively for the period of the immediately preceding four fiscal quarters, to be less than 1.20 to 1.00 on the last day of any fiscal quarter, provided that for purposes of determining the Debt Service Coverage Ratio, unfinanced Capital Expenditures shall not be deducted from the numerator of the ratio, so long as any Loans or Letters of Credit outstanding under this Agreement do not exceed \$2,000,000 in the aggregate."

- 2.2 Schedule I of the Credit Agreement is amended to delete the definition of "Termination Date" and to replace it with the following:

"Termination Date" - the earlier of (a) April 30, 2004, and (b) the date the Lender's Commitment to make Loans is terminated pursuant to Section 7.2 of Article 7."

SECTION 3. ACKNOWLEDGMENT OF OBLIGATIONS AND COLLATERAL.

- 3.1 Borrower hereby acknowledges and agrees that it is unconditionally liable to Lender for the prompt and punctual performance of all Obligations under the Credit Agreement and other

Loan Documents, and that Borrower has no defenses, counterclaims or offsets with respect to the full payment and performance of all Obligations.

3.2 Borrower hereby acknowledge and agree that Lender has and shall continue to have valid and enforceable and duly perfected security interests in and to all Collateral to secure the Obligations.

SECTION 4. REPRESENTATIONS AND WARRANTIES.

Borrower represents and warrants that each of the warranties and representations contained in the Credit Agreement and each other Loan Document is accurate and complete as of the date hereof.

SECTION 5. CONTINUING EFFECT OF CREDIT AGREEMENT.

Except as expressly set forth herein, or in any other documents to be executed and delivered in connection herewith, the Loan Documents shall remain in full force and effect in accordance with their terms.

SECTION 6. MISCELLANEOUS.

This Amendment, together with the Loan Documents, contains the entire agreement of the parties with respect to the subject matter and supersedes all prior negotiations, offers and discussions relating thereto. This Amendment may be amended, modified, waived, discharges or terminated only by a writing signed by the party to be charged with such amendment, modification, discharge or termination. This Amendment shall be governed by Massachusetts law. This Amendment may be executed by one or more of the parties in separate counterparts, and all of such counterparts taken together shall be deemed to constitute one and the same instrument.

Executed under seal as of date set forth above.

BTU INTERNATIONAL, INC.

By: T. Kealy

Name: T. Kealy
Title Vice President

USTRUST

By: John E. Bukala

Name: John E. Bukala
Title Vice President

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Amendment No. 1 to
1988 Employee Stock Purchase Plan

This amendment, dated as of June 15, 1989, amends the BTU International, Inc. 1988 Employee Stock Purchase Plan (the "Plan"). Terms defined in the Plan and not otherwise defined herein are used herein as so defined.

WITNESSETH

WHEREAS, the Board of Directors of BTU International, Inc. (the "Company") has authorized the Plan;

WHEREAS, the Board of Directors of the Company has reserved shares of the Company's Common Stock to be issued in accordance with the Plan; and

WHEREAS, pursuant to Section 17 of the Plan, the Board of Directors now desires to amend certain provisions of the Plan in order to clarify the intent of the Board of Directors in approving the Plan;

NOW, THEREFORE, the Plan is hereby amended by striking the paragraph in Section 12 of the Plan and by inserting in its place the words "INTENTIONALLY OMITTED".

IN WITNESS WHEREOF, the Board of Directors has caused this Amendment No. 1 to the Plan to be filed with the Plan and has caused the Plan to be amended hereby.

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BTU INTERNATIONAL, INC.

1988 Employee Stock Purchase Plan

Amendment

By unanimous resolution of the Board of Directors of BTU International, Inc. (the "Company") dated February 20, 1991, which resolution was approved by the shareholders of the Company on May 10, 1991, the number of shares of the Company's Common Stock, \$.01 par value per share, authorized for issuance under the 1988 Employee Stock Purchase Plan (the "Plan") was increased by 200,000, raising the total from 100,000 to 300,000 shares.

As amended, Paragraph 2 of the Plan reads in its entirety as follows:

"2. OPTIONS TO PURCHASE STOCK

Under the Plan, there is available an aggregate of not more than 300,000 shares of Stock (subject to adjustment as provided in Section 15) for sale pursuant to the exercise of options ("options") granted under the Plan to employees (within the meaning of Section 3401(c) of the Internal Revenue Code of 1986 (the "Code")) of the Company ("employees") who meet the eligibility requirements set forth in Section 3 hereof ("eligible employees"). The Stock to be delivered upon exercise of options under the Plan may be either shares of BTU authorized but unissued Stock or shares of reacquired Stock, as the Board shall determine."

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AMENDMENT NO. 2
BTU INTERNATIONAL, INC.
1993 EQUITY INCENTIVE PLAN

1. REFERENCE TO THE PLAN.

Reference is hereby made to the BTU International, Inc. (the "Company") 1993 Equity Incentive Plan as amended by Amendment No. 1 to the BTU International, Inc. 1993 Equity Incentive Plan (as amended, the "Plan"). Terms defined in the Plan and not otherwise defined herein are used herein with the meanings so defined.

2. AMENDMENT TO THE PLAN.

Subject to the approval of the stockholders of the Company, Section 4 of the Plan is hereby amended by deleting the first sentence thereof and replacing it with the following sentence:

"Subject to the adjustment as provided in Section 8.6 below, the aggregate number of shares of Stock that may be delivered under the Plan will be 1,041,183."

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BTU INTERNATIONAL, INC.
 CALCULATION OF NET INCOME PER COMMON SHARE
 (Dollars in Thousands, except per share data)

	For the Year Ended December 31,		
	1999	1998	1997
Net income	\$ 2,838	\$ 1,533	\$ 1,250
Net income applicable to common stockholders	\$ 2,838	\$ 1,533	\$ 1,250
Weighted average number of shares outstanding			
Basic Shares	6,798,735	7,068,432	7,290,548
Effect of Dilutive Options	168,952	49,136	45,154
Diluted Shares	6,967,687	7,117,568	7,335,702
Earnings Per Share			
Basic	\$ 0.42	\$ 0.22	\$ 0.17
Diluted	\$ 0.41	\$ 0.22	\$ 0.17

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SUBSIDIARIES OF THE REGISTRANT

BTU Overseas, Limited (Fed. I.D. #04-2757966)
BTU Engineering FSC, Inc. (Fed. I.D. #04-2736403)
BTU Europe LTD
BTU GmbH

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CONSENT OF INDEPENDENT PUBLIC ACCOUNTANTS

As independent public accountants, we hereby consent to the incorporation of our report dated February 4, 2000 included in and incorporated by reference in this Form 10-K, into the Company's previously filed Registration Statements on Form S-8 File No. 33-28344, File No. 33-29113, File No. 33-41757, File No. 33-59045, File No. 33-59081 and File No. 333-94713. It should be noted that we have not audited any financial statements of the Company subsequent to December 31, 1999 or performed any audit procedures subsequent to the date of our report.

/s/ ARTHUR ANDERSEN LLP

ARTHUR ANDERSEN LLP

Boston, Massachusetts
March 27, 2000
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<ARTICLE> 5
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 THIS SCHEDULE CONTAINS SUMMARY FINANCIAL INFORMATION EXTRACTED FROM BTU
 INTERNATIONAL, INC. AND IS QUALIFIED IN ITS ENTIRETY BY REFERENCE TO SUCH 10-K
 1999.
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