

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K

(X) ANNUAL REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES  
EXCHANGE ACT OF 1934 (Fee Required)  
For the fiscal year ended December 31, 1996  
OR

( ) TRANSITION REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE  
SECURITIES EXCHANGE ACT OF 1934 (No Fee Required)  
For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission File Number: 0-18645

TRIMBLE NAVIGATION LIMITED  
(Exact name of Registrant as specified in its charter)

California 94-2802192  
(State or other jurisdiction of (I.R.S. Employer Identification No.)  
incorporation or organization)

645 North Mary Avenue Sunnyvale, CA 94088  
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (408) 481-8000

Securities registered pursuant to Section 12(b) of the Act: NONE

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

Common Stock  
(Title of Class)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes X No

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

The aggregate market value of the registrant's Common Stock held by non-affiliates of the registrant was approximately \$295,526,860 as of March 16, 1997, based upon the closing sale price of the common stock on the Nasdaq National Market for that date.

There were 22,303,914 shares of the registrant's Common Stock issued and outstanding as of March 16, 1997.

DOCUMENTS INCORPORATED BY REFERENCE

Items 10, 11, 12 and 13 of Part III incorporate information by reference from the registrant's Proxy Statement for the Annual Meeting of Shareholders to be held on May 15, 1997. Except with respect to information specifically incorporated by reference into this Form 10-K, the Proxy Statement is not deemed to be filed as a part here of.

This report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Actual results could differ materially from those indicated in the forward-looking statements as a result of the risk factors set forth in or incorporated by reference into, this report. The Company has attempted to identify forward-looking statements in this report by placing an asterisk (\*) in the left-hand margin of paragraphs containing such material.

## PART I

### Item 1. Business

#### General

Trimble Navigation Limited, a California corporation (Trimble or the Company), is a leader in the emerging markets for satellite-based navigation, position and communication data products using the Global Positioning System (GPS). Trimble designs, manufactures and markets electronic products which determine precise geographic location. The Company's principal products, which utilize substantial amounts of proprietary software and firmware, are integrated systems for collecting, analyzing and displaying position data in forms optimized for specific end-user applications.

\* Trimble has defined and currently addresses a number of markets for its GPS products: surveying, mapping, marine navigation, mining and construction, tracking systems, aviation, military systems, OEM and cellular and mobile computing platforms. The Company has developed or is developing systems for seismology, geographic information systems, delivery fleets, buses, ships, airplanes, automobiles and hand-held units. Trimble anticipates that additional markets will emerge to make use of the highly accurate position data obtainable from GPS.

#### Background

\* Precise determination of locations both on and above the earth's surface is a fundamental requirement for many human activities. For example, position data is used for navigation on land, sea, and air, and to conduct surveys and draw maps. Previous technologies have limited users to simultaneous determination of only two dimensions--latitude and longitude--while altitude and time required separate measurements with different equipment. GPS technology provides users with all of these measurements using one instrument. GPS is a system of 24 orbiting Navstar satellites established and funded by the U.S. Government. On April 27, 1995, GPS was declared to have achieved Full Operational Capability by the U.S. Air Force Space Command. The U.S. Government intends for GPS to complement or replace many other forms of electronic navigation and position data systems. GPS offers major advantages in precision and accuracy with worldwide coverage in three dimensions (in addition to providing time and velocity measurement capabilities).

GPS positioning is based on a triangulation technique that precisely measures distances from three or more Navstar satellites. The satellites continuously transmit precisely timed radio signals using extremely accurate atomic clocks. A GPS receiver calculates distances from the satellites in view by determining the travel time of the satellites' signals. The receiver then triangulates its position using its known distance from various satellites and calculates latitude, longitude and altitude. Under normal circumstances, a stand-alone GPS receiver is able to calculate its position at any point on earth, in the earth's atmosphere, or in lower earth orbit, to within 100 meters, 24 hours a day. When a GPS receiver is coupled with a known precise position, accuracies of less than one centimeter are possible. In addition, GPS provides highly accurate time measurement.

\* The usefulness of GPS is dependent upon the number and locations of GPS satellites which are above the horizon at any given time. The current deployment of 24 satellites permits three-dimensional worldwide coverage 24 hours per day. However, reception of GPS signals requires line-of-sight visibility between the Navstar satellites and the receiver, which can be blocked by buildings, hills and dense foliage. Each satellite must be above the horizon for the receiver to collect a sufficient signal, and the receiver must have a line of sight to at

longitude--and at least four satellites to determine its location in three dimensions--latitude, longitude, and altitude. The accuracy of GPS may also be limited by distortion of GPS signals from ionospheric and other atmospheric conditions, and intentional or inadvertent signal interference or Selective Availability (SA). Selective Availability, the largest component of GPS distortion, is controlled by the Department of Defense and is a currently activated, intentional system-wide degradation of stand-alone GPS accuracy from approximately 25 meters to approximately 100 meters. Selective Availability may be implemented by the Department of Defense in order to deny hostile forces the highly accurate position, time and velocity information supplied by GPS. In certain military applications, classified devices are utilized to decode the SA degradation and return accuracies to their original levels.

By using a technique called "differential GPS" involving two or more GPS receivers, accuracies can currently be improved to approximately one to five meters for navigation and one centimeter for survey applications, even in the presence of SA. This technique compensates for a number of potential measurement distortions, including distortions caused by ionospheric and other atmospheric conditions, as well as distortions intentionally introduced into the satellite data itself, such as SA. Differential GPS involves placing one receiver at a known location and continuously comparing its calculated location with its known location to measure distortions in the signal transmission and errors in the satellite data. At any one time such distortions and errors are reasonably constant over large areas, so that one or more remote GPS receivers can use these measurements to correct their own position calculations. Measurement corrections can be transmitted either in real-time over a suitable communication link such as radio or telephone, or integrated later with accumulated data, as is frequently the practice in survey applications.

Each of Trimble's GPS products is based on proprietary GPS receivers. Trimble's GPS receivers are capable of tracking all satellites in view and automatically selecting the optimum combination of satellites. Communications and computational modules, such as databases, database management systems, radio and other communication equipment and various user interfaces, are added to these receivers to create fully integrated application solutions.

Navstar satellites and their ground support systems are complex electronic systems subject to electronic and mechanical failures and possible sabotage. The satellites have design lives of 7.5 years and are subject to damage by the hostile space environment in which they operate. The repair of damaged or malfunctioning satellites is impossible. If a significant number of satellites were to become inoperable, there could be substantial delay before they are replaced with new satellites. A reduction in the number of operating satellites would impair the current utility of the GPS system and the growth of current and additional market opportunities. In addition, there can be no assurance that the U.S. government will remain committed to the operation and maintenance of GPS satellites over a long period of time, or that the policies of the U.S. Government for the use of GPS without charge will remain unchanged. Because of ever-increasing commercial applications of GPS, other U.S. Government agencies may become involved in the administration or the regulation of the use of GPS signals. Any of the foregoing factors could affect the willingness of buyers of the Company's products to select GPS-based systems instead of products based on competing technologies. Any resulting change in market demand for GPS products would have a material adverse effect on the Company's financial results. Recently, certain European government organizations have expressed concern regarding the susceptibility of GPS equipment to intentional or inadvertent signal interference. Such concern could translate into reduced demand for GPS products in certain geographic regions.

#### Business Strategy

The Company sees GPS as an information utility. In order to exploit the wide range of applications made possible by this information utility, the Company has implemented the following strategies:

**Targeted markets.** The Company targets specific markets for its GPS products based on end-user applications. The Company believes that by adding application-specific features and functionality to its GPS technology, it can deliver value-added products into its targeted markets. To date, the Company has targeted markets which it believes represent significant economic opportunities

due to the broad range of potential applications for accurate and cost-effective position, velocity and time information. The Company also continuously seeks to identify new markets into which GPS products and systems can be introduced. The Company believes that its continued growth will depend in large part on its ability to identify and penetrate new markets for GPS applications.

**Differentiated Product Solutions.** The Company seeks to establish and sustain leadership in its targeted markets by offering products that are differentiated through software, firmware, customized user interfaces and the Company's service and support. The Company emphasizes application-specific systems which solve specific sets of problems, where feasible, in its various markets. The Company believes that a substantial portion of the value of its products is derived from the firmware which is embedded in the product or software provided along with the product for post-processing applications. In addition, the Company incorporates other technologies into some of its products, such as communications, computational capabilities and non-GPS positioning technologies in order to optimize product features for specific markets.

**Time-to-Market Advantage.** The modular design of Trimble's products enables the Company to create and maintain a broad line of products without necessarily repeating development efforts or requiring extensive redesigns for product upgrades. To facilitate fast product introduction while minimizing manufacturing costs and maximizing quality, the Company has acquired advanced automated manufacturing equipment that allows rapid turnaround of prototypes during development and rapid changeovers between product lines during production. Trimble further believes that its approach of providing many product software features enables the Company to respond quickly to the needs of rapidly evolving markets through software upgrades.

\* **Multichannel Distribution.** The Company seeks direct communication with its customers in order to develop and modify its product designs as necessary to maximize utility and payback to the user. Trimble has built a worldwide sales and service organization of Company employees, distributors and dealers for each major market it addresses. In addition, the Company intends to continue to develop new--and to strengthen existing--alliances and OEM relationships with established foreign and domestic companies as part of its strategy to penetrate certain targeted markets. The Company has pursued such alliances with several companies in various markets, including Philips Car Systems, Pioneer Electronics Corporation, Delco Electronics and Xanavi Informatics Corporation in car navigation, Honeywell Inc. in aviation and military, E-systems, Inc. in transit, PRC Public Sector, Inc. in public safety, Adobe Systems Incorporated, Intel Corporation in the emerging consumer applications area, American Mobile Satellite Corporation in long-haul fleet management, and Caterpillar, Inc. in mining and construction.

**Integration with Communication Technologies.** GPS technology is increasingly being integrated with wireless communication technologies, offering economic and strategic advantages in areas such as navigation, vehicle fleet management, long-haul trucking and public safety. Accordingly, the Company is currently devoting research and development efforts to products which integrate the Company's proprietary GPS receivers with wireless communication technologies.

## Markets

Trimble currently addresses multiple markets for the application of GPS technology, which have been divided into three business units: Commercial Systems, Software and Component Technologies (including OEM) and Aerospace. Although the Company believes that these markets have growth potential for sales of GPS products, there can be no assurance that such markets will continue to develop, particularly given that GPS-based systems are still in an early stage of adoption in some of these markets. The Company's future growth will depend on the timely development of the markets in which the Company currently competes, and on the Company's ability to continue to identify and exploit new markets for its products. Each business unit is managed by a vice president who has responsibility for strategy, marketing, manufacturing, product development and financial performance. The business units are further split into vertical markets which address specific product markets.

## Commercial Systems

The Commercial Systems business unit consists of the previous Surveying and

Mapping business unit, the Tracking portion of the Tracking and Communications business unit, and the Marine portion of the Navigation business unit.

Surveying involves the establishment of precise points and boundaries for legal and construction purposes, while mapping involves more extensive but less precise location and plotting of geographical and man-made features. Both surveying and mapping consist primarily of the collection and processing of position information. Typically, surveying accuracy is expected to be within a centimeter. Required mapping accuracies are typically from twenty-five centimeters to three meters. The Company believes that its products substantially reduce the cost, time, and number of people required to obtain and process surveying and mapping data points for a given level of accuracy, compared to optical and laser products.

Surveying. Applications which the Company addresses in the surveying market include control surveying, construction and engineering surveying, route surveying and geodetic research. GPS does not require line-of-sight between land-based reference points and is not affected by most adverse weather conditions (as compared to traditional methods such as optical or laser measurements), providing advantages in many survey applications.

The Company's GPS surveying products dominate the control surveying instrumentation market. Control surveying is the precise determination of the location of local geodetic reference points from which further local surveying can be based. The GPS technique has reduced the cost of establishing control points, compared to conventional techniques, and has become the preferred technology for conducting control surveying.

The Company's surveying products are also used in large-scale construction projects, such as new housing developments or public works projects where the position of a large number of points needs to be cost-effectively established. The Company's products are particularly efficient for applications in areas with ground-level obstructions. The Company also supplies route surveying markets, which require a cost-and time-effective means of precisely locating a large number of points and physical features along routes and rights-of-way, such as roads, pipelines, and telephone and power lines. The Company has introduced a product with kinematic data collection features, which provides the capabilities for surveying and mapping applications while the equipment is in motion. This kinematic product is targeted at the engineering and topographic surveying markets, which represent a major portion of the overall surveying market. Through the use of the kinematic GPS surveying technique, large numbers of points can be rapidly measured to accuracies approaching those for control surveying. The kinematic product allows one surveyor, on foot, to collect the data to create a construction-grade topographic map.

With conventional post-processed GPS techniques, GPS satellite signal data are collected at the point, but the point coordinates aren't actually determined until later, back in the office on a personal computer with specialized software. In 1993 the Company introduced "real-time" GPS surveying instrumentation. With real-time GPS surveying, the point coordinates are generated virtually instantaneously as the surveyor surveys or "occupies" the point. Real-time GPS surveying offers surveyors very large productivity advantages. Compared to traditional post-processed GPS surveying and conventional optical-based land surveying techniques (that can also generate centimeter level coordinates as the point is surveyed), real-time GPS surveying allows surveyors to enjoy the many field logistics advantages of GPS, such as saving time by eliminating the data processing step in the office. The net results are cost savings of as much as 50% or more, versus conventional methods for everyday surveying.

In addition to serving the commercial surveying market, GPS has become a standard technique for geodetic research. Research geodesists have found that long baseline accuracies using GPS are significantly greater than those obtainable with optical and electronic distance-measuring equipment. This capability has led to programs to remeasure previous geodetic control points to sharply increase precision and eliminate errors. High accuracy has also created a significant market for GPS in seismic research where earth movements of less than one centimeter are measured and monitored.

In the surveying market, the Company faces growing competition from other GPS vendors, such as Ashtech, Inc.; and NovAtel Inc.; and from vendors of traditional surveying products, such as Leica AG; Sokkia Company, Ltd.; Karl

Zeiss; Topcon Instrument Corp. (a subsidiary of Tokyo Optical Co., Ltd.); and Geotronics A.B. (a subsidiary of Spectra-Physics) who have all entered the GPS surveying market and who are introducing GPS products of their own.

Mapping. For mapping applications, large amounts of position and attribute data (such as color, size and condition of object) must be obtained. Mapping applications include large-scale mapping of geographic and man-made features, data collection for Geographic Information Systems (GIS) databases, natural resource management and ground contour mapping.

Currently, large-scale accurate mapping is usually accomplished by photogrammetric analysis of aerial photographs, a complex and expensive technique. The Company supplies the mapping market with its products, enabling the user to capture position data while in aircraft, or traversing terrain on foot or in a vehicle. The Company is also developing additional products for the mapping market. The Company believes that these products can lower the cost of map production.

GIS databases are used by federal, state, county, and city governments and by utility companies for a variety of applications requiring accurate information on the location of natural resources and municipal infrastructure, such as utilities and transport networks. Currently, building such a database requires time-consuming compilation of data from numerous existing maps and digitized photographs and costly physical surveys. The Company's products, used in connection with commercially available databases, has the potential to substantially reduce the cost of constructing GIS databases and to increase their accuracy.

In the mapping market, the Company faces competition from Ashtech, Inc.; NovAtel Inc.; CMT, Inc.; Garmin Corporation; Magellan Corporation (a subsidiary of Orbital Sciences Corporation); Motorola, Inc.; Sokkia Company, Ltd.; and others. Competition in the mapping market has increased as competitors have introduced new products.

Tracking Systems. The Company has become a leader in vehicle tracking, combining GPS technology with communications, software and firmware, and integration capabilities. In the public sector, the Company's products are installed in a variety of fleets, such as transit buses, police cars, fire trucks, and ambulances. Other products are used for long-haul trucking and marine markets. More recently, the Company's products have been introduced into smaller commercial fleets for security applications.

In some instances the Company markets its products directly to end-users, but the large majority of its products are sold through resellers. Direct sales to end-users are focused on opportunities in which the Company's standard product offering closely matches the customer's requirements. Public sector sales often require significant customization, and the Company uses strategic partners, such as E-Systems and PRC Public Sector, Inc., to interface directly with the end-user. Other tracking and communication products are sold through OEM integrators, and value-added resellers, some of whom address international markets.

The public sector customers are highly dependent on government funding for fleet modernization. Capital equipment funding for public transit operators comes primarily from congressional appropriations under the Intermodal Surface Transportation Efficiency Act. Public safety organizations are dependent largely on local government funding. Failure of the funding authorities to appropriate funds for these purposes could have substantial impact on the Company's future revenue.

Since the availability of GPS is still new, its use and subsequent benefits are not clearly understood in the sense of a broad vehicle tracking market. The Company must therefore devote considerable resources to communicate these GPS benefits and educate the market. This requirement can result in a delay in market development.

Since the Company is involved in these market segments at the component, subsystem, and system level, other companies, such as Motorola and QUALCOMM Incorporated, have at various times been both customers and competitors. The Company believes that its GPS technology is superior to that of its competitors in these market segments. The Company intends to leverage its GPS technology to continue to supply these market segments at the component, subsystem and system levels. However, there is significant competition, and since the markets and products are in the early phases of their maturity, with competition that has

far greater resources and is well established in these markets, there is no assurance that the Company will be successful in its effort.

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In the Tracking market, the Company faces competition from Rockwell International Corp.; AutoTrac; Thrane & Thrane; Motorola, Inc.; Coded Communication; QUALCOMM Incorporated; Orbital Sciences Corporation; and others.

Marine GPS. Trimble is an active leader in the marine navigation, marine survey and marine construction markets. The Company has pioneered many marine markets.

Marine-Navigation. Trimble's GPS receivers are used on recreational, commercial, research, and military vessels to provide real-time latitude, longitude, time, course and speed information. This data may be displayed on digital readouts or graphic displays and may be integrated with other on-board electronic mapping databases to indicate vessel position and performance in an easily understood manner. The Company's navigation products conform to the NMEA 0183 standard, which makes them capable of providing navigation information to other on-board equipment such as radars and autopilots.

Traditionally, marine navigation has relied on celestial navigation, dead reckoning, and electronic systems other than GPS. Currently, the two most widely used electronic systems for marine navigation are LORAN C and SATNAV. LORAN C depends on proximity to established chains of LORAN C transmitters and is susceptible to interference from electrical storms and a wide variety of man-made interference sources. SATNAV is a non-continuous navigation system, providing periodic position updates and relying on dead reckoning between such updates. By contrast, GPS effectively provides continuous worldwide coverage, much greater accuracy, and freedom from electrical interference. As a result, GPS may provide greater safety, fuel efficiency, and equipment utilization when compared to other less accurate or localized marine navigation techniques. When combined with radio or other communications links, GPS systems provide the basis for worldwide monitoring and tracking systems by governmental and harbor authorities, and shipping companies.

The Company faces competition in the GPS recreational marine navigation market from manufacturers such as Furuno U.S.A., Inc. (a subsidiary of Furuno Electric Co., Ltd.), Garmin Corporation, Magellan Corporation (a subsidiary of Orbital Sciences Corporation), and Raytheon Company; in the GPS commercial fishing market from Furuno, and Raytheon Company; and in the GPS commercial and governmental navigation markets from Magnavox Advanced Products and Systems Company (a subsidiary of North American Philips Corp.).

Marine-Survey. Marine survey, which is concerned with precise, dynamic positioning includes such activities as oil exploration, hydrographic surveys, environmental surveys, marine construction, cable and pipe laying, dredging, barge positioning, ship trialing and much more. The Company provides complete software solutions which utilize its GPS sensors--often in conjunction with other equipment--for many of these applications. Trimble's marine survey activities also include the design and marketing of MSK Radiobeacon Differential GPS (DGPS) reference stations, and equipment to monitor the integrity of DGPS broadcasts.

In marine survey applications, the Company faces competition from Communication Systems International Inc, Dassault-Sercel NP, Leica, Ashtech Inc. and Coastal Oceanographics, Inc.

#### Software and Component Technologies

This new business unit consists of the OEM business that was previously included in Tracking and Communications. In addition, this business unit will be responsible for selling software licenses and other rights for the use of GPS to third parties.

The Company's Component Technologies group has built a leadership position in the worldwide market for embedded GPS products. With two million R&D person-hours invested in GPS technology, Component Technologies products provide full-function, high-performance embedded engines for system integrators. The GPS products are used in a diverse range of applications such as vehicle navigation, vehicle and high-value cargo tracking, precision agriculture, and synchronization of communications networks.

\* The vehicle navigation market is expected to grow to 15 million units per year by 2000. Trimble supplies GPS engines to some of the leading automotive electronics suppliers, including Delco Electronics Corporation, Philips Car

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Systems, Pioneer Electronics, Magneti Marelli, and Xanavi Informatics Corporation. GPS functionality is integrated with electronic maps to provide sophisticated navigation systems.

Trimble's Component Technologies has a reputation for high-performance products, high-level technical support and custom product engineering. Trimble continues to maintain leadership in the embedded GPS board market for tracking applications, securing a strong position through partnerships with key customers. In the tracking market, new applications such as safety, loss prevention, and emergency assistance systems, continue to emerge. The end-user is typically the owner or manager of a fleet of vehicles, and needs to track his vehicles. In some cases, the end-user may be an individual subscriber to a service provider which can offer emergency assistance or can help locate lost or stolen property. Trimble GPS provides the key technology into these applications.

With the expansion of data and wireless communication networks, the demand for GPS timing products has increased significantly. Trimble's GPS smart antennas are popular with system integrators who require precise synchronization of wireless network infrastructures. By accessing the cesium clocks on board the GPS satellites, a GPS receiver can provide atomic clock accuracy at a fraction of the cost of competing technologies. Trimble's Component Technologies is at the forefront of this rapidly growing market, providing superior, technically advanced timing products. By offering the first smart antenna directly to the timing market, Trimble gained a reputation for leading-edge technology, excellent support, high performance and superior quality products.

In the embedded GPS board market, the Company faces competition from Motorola, Inc.; Rockwell International Corporation; Japan Radio Corporation; and others.

#### Aerospace

This new business unit consists of the Avionics portion of the Navigation business unit and the previous Military business unit.

Aviation. During 1994, the Federal Aviation Administration (FAA) adopted a policy establishing GPS as the future standard for aviation navigation and initiated the Wide Area Augmented System (WAAS) Program to allow the use of GPS for primary navigation and precision approaches by 1998. This followed the December 1992 FAA publication of certification procedures that allow GPS to be used as a supplemental source of navigation information for aircraft operating under Instrument Flight Rules (IFR). In 1995, the FAA published procedures for approving GPS as a primary means of navigation for oceanic flights.

The Company was the first to certify its equipment under these regulations. The Company also has certified equipment that is used in conjunction with other FAA certified navigation systems incorporating Omega and LORAN C. Currently, the Company believes it has received FAA Certification for the Technical Standard Order C-129 covering more products than any competitor.

The Company believes GPS has significant advantages in terms of accuracy and coverage over current primary and supplemental systems. However, because of foreign government concern over U.S. government control of the GPS constellation, there can be no assurance that GPS will be globally accepted as a cost-effective, reliable solution in the aviation navigation market. During 1994, the U.S. Government issued statements to the International Civil Aviation Organization (ICAO) guaranteeing the GPS signal for a minimum of 10 years. In addition, GPS technology faces competition from more mature and established technologies that are currently in widespread use and have in place the infrastructure required to administer these systems.

\* Currently, the primary FAA required navigation system is VOR/DME, a ground-based transmitter network. Over the long term, the Company believes GPS has the potential to replace VOR/DME as the primary FAA and ICAO-required navigation system. Range for VOR/DME is only 50 to 150 miles, line of sight from



a transmitter, leaving large areas of the world uncovered; even in the U.S., significant parts of the airspace are not covered. Although VOR/DME accuracy is adequate for two-dimensional navigation, GPS provides greater accuracy while also providing time information.

Aviation navigation also utilizes supplemental technologies to VOR/DME consisting of LORAN C, Omega, Inertial Navigation System (INS) and GPS. Of the supplemental technologies, LORAN C is less accurate than GPS and currently lacks

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coverage when the aircraft is more than 1,000 miles from a LORAN C chain of stations. Omega provides worldwide coverage, but its potential for large position errors necessitates wide air lanes and can require in-course corrections. Both LORAN C and Omega are scheduled to be decommissioned within the next ten years. INS units are useable anywhere in the world, but cost as much as \$150,000 per unit and often require multiple units. GPS can provide greater accuracy than LORAN C and Omega, and will give information which is not available from any other radio-frequency-based aviation navigation system. GPS provides worldwide coverage, which is not available from LORAN C, and is lower in cost than either Omega or INS. In addition, the GPS infrastructure has lower maintenance costs than existing navigation aids and can be used in remote regions of the globe without additional investment. The net result is an air traffic control system with lower operating costs and greater capacity.

The Company has recognized the potential of GPS for aviation and, in addition to airborne navigation and flight management units, is also pursuing GPS technology in flight trajectory truth systems, tracking systems, sensors and other aviation applications. During 1995 the Company began an alliance with Honeywell Corporation, a major supplier of aviation equipment, to produce GPS-based equipment to the air carrier and business aviation markets.

The Company is modifying its previous strategy of concentrating solely on higher-end avionics products. In 1996, Trimble acquired the assets of Terra Corporation, a New Mexico aviation corporation. "Terra by Trimble" is an advanced avionics equipment product line that gives Trimble the ability to serve a range of avionics customers from sport aviation through the general aviation market.

Competition in the airborne market comes from manufacturers of GPS products and traditional navigation and flight management system manufacturers. Competing manufacturers of GPS products include Rockwell Collins, AlliedSignal Aerospace (through its General Aviation Avionics Division), Universal Navigation Corporation, Canadian Marconi Company (a subsidiary of the General Electric Company plc), Interstate Electronic Systems (a subsidiary of Figgie International), Garmin Corporation, Northstar Avionics (a subsidiary of Canadian Marconi), IIMorrow, Inc. (a division of United Parcel Service of America, Inc.), Magellan Corporation (a subsidiary of Orbital Sciences Corporation) and Litton Industries. Traditional navigation and flight management system manufacturers include Honeywell, AlliedSignal Aerospace (through its Air Transport Avionics Division) and Smiths Industries. Competition in the flight trajectory truth system is from Ashtech; and in the flight tracking system, from ARNAV.

Military Systems. The Company has been developing GPS receivers for aerospace and military applications since 1986. The approach to the market has been as a commercial manufacturer of GPS electronics that has tailored its designs for military use. The Aerospace business unit designs and manufactures GPS equipment capable of processing the civilian C/A code, as well as the P(Y) code reserved for users authorized by the United States Department of Defense. These Precise Positioning Service (PPS) receivers provide authorized users with GPS equipment that removes the effects of Selective Availability (allowing higher accuracy), as well as providing antispoofting protection and additional immunity from jamming signals. The Company sells equipment to the United States Department of Defense, Aerospace prime contractors, and foreign military organizations.

Applications of GPS in aerospace and military markets include ground vehicles, handheld units for dismounted personnel, aircraft, missiles, unmanned air vehicles, and navy vessels. Military GPS equipment efficiently provides accurate position, velocity, and time information to and from battlefield management systems that coordinate and control the deployment of equipment and personnel.

In the military market, Trimble faces competition from a number of companies most of which have substantially greater financial and marketing resources, and many of which have substantial experience and resources devoted to sales to military organizations. Interstate Electronics, Magnavox (subsidiary of Hughes) Ratheon, and Rockwell International Corp., as well as a number of European companies, manufacture products which are competitive with the Company's military products.

\* Military sales are subject to various uncertainties, including the timing and availability of funding for U.S. and foreign military contracts and the competitive nature of government contracting generally. The Company expects that

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future sales of its current GPS products to U.S. military organizations may be significantly limited, based on future requirements of new government specifications. There is no assurance that the Company will be able to modify existing product to develop new product to meet these military specifications or, if it is able to do so, that the Company will be awarded future U.S. military contracts.

The Company continues to sell to foreign military organizations. However, sales to such organizations are subject to significant risks, timing uncertainties and budget constraints. In addition, the U.S. government may impose additional restrictions on the sale of GPS products to foreign military organizations, and foreign governments may require military organizations to purchase GPS products only from indigenous suppliers.

#### Products

The following is a list of the Company's principal products, organized by its strategic markets:

#### Surveying and Mapping Products

4000 Series. The 4000 series products are GPS instruments which, in the survey mode, provide position information that is accurate down to a centimeter. The Company's 4000 SSE product, introduced in 1992, utilizes dual frequency, as well as P(Y) code (a military code), and provides accurate position information. In the fall of 1993, the Company introduced the Site Surveyor System, the first real-time kinematic system for surveying. Based on the 4000 series receiver, this system provides centimeter accuracy positions in real-time. With this real-time accuracy, GPS applications have been extended into construction stake-out. In 1996, the Company introduced the 4400 Real Time Kinematic System and the 4600 Single Frequency product for the survey and construction markets.

GPS Total Station Surveying System. In 1994 Trimble introduced the GPS Total Station surveying system. This complete surveying system consists of two or more survey grade GPS receivers (4000SSE's), GPS antennas, a handheld Survey Controller for managing real-time GPS survey and collecting coordinates as a land survey is conducted, plus radio modems for transmitting data between the GPS receivers. The system incorporates advanced features that make real-time GPS surveying more practical as an everyday surveying technique. The GPS Total Station is the next generation up from the Site Surveyor System, which required a post processing computer.

TRIMVEC, GPSurvey and TRIMMAP. TRIMVEC and GPSurvey are software programs for post-processing survey data obtained with the Company's GPS survey products. TRIMVEC Plus is an enhanced version of TRIMVEC that provides software support for several phases of a survey operation, from project planning and baseline and coordinating computations, to database management and network adjustment. GPSurvey is a "Microsoft Windows" based enhancement of the product line. TRIMMAP is an optional mapping software package which can generate detailed contour maps automatically. These software programs are generally sold as part of survey product systems.

GPS Pathfinder. The GPS Pathfinder series is a portable position data collection system for the Mapping/GIS market. The collected information can be entered into a personal computer or workstation to generate geographic information such as rough survey data or topographical maps. Output from the GPS Pathfinder can be downloaded into most GIS databases or can be processed by Trimble's PC-compatible software that performs a wide variety of display and plotting routines. The Geo Explorer is a lower cost product for the GIS market,

where it is used for natural resource management.

Hydrographic Systems. The Company's hydrographic systems combine the Company's differential location products, a communications capability, and the Company's proprietary HYDRO software into a product used in dredging operations and other offshore surveying. With this product, a dredging vessel can more accurately navigate the dredging area and measure material removed.

#### Tracking Systems Products

The Company offers a line of products designed to meet many of the needs of customers desiring to track assets using wireless communications. These products include GPS receivers, and GPS receivers integrated with other technologies such as dead reckoning, industry specific applications processors, mobile radio modems, cellular telephones, mobile data terminals, communications control software, and automatic vehicle location (AVL) display software.

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GPS Receivers. The Company's tracking product line includes the Placer GPS 400, a stand-alone receiver, and the Placer 450 family, a receiver integrated with a gyroscope and an odometer interface.

Integrated GPS and Modem Products. The Company offers the Starfinder GPS Intelligent Vehicle Logic unit targeted at the mass transit market and the PSC 200 targeted at the police, fire and ambulance markets.

Integrated GPS and Cellular Phone Products. The Company offers a line of GPS/cellular products known as GPS Cellular Messenger, targeted at small fleets and transportation of high-value cargo.

Communications Control Software. The Company offers a software program designed to manage communications between its Intelligent Communications Controller mobile units and a customer's command center.

AVL Display Software. The Company offers three levels of AVL display software. AVL Manager displays the locations of vehicles in tabular form. FleetVision displays vehicle locations for small fleets graphically on scanned maps. StarView displays large fleets on vector maps and offers advanced AVL-oriented functionality.

Galaxy Inmarsat-C/GPS. Galaxy is the first system to combine Inmarsat-C with GPS to provide rapid digital global communication with precise global positioning. Inmarsat-C provides worldwide, two-way store-and-forward text communication via Packet Switched Data Network (PSDN) or Public Switched Telephone Network, and fax delivery of inbound messages. Galaxy is designed for use by truck, rail and other land applications, as well as merchant ships, commercial fishing boats, yachts and other vessels requiring cost-effective two-way communication links plus precise position information for emergency, safety, navigation and tracking needs.

#### Marine Products

NT Series. This is a series of three marine GPS navigation products which provide position and graphical steering information on a high-resolution LCD display. The models in the NT Series provide a range of price and performance to satisfy the needs of a wide range of customers. The high-end version of this product includes a built-in differential receiver. The NT 200D receives international standard differential corrections broadcast on the marine beacon band and greatly improves the accuracy of the position and velocity solution. The NT Series GPS is sold to recreational boaters, coast guards, navies, workboat operators, shipping lines, and operators of commercial fishing fleets.

NavGraphicXL GPS. The NavGraphicXL GPS integrates a high-resolution graphics display, a compact disk system containing navigational charts, and Trimble's basic GPS receiver into a single navigation instrument. The NavGraphicXL GPS displays position information, including present location, speed, heading, and drift, on standard National Oceanic and Atmosphere Administration and other available government navigation charts. A graphics processor is included to permit zooming (enlarging the current display and providing a higher resolution chart) and panning (for following movement off the current display). The NavGraphicXL GPS is sold to high-end recreational boaters, marine researchers, commercial shipping companies, operators of commercial

fishing fleets, and various Government organizations and coast guards worldwide.

Acutis DGPS. Acutis DGPS is a marine navigation product consisting of a differentially-capable GPS receiver and antenna in a marine-quality housing. The system is sold as an add-on product for the recreational and fishing markets.

#### Marine Survey Products

7400RSi/DSi. The marine versions of the 7400 series products bring centimeter level accuracy to the marine environment for the first time. The 7400 series products utilize Trimble's Real-Time Kinematic/On The Fly (RTK/OTF) technology to achieve high accuracy even in the dynamic and fluid marine environment by removing the need for static calibration stations. Excellent dynamic performance is achieved by the 7400 RSi/DSi GPS sensors for applications such as the control and docking of high-speed ferries, the positioning of large marine structures such as bridge spans, and much more. See Target: Structures below for more information.

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4000RSi/DSi. The 4000 series products provide sub-meter accuracy and are well suited to marine survey applications which do not require the performance of the 7400 series products described above. The 4000 series GPS sensors address a broad segment of the marine survey market and provide customers with a choice of price and performance in GPS sensors. The 4000 series products also integrate well with total solutions, such as Hydro and Target: Structures products discussed below.

The 4000 series products also form the basis of Trimble's DGPS Reference Station and Integrity Monitoring offerings, which comply with internationally accepted Radio Technical Committee Marine (RTCM) standards for broadcast on radio beacon frequencies. Trimble equipment is in use in over 20 countries, broadcasting DGPS corrections and monitoring their integrity.

DSM. These products are GPS sensors and reference stations targeted mainly to value added resellers. They provide a source of accurate GPS data in the form of a "black box." The DSM allows for comprehensive custom solutions developed by third parties.

Hydro. This software program provides total solutions for many marine survey applications. It incorporates the best of Trimble designed and built GPS sensors with additional equipment, such as depth sounders, to provide customers with highly customizable solutions to a wide range of marine survey and construction challenges.

Target: Structures. This Windows and WindowsNT based program provides for precise positioning of large mobile offshore structures or platforms. Utilizing real-time GPS receivers such as the 7400Rsi and 7400Dsi, this innovative software enables barge and crane operators to efficiently and safely guide large structures to any target location.

#### Software & Component Technologies Products

Component Technologies Board Products. The newest board product is Lassen-SK8, based on Trimble's new Sierra GPS technology and used in the in-vehicle navigation market. Two-thirds the size of a business card, this miniature 8-channel GPS board provides high performance, fast acquisition and reacquisition time, low power consumption, and two-meter accuracy.

SVeeSix is a family of GPS boards and assemblies designed for high-performance embedded GPS applications for tracking. The family includes SVeeSix, SVeeSix-CM3, Trimble's third generation core modules for embedded applications, and SVeeSix-Timing module, designed specifically for incorporation in precise time/frequency standards, which are also known as station clocks.

Component Technologies Smart Antenna Products. Trimble revolutionized GPS integration with the introduction of the first GPS smart antenna--the Acutis, mainly used in the Marine market. Smart antennas combine a GPS receiver and an antenna in one package. This provides OEMs and system integrators with a "plug-in" GPS module, allowing them to quickly and easily add GPS capability to their product lines.

Since the introduction of the Acutis, Trimble has developed and introduced

the Acutime and AcutimeII smart antennas to address the timing market. These smart antennas are easily integrated standalone GPS time sources offering one micro-second-level accuracy at a fraction of the cost of other time sources offering similar performance.

Trimble's latest timing product is the Palisade smart antenna. Palisade is designed to provide accurate synchronization and frequency control required by wireless voice and data networks. Based on Trimble's Sierra GPS technology, Palisade has an 8-channel architecture that the Company believes offers timing performance superior to that of competing products.

OEM Starter Kits. Trimble offers Starter Kits for developers who want to evaluate and integrate GPS receivers and antennas. The kits contain all components required to evaluate the receiver's features and to begin integration into the user's application. Generally, a starter kit will include a GPS receiver, a GPS antenna, documentation and required cables and software.

#### Consumer Products

Scout and Scoutmaster. The Scout family consists of the Scout and ScoutMaster, which are handheld GPS receivers designed exclusively for land users to provide an affordable GPS solution in a broad range of professional and

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recreational applications. Scout and ScoutMaster include several patented features. The Over and Up feature enables users to pinpoint their location on any topographical map and to calculate specific map locations without having to interpolate latitude/longitude coordinates. Scout and ScoutMaster can store up to 250 locations and display navigation information in familiar terms, real-time instructions for point-to-point travel, in addition to current speed, direction and estimated time of arrival. Scout and ScoutMaster can also tell users where the sun and moon will be at any time of any day, relative to any point on Earth, and when they will rise and set. Scout and ScoutMaster use four AA batteries, providing five to eight hours of continuous use. ScoutMaster is a real-time, differential-capable receiver which offers the ability to upload, download, log, and map field data, and features a unique combination of data gathering and map capabilities.

#### Aviation Products

Trimble 1000DC. This product is a Visual Flight Rules (VFR) aviation navigation system that provides GPS position, velocity and course data for the general aviation market and incorporates an embedded or replaceable navigation database. The system is capable of limited interface with other aircraft systems to receive or send data.

Trimble 2000 A and 2000 Approach. This product family is an aviation navigation system available in VFR or IFR FAA Certified Technical Standard Order C-129 A1, which allows nonprecision IFR approaches. Both versions provide GPS position, velocity and course data for the general aviation and lower end commercial markets, and incorporate a replaceable navigation database. The system is capable of limited interface with other aircraft systems to receive or send data.

Trimble 2101 and 2101 I/O. This product family is an IFR certified C-129 A1 aviation navigation system; it provides GPS position, velocity and course data for the general aviation, helicopter and middle commercial markets, and incorporates a replaceable navigation database. The Trimble 2101 is capable of limited interface with other aircraft systems to receive or send data or, with expanded interface capability, to drive flight instruments. The 2101 I/O provides extensive interfacing to other aircraft systems to drive flight instruments and other aircraft systems in integrated digital and analog cockpit settings. A version utilizing P(Y) code is available to U.S. Government approved customers.

Trimble 8100. This product family is an IFR certified C-129 A1 aviation navigation system and provides GPS position, velocity and course data plus flight management information for the commercial and air transport markets. It incorporates an electronically replaceable navigation database. The system is capable of extensive interface with other compatible aircraft systems to drive flight and other instruments. The Trimble 8100 is approved for Primary Oceanic Navigation and nonprecision IFR Approaches.

Cargo Utility GPS Receiver (CUGR). This product is a Dru-mount P(Y) GPS navigational system for world wide military aviation operations. It will provide U.S. military helicopter pilots Precise Positioning Service (PPS) GPS navigation and capabilities similar to Trimble's FAA certified 2101 I/O Approach and meets the performance standards for Instrument Flight Rules (IFR) for enroute, terminal and nonprecision approach phases of flight.

Honeywell/Trimble HT9100. This product enables air transport customers to upgrade existing analog flight instruments to today's state-of-the-art digital systems. It allows the customer to operate in any existing or future air navigation environment safely and efficiently.

Terra by Trimble. This product brand is a sport and general avionics GPS product line featuring a performance-proven line of audio panels, radios, altimeters, and navigational devices.

Other aviation products. These include the Flightmate handheld product family. Trimble also offers optional software packages for flight planning, search and rescue, and custom applications.

#### Military Systems Products

TRIMPACK. The TRIMPACK is a four-pound, portable, ruggedized product, approximately the size of a pair of binoculars (120 cubic inches). Position information is displayed on a four-line, 20-character-per-line, back-lit LCD screen. Troops deployed in Operation Desert Storm used TRIMPACK units to determine their location in the featureless desert.

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CENTURION. The CENTURION is a precision positioning version of the Trimpack developed for vehicle applications. The sale and distribution of this set is restricted to the U.S. Forces and selected allies.

MUGR. MUGR (Military Underwater GPS Receiver) is a handheld product developed under contract to the U.S. Navy. It is marketed primarily for Navy and Marine special forces activities. The receiver is reduced in size and sealed so that it can be carried by shallow water divers.

TANS Series. The Trimble Advanced Navigation System (TANS) series includes a ruggedized sensor consisting of the basic GPS receiver, an antenna, and a digital interface to transmit GPS information to various other devices; a further ruggedized version with enhanced tolerance for vibration; and a version which is upgradable to PPS. The TANS series has been sold to the military primarily for vehicles piloted from a remote station, and was designed to replace Omega systems currently used in such vehicles. Its primary purpose is to add GPS to other systems.

TASMAN. A PPS version of the TANS III, TASMAN is used where high anti-jamming and spoof requirements exist. It is sold primarily to U.S. forces and selected allies.

#### Sales and Marketing

The Company recognizes that selling, marketing, and product distribution are critical to its future success. In 1996, the Company expanded by adding an office in Mexico. Also, in 1996 the Company closed offices in Beijing, Egypt, and Poland as a result of the restructuring actions taken in September 1996. The Company currently has eight regional sales offices in the United States and six in Europe, plus offices in Australia, Canada, New Zealand, Japan, Russia, Singapore, Brazil and Mexico. The Company has developed its sales and marketing capabilities to anticipate and respond to customer needs as they arise in its multiple markets. Each market requires specific attention to the needs of its sales and distribution channels, which are rapidly changing. The Company must continue to manage its future growth effectively, otherwise, customer support and operating results may be adversely affected.

Domestic. The Company sells its products in the United States primarily through dealers, distributors and authorized representatives, supplemented and supported by the Company's direct sales force. The Company has also pursued alliances and OEM relationships with established foreign and domestic companies to assist it in penetrating certain markets.

International. Trimble markets to end-users through a network of over 150 dealers and distributors in more than 85 countries. Distributors carry one or more product lines and are generally limited to selling either in one country or in a portion of a country. Trimble occasionally grants exclusive rights to market certain products within specified countries.

Sales to unaffiliated customers in foreign locations comprised approximately 47%, 53%, and 51% of Trimble's total revenue in fiscal 1996, 1995, and 1994, respectively. Sales to unaffiliated customers from shipments to Europe represented 21%, 23%, and 22% of net revenue in such periods, and sales to unaffiliated customers from shipments to the Far East represented 19%, 23%, and 22% of total revenue in such periods. See Note 2 to the Consolidated Financial Statements.

Support. The Company's general terms and conditions for sale of its products include a one-year warranty. Aviation navigation products, however, generally are sold with three-year warranty periods, except for the HT9100 product, which has a five-year warranty period. The Company supports its products on a board replacement level from locations in the United Kingdom, Singapore, Japan, and Sunnyvale, California. The Company's dealers and distributors also provide factory-trained third-party maintenance, including warranty and nonwarranty repairs. The Company reimburses dealers and distributors for all authorized warranty repairs they perform. The Company does not derive a significant portion of its revenues from support activities.

#### Competition

In the markets currently being addressed by the Company, competition is intense. Within each of its markets, the Company has encountered direct competition from both foreign and domestic GPS suppliers, and expects competition to continue to intensify. Specific competitors in each of the

markets the Company currently addresses are mentioned in the section "Markets." Due to competitive pressure, prices of certain of the Company's products have declined substantially since their introduction, and increased competition is likely to result in further price reduction and loss of market share, which could adversely affect the Company's net revenue.

A number of these markets are also served primarily by non-GPS technologies, many of which are currently more accepted and less expensive than GPS-based systems. The success of GPS-based systems against these competing technologies depends in part on whether GPS systems can offer significant improvements in productivity, accuracy, and reliability in a cost-effective manner.

The principal competitive factors in the markets which the Company addresses include ease of use, physical characteristics (including size, weight, and power consumption), product features (including differential GPS), product reliability, price, size of installed base, vendor reputation and financial resources. The Company believes that its products currently compete favorably with other products on most of the foregoing factors, although they may be at a competitive disadvantage against companies with greater financial, marketing, service and support resources.

\* The Company believes that its ability to compete successfully in the future against existing and additional competitors will depend largely on its ability to execute its strategy to provide systems and products having significantly differentiated features more responsive to customer needs. There can be no assurances that the Company will be able to implement this strategy successfully, nor that the Company's competitors, many of whom have substantially greater resources than the Company, will not apply those resources to compete successfully against the Company on the basis of systems and product features.

#### Research and Development

The Company's leadership position in commercial GPS technology is the result, in large part, of its strong commitment to research and development. The Company invests heavily in developing GPS technology, including the design of proprietary software and integrated circuits for GPS receivers, and has spent

\$36,705,000, \$31,895,000 and \$24,763,000 in 1996, 1995 and 1994, respectively, on research and development. Moreover, Trimble develops substantial systems expertise and user interfaces for a variety of applications.

Often a new product is initially developed for an individual customer who is willing to purchase development stage products. The Company has used feedback from such initial customers as a primary source of information in designing and refining its products, and in defining, with greater precision, customer needs in emerging market areas. During 1996, the company created Trimble Labs, where it devotes a portion of its corporate research and development expenditures to advance core GPS technology and its integration into synergistic technologies such as communications, sensors, and computing technologies. These technological advances are often financially supported through strategic alliances and partnerships.

The Company expects that a significant portion of future revenues will be derived from sales of newly introduced products. Consequently, the Company's future success depends on its ability to continue to develop and manufacture new competitive products with timely market introduction. Advances in product technology will require continued substantial investment in research and development in order to maintain and enhance the Company's market position and achieve high gross profit margins. Development and manufacturing schedules for technology products are difficult to predict, and there can be no assurance that the Company will achieve timely initial customer sales of new products. The timely availability of these products in volume, and their acceptance by customers, are important to the future success of the Company. In addition, certain of the Company's products are subject to governmental and similar certifications before they can be sold. For example, FAA certification is required for all aviation products. An inability or delay in obtaining such certifications could have an adverse effect on the Company's operating results. The Company has experienced delays in obtaining appropriate certifications for products acquired as part of the Terra acquisition. Unless the Company receives this certification, revenues from sales of Terra products may be lower than expected.

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#### Manufacturing

The Company seeks to be a low-cost producer and to serve the growth in demand for GPS-based products and systems through flexible automation of assembly lines, semiconductor integration, and the design of products around a common core of receivers.

\* The Company's manufacturing operations consist primarily of assembly and testing of products, material and procurement management, quality assurance and manufacturing engineering. The Company first installed the surface mount technology (SMT) assembly equipment in a dedicated facility in 1991. This facility was upgraded in 1995, increasing its capacity by thirty percent. The Company's experience with SMT has allowed it not only to reduce the reliance on independent third parties for printed circuit board assembly but also to significantly reduce the turnaround time to produce prototype printed circuit board assemblies. The Company has developed relationships with certain outside contract manufacturers through which it expects to complement its manufacturing capacity in the future. There are no assurances that these manufacturers will be able to perform in a timely or economical manner to meet the Company's needs.

The Company maintains quality control procedures for its products, including testing during design, prototype, and pilot stages of production, inspection of incoming raw materials and subassemblies, and testing of finished products using automated test equipment in strife chambers.

The Company has historically manufactured its products in relatively small quantities. However, the Company must successfully manage the transition to higher volume manufacturing, including the establishment of adequate facilities, the control of overhead expenses and inventories, and the management and training of its employee base. Although the Company has substantially increased the number of its senior manufacturing personnel and significantly expanded its manufacturing capacity, there can be no assurance that the Company will not experience manufacturing or other delays which could adversely affect the Company's operating results.

The Company takes a modular and upgradable approach to its products,



building around a common core of GPS receivers with customized software and hardware systems to analyze and present position data. The Company's core receiver technology has evolved since the development of its first GPS receiver product in 1984, as the Company has worked to reduce the size, weight, power consumption, and cost of the basic GPS receiver. In this process, the Company has designed its own semi-custom, single-chip GPS processor. However, the Company attempts to utilize standard parts and components that are available from multiple vendors, including RAM and ROM devices.

The Company believes there are a number of acceptable vendors for most of the parts and components used in its products. However, a significant number of components are available only from sole sources. Furthermore, in many cases, despite the availability of multiple sources, the Company may select a single source in order to maintain quality control and to develop a strategic relationship with the supplier. Components for which the Company currently does not have multiple sources include application-specific integrated circuits manufactured to the Company's proprietary design by Lucent Technologies, and Motorola Inc.; displays manufactured by Optrex Corporation, Kyocera Corporation and Hosiden Corporation; and filters supplied by Murata Electronics of North America, Inc.; Tokyo America, Inc.; Transtech, Inc.; and Motorola. The Company is reviewing steps required to qualify alternative sources for these microprocessors and other single-source components. However, if the Company is unable to obtain a sufficient supply of such microprocessors or other sole or single-source components from its current vendors, it is likely the Company could experience a delay or interruption in product shipments which would adversely affect the Company's operating results and damage customer relationships until an alternative source could be obtained. Further, a significant increase in the price of one or more of these components could adversely affect the Company's operating results. In the past the Company has also experienced delays in production caused by insufficient supply of certain components, but to date, such delays have not caused significant adverse effects on the Company's operating results.

The Company has experienced problems with the quality of certain high volume electronic components that have required modification of products both in manufacturing and in the field. Although the Company has instituted vendor audit programs, there can be no assurance that the Company will not in the future face

problems with the quality of components that could result in delays in supplies, interrupt shipments and require modification of products already sold by the Company, any of which could adversely affect the Company's operating results.

#### Backlog

The Company believes that backlog is not a meaningful indicator of future business prospects due to the volume of products delivered from shelf inventories and the shortening of product delivery schedules. Therefore, the Company believes that backlog information is not material to an understanding of its business.

#### Patents, Trademarks, and Licenses

The Company currently holds 102 patents and 13 related foreign patents, that expire at various dates no earlier than 2005, and has numerous U.S. and foreign patent applications pending. The Company currently licenses certain peripheral aspects of its technology from the U.S. Navy and Spectrum Information Technologies.

Although the Company believes that its patents and trademarks may have value, there can be no assurance that the Company's patents and trademarks, or any additional patents and trademarks that may be obtained in the future, will provide meaningful protection from competition. The Company believes its success will depend primarily on the experience, creative skills, technical expertise, and marketing and sales ability of its personnel.

The Company does not believe that any of its products infringe patent or other proprietary rights of third parties, but cannot be certain that they do not do so. (See Note 13 to Consolidated Financial Statements.) If infringement is alleged, legal defense costs could be material and there can be no assurance that the necessary licenses could be obtained on terms or conditions that would not have a material adverse effect on the Company.

In 1992, the Company entered into a Memorandum of Understanding with Pioneer Electronic Corporation (Pioneer), pursuant to which the Company licensed certain of the technology contained in its TANS product for inclusion in in-vehicle navigation products sold in Japan to entities that integrate such products into other products sold within or outside Japan under Japanese trademarks. In the third quarter of 1995, a \$1,333,000 licensing fee was received from Pioneer Electronics Corporation in connection with expansion of the original 1992 license for in-vehicle navigation technology.

The Company has also granted a license to DMT Marinetechnik GmbH, formerly AEG Aktiengesellschaft, to design, manufacture, sell, and repair products incorporating an improved version of the Company's TANS technology. The license is exclusive as to such activities in Germany, and is nonexclusive in Austria and Switzerland. The license terminates automatically (except as to the licensee's right to replace, repair, and service existing products) after the production of 10,000 units of such products, and may also be terminated by either party upon six months prior notice, effective December 31 of any year after December 31, 1994.

In 1993, the Company entered into a contract with Space Systems/Loral, pursuant to which the Company licensed certain technology based on its TANS product. The license is irrevocable, exclusive and limited to certain space flight market applications.

The Company expects that it will continue to enter into licensing arrangements relating to its technologies.

Trimble with the sextant logo, "TrimbleNavigation," "GeoExplorer," "Flightmate," "GPS Total Station," "Scout GPS," and "Aspen" are trademarks of Trimble Navigation Limited, registered in the United States and other countries. Other trademarks are pending. Trimble Navigation Limited acknowledges the trademarks of other organizations for their respective products or services mentioned in this document.

#### Employees

As of December 31, 1996, the Company employed 1,094 persons: 299 in research and product development, 344 in sales and marketing, 320 in manufacturing, and 131 in administration and finance. Of these, 69 were located

in Europe, 136 in New Zealand, 20 in Japan, 8 in Singapore, 4 in Australia, and 857 in the U.S. The Company also currently employs temporary and contract personnel. Usage of such personnel has increased over the last three years, and are not included in the above headcount numbers. Competition in recruiting personnel is intense. The Company believes that its continued ability to attract and retain highly skilled management, marketing, and technical personnel is essential to its future growth and success. None of the Company's employees is represented by a labor union, and the Company has experienced no work stoppages.

The Company's future success depends in large part upon the continued availability and participation of Charles R. Trimble, its President and Chief Executive Officer. Mr. Trimble founded the Company and continues to be the only executive with full responsibility for all aspects of the Company's operations, including marketing and manufacturing strategies and resource allocation among the Company's strategic business units. The loss of Mr. Trimble, for any reason, could have a material adverse effect on the Company.

The Company's success also depends upon the continued contribution and long-term effectiveness of its other executive officers and key technical, sales, marketing, support, research and development, manufacturing, and administrative personnel, many of whom would be difficult to replace.

#### Executive Officers of the Registrant

The names, ages, and positions of the Company's executive officers are as follows:

Name	Age	Position
Charles R. Trimble.....	55	President, Chief Executive

Dennis R. Ing.....	49	Office, and Director Vice President, Finance, and Chief Financial Officer
Charles E. Armiger, Jr. ....	42	Vice President, Sales
Ralph F. Eschenbach.....	51	Vice President, Chief Technical Officer
Michael P. Gagliardi.....	39	Vice President, General Manager, Aerospace
David M. Hall.....	48	Vice President, General Manager, Software & Component Technologies
James L. Sorden.....	59	Executive Vice President, General Manager, Commercial Systems
David E. Vaughn .....	51	Executive Vice President, Business Development

All officers serve at the discretion of the Board of Directors. There are no family relationships between any of the directors or officers of the Company.

Charles R. Trimble as President, Chief Executive Officer, one of the Company's founders, and a director of the Company since November 1978 has strategically guided Trimble to its dominant role in the GPS information technology market. Prior to founding the Company, Mr. Trimble was Manager of Integrated Circuit Research and Development at Hewlett Packard's Santa Clara division. Mr. Trimble holds four patents in signal processing and one in GPS and is currently serving as the Chairman of the United States GPS Industry Council (USGIC). He received his B.S. degree in Engineering Physics with honors in 1963 and an M.S. degree in Electrical Engineering in 1964 from the California Institute of Technology.

Dennis R. Ing joined Trimble in May 1996 as Vice President, Corporate Controller. In September 1996 he was appointed Vice President of Finance, and Chief Financial Officer. Prior to Trimble, Mr. Ing was employed by Amdahl Corporation, a high technology company based in Sunnyvale, California, most recently serving as Director of Alliances and Acquisitions. Prior to that, Mr. Ing served as Chief Financial Officer of Open Enterprise Systems, a \$200 million division of Amdahl. Mr. Ing also served as Vice President of Finance and Administration for both Amdahl Canada Limited and Amdahl Communications Inc. Before joining Amdahl Corporation in 1979, Mr. Ing worked at Touche Ross & Co., Chicago & NorthWestern Transportation, and the Chicago Hospital Council. He currently serves on the Board of Directors of Lexa Software Corporation. Mr. Ing received his MBA from DePaul University in 1977 and a B.S. in Engineering from the University of Illinois in 1972.

Charles E. Armiger, Jr. joined Trimble in January of 1989 as Sales and Marketing Manager for aviation products. From January 1991 to December 1993, he served as Director of U.S. Domestic Sales. Mr. Armiger held the post of Director of Sales for North American West from January 1993 to November 1994. Then in December 1994, he moved to Trimble's European office in Hook, England, to serve as Director of Sales for Europe, the Middle East and Africa. In September of 1996, he was appointed to serve as Vice President for Commercial Systems Sales. Prior to joining Trimble, Mr. Armiger was Director of Sales and Marketing for ARNAV Systems, Inc. He received a B.S. degree in Business from the University of the State of New York, Regents College in 1996.

Ralph F. Eschenbach joined Trimble as Vice President of Research and Development in 1983. From November 1989 to February 1993, he served as Vice President of Avionics and Sensor Products. From February 1993 to July 1994, he served as Vice President of Navigation Products. In July 1994, Mr. Eschenbach was appointed to the position of Vice President of Business Development, where he was responsible for defining and developing business opportunities to create new solutions for the GPS market in areas not covered by Trimble's current product lines. In September 1996 he was appointed to the post of Vice President, Chief Technology Officer. Prior to joining the Company, he was an engineer and an engineering manager with Hewlett-Packard Company from June 1968, where he was responsible for the development of a low-cost GPS receiver. In 1997, Mr. Eschenbach was appointed Chairman of the Federal Aviation Administration's Research, Engineering and Development (R,E,&D) Advisory Committee. He is also a member of NASA's Research & Development Advisory Committee. Mr. Eschenbach currently serves on the Boards of Directors of ProShot Golf, Inc.; Pinpoint Golf Advertising; and Powerstream Technologies. He received a B.S. degree in Electrical Engineering from the University of California at Berkeley in 1968 and

an M.S. degree in Electrical Engineering from Stanford University in 1970.

Michael P. Gagliardi joined Trimble as Vice President and General Manager of the Aerospace business unit based in Austin, Texas, in January 1997. Mr. Gagliardi joined Trimble from BFGoodrich Company, a diversified consumer and industrial products company, where he served as Group Vice President of the Water Systems and Services Group; President of Arrowhead Industrial Water, Inc.; and President of FlightSystems, Inc. Prior to his tenure at BFGoodrich, he worked for 11 years at The General Electric Company in several management positions, including technical engineering assignments, progressing through critical marketing roles, and on to general management and executive positions. Mr. Gagliardi received his BS degree in Electrical Engineering from the University of Pittsburgh in 1979, an MS degree in Electrical Engineering from Southern Methodist University in 1981, and an MBA from Duke University in 1989.

David M. Hall joined Trimble in February 1994 as Managing Director, OEM products. In November 1996 he was appointed Vice President and General Manager of the Software and Component Technologies business unit. He previously worked for Raychem Corporation, a diversified electronics company, for twenty-one years in a variety of positions and divisions. He served as Director of Sales and Marketing for the Automotive Division, National Distribution Manager for the Electronics Sector, and Director of Marketing and Product Management for the Interconnect Systems Division, as well as District Sales Manager, Area Sales Manager, and Operations Manager. Mr. Hall received his B.S. degree in Industrial Technology in 1971 and his MBA in Marketing and Finance in 1973 from the California Polytechnic State University in San Luis Obispo, Ca.

James L. Sorden joined Trimble as Vice President of Product Development in May 1987. From February 1993 to 1994, he served as Vice President of Surveying and Mapping. In November 1994, Mr. Sorden was appointed to the position of Executive Vice President of Surveying, Mapping, Military and Marine Instrumentation Systems. In September 1996, he was appointed Executive Vice President of Commercial Systems, which consolidates Surveying & Mapping and Tracking & Communications. Prior to joining Trimble, Mr. Sorden worked in various engineering, marketing and management positions at Hewlett-Packard between 1964 and 1987. He holds U.S. and foreign patents in the fields of electronic measurement, surveying instrumentation, and vehicle safety. Mr. Sorden currently serves on the Board of Directors of Datacom Software Research, New Zealand, and Aquila Mining Systems Ltd, Canada. He received his BSEE from the University of Wisconsin in 1962 and undertook engineering graduate studies at Wisconsin and Stanford.

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David E. Vaughn joined Trimble as Vice President of Operations in May 1991. From 1993 to 1994, he served as Vice President of Tracking Systems and Communications. In November 1994 he became Executive Vice President of Tracking Systems and Communications. In September 1996 he was appointed to the post of Executive Vice President of Business Development, which includes Trimble's newly formed Trimble Labs. Prior to joining Trimble, Mr. Vaughn was President and Chief Executive Officer of Magnesys, a manufacturer of integrated circuits, from 1987 to 1991. From 1985 to 1987 he was Vice President of Manufacturing for Asyst Technologies, a manufacturer of clean room material handling robots. Prior to 1985, he worked in manufacturing management positions with Apple Computer and Hewlett-Packard. Mr. Vaughn received his B.S. degree in Electronics in 1971 and an M.B.A. in Operations Research in 1973 from California Polytechnic State University.

## Item 2. Properties

The Company currently leases and occupies 13 buildings in Sunnyvale, California, totaling approximately 350,000 square feet. The leases on these buildings expire at various dates through 2001. The Company leases and occupies three buildings in Austin, Texas, approximately 50,600 square feet, to manufacture GPS-based aviation products; the leases expire at various dates through 2001. The Company also leases a 47,000 square-foot facility in Christchurch, New Zealand, for software development. The two largest international sales offices are those in the United Kingdom (13,400 square feet) and Japan (5,900 square feet). The Company also leases sales offices in Australia, France, Germany, Italy, Spain, Singapore, Russia, and Mexico, and in various cities throughout the United States. The Company's international office leases expire at various dates through 2005. Certain of the leases have renewal options. The Company believes that its facilities are adequate to support its

current and anticipated future operations.

Item 3. Legal Proceedings

The information in respect to legal proceedings required by this item is included in Part II, Item 8, Note 13 of the Notes to Consolidated Financial Statements, hereof under the caption "Pending Matters."

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

Not applicable.

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PART II

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

The Company's Common Stock is traded on the Nasdaq National Market under the symbol TRMB. The following table sets forth, for the quarter indicated, the range of high and low closing sales prices for the Company's Common Stock on the Nasdaq National Market:

	High	Low
1995:		
First	19 3/4	15 1/2
Second	30 3/4	15 1/2
Third	35 3/8	24 1/2
Fourth	25 1/2	14 1/2
1996:		
First	24	15 3/4
Second	26 1/4	18 3/8
Third	21 3/8	14 3/4
Fourth	16 5/8	10 7/8

The Company had 1,760 shareholders of record as of March 16, 1997.

The Company's stock price is subject to significant volatility. If revenues or earnings fail to meet the expectations of the investment community, there could be an immediate and significant impact on the trading price for the Company's stock. Due to stock market forces that are beyond the Company's control, and the nature of the Company's business, such shortfalls can be sudden.

The Company has never paid cash dividends on its Common Stock. The Company presently intends to retain earnings to finance the development of the Company's business and does not presently intend to declare any cash dividends in the foreseeable future. Under the Company's current \$30,000,000 revolving line of credit agreement, the Company is restricted from paying dividends without the lender's consent. Under the Company's Subordinated Promissory Notes Agreement pursuant to which the Company issued \$30,000,000 of its subordinated promissory notes in June 1994, the Company is also restricted from paying dividends. See Notes 4 and 7 of Notes to Consolidated Financial Statements contained in Item 8.

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Item 6. Selected Financial Data

HISTORICAL FINANCIAL REVIEW

Summary Consolidated Statements of Operations Data

(In thousands, except per share data)

Revenue .....	\$ 233,660	\$ 235,360	\$ 175,694	\$ 149,491	\$ 127,550
Operating expenses:					
Cost of sales .....	112,596	102,666	69,294	67,814	69,007
Research and development .....	36,705	31,895	24,763	23,070	28,546
Sales and marketing .....	64,391	62,672	51,621	37,409	32,946
General and administrative .....	30,142	24,824	14,735	13,414	12,120
Restructuring charges .....	2,134	--	--	--	6,861
Total operating expenses .....	245,968	222,057	160,413	141,707	149,480
Operating income (loss) .....	(12,308)	13,303	15,281	7,784	(21,930)
Nonoperating income (expense), net .....	706	773	(3,057)	(3,580)	(1,774)
Income (loss) before income taxes and cumulative effect of accounting change .....	(11,602)	14,076	12,224	4,204	(23,704)
Income tax provision (benefit) .....	(300)	2,815	2,200	755	(712)
Income (loss) before cumulative effect of accounting change .....	(11,302)	11,261	10,024	3,449	(22,992)
Cumulative effect of accounting change (i) .....	--	--	--	--	(2,277)
Net income (loss) .....	\$ (11,302)	\$ 11,261	\$ 10,024	\$ 3,449	\$ (25,269)
Net income (loss) per share:					
Income (loss) before cumulative effect of accounting change .....	\$ (0.51)	\$ 0.53	\$ 0.53	\$ 0.19	\$ (1.37)
Cumulative effect of accounting change (i) .....	--	--	--	--	(0.14)
Net income (loss) .....	\$ (0.51)	\$ 0.53	\$ 0.53	\$ 0.19	\$ (1.51)
Weighted average common and dilutive common equivalent shares .....	22,005	21,306	19,062	18,444	16,726
Cash dividends per share .....	\$ --	\$ --	\$ --	\$ --	\$ --

(i) Effective January 1, 1992, the Company changed its method of accounting for income taxes from the deferred method to the liability method required by Statement of Financial Accounting Standard No. 109, "Accounting for Income Taxes" (FAS 109). The cumulative effect of adopting FAS 109 as of January 1, 1992, was to increase the 1992 net loss by \$2,277,000 or \$0.14 per share.

#### Selected Balance Sheet Data

As of December 31,	1996	1995	1994	1993	1992
Working capital .....	\$ 124,545	\$ 135,896	\$ 70,207	\$ 29,251	\$ 20,670
Total assets .....	189,841	196,763	109,363	67,647	69,548
Bank borrowings .....	--	--	--	1,311	9,500
Noncurrent portion of long-term debt .....	29,507	29,739	31,736	4,539	5,853
Shareholders' equity .....	\$ 124,045	\$ 129,937	\$ 53,574	\$ 38,890	\$ 29,483

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

In 1996, the Company's annual revenues decreased by less than 1% to \$233.7 million. In 1996 the Company had a net loss of \$11.3 million, or \$0.51 per share, compared to net income of \$11.3 million, or \$0.53 per share, in 1995.

In September 1996, the Company implemented a work force reduction of approximately 10% and consolidated certain manufacturing facilities and services. These actions reduced sales and general and administrative expenses by approximately 10% in the fourth quarter, compared to the third quarter of 1996.

#### RESULTS OF OPERATIONS

The following table sets forth for the periods indicated certain financial data as a percentage of total revenue:

Years ended December 31	1996	1995	1994	1993
Revenue	100 %	100 %	100 %	100 %
Operating expenses:				
Cost of sales	48	44	39	45
Research and development	16	13	14	15
Sales and marketing	27	27	30	25
General and administrative	13	10	8	9
Restructuring charges	1	0	0	0
Total operating expenses	105	94	91	94
Operating income (loss)	(5)	6	9	6
Nonoperating income (expense), net	0	0	(2)	(2)
Income (loss) before income taxes	(5)	6	7	8
Income tax provision (benefit)	0	1	1	1
Net income (loss)	(5) %	5 %	6 %	7 %

Revenue. In 1996, total revenue decreased to \$233.7 million from \$235.4 million in 1995, which represents a percentage decrease of less than 1%. Total revenue increased in 1995 to \$235.4 million from \$175.7 million in 1994, which represents a percentage increase of 34%. The table below shows revenues under the Company's new operating structure that was created in September 1996. Prior periods revenues have been reclassified in order to make amounts comparable.

	Years Ended December 31,					
	1996	% Total Revenue	1995	% Total Revenue	1994	% Total Revenue
(In thousands)						
Commercial Systems	\$ 158,273	68%	\$ 162,393	69%	\$ 127,817	73%
Software & Component Technologies	38,054	16%	35,416	15%	18,809	11%
Aerospace	37,333	16%	37,551	16%	29,068	16%
Total revenue	\$ 233,660	100%	\$ 235,360	100%	\$ 175,694	100%

#### Commercial Systems

The Commercial Systems business unit revenues decreased 3% in 1996 from 1995 and had a growth rate of 27% in 1995 over 1994. The decrease in 1996 as compared to 1995 is primarily in the Land Survey and Tracking vertical markets.

The decrease in Land Survey sales in 1996 compared to 1995 was due to a slowdown in sales in Europe and Japan. Europe experienced a downturn in shipments due in part to construction spending in the major economies of Europe being lower than traditional levels. Shipments of the higher-end Real-Time Kinematic (RTK) survey product in Japan has slowed due to the Japanese Government's decision to evaluate RTK survey methods before certifying its use

for official surveys. The Company is now selling at the low cost end of the market as opposed to the high cost end of the market. Shipments in the U.S., Latin America, and Asia-Pacific outside Japan were higher than last year.

This decrease in Land Survey was partially offset by an increase in revenues in the first quarter of 1996, compared to the first quarter of 1995, which was due to increased acceptance of the Company's products, extension of sales efforts into new geographic territories, and an increase in the number of field sales employees.

Tracking revenues are lower in 1996 compared to 1995, primarily due to lower sales to American Mobile Satellite Corporation (AMSC). In March 1995, the Company signed a large contract for the supply of Galaxy/GPS land mobile satellite terminals to AMSC, a Reston, Virginia, based company that provides a variety of voice and data services via satellite. AMSC contracted for delivery of product beginning in mid-1995 and continuing through 1996. Late in the fourth quarter of 1995, AMSC requested that the Company cease delivery, in part due to delays in AMSC's completion of software. Shipments under the original contract were halted in the fourth quarter of 1995 and the contract was amended. Revenues from shipments to AMSC under this contract during 1995 were \$4,176,000 in the second quarter and \$3,125,000 in the third quarter. Contract renegotiation fees of \$1,080,000 were recognized in the first quarter of 1996. The amended contract between the Company and AMSC calls for production line shutdown fees for the time that Trimble is not manufacturing product for shipment to AMSC. Due to the uncertainty about AMSC's ability to pay, revenues for products shipped and contractual shutdown fees were not recognized until collection was considered probable. In the second quarter of 1996, the Company recognized \$1,700,000 in revenue from products shipped in December 1995 and March 1996, and \$1,000,000 of shutdown fees, all of which have been paid. In the third quarter of 1996, the Company recognized \$100,000 of shutdown fees, all of which have been paid. In the fourth quarter of 1996, the Company recognized \$300,000 of shutdown fees, all of which have been paid. On February 20, 1997, an agreement was signed between Trimble and AMSC to resume shipments of its Galaxy/GPS terminals at the rate of 500 units per month, beginning in March 1997. As a result of this agreement the Company has dropped a complaint which was filed in October 1996 against AMSC in the Superior Court of California in Santa Clara County. (See Note 13 of the Notes to the Consolidated Financial Statements for more details.)

\* In September 1996, the Company entered into a contract with Caterpillar Inc. to develop and market products for the construction and mining markets. The Company agreed to develop, without funding from Caterpillar Inc., customized equipment starting in the fourth quarter of 1996 and to sell it exclusively to Caterpillar for use in this market. Shipments are expected to start in the first half of 1997. The Company also expects average selling prices will likely decline with increased competition. In addition to the markets the Company currently addresses in the surveying and mapping arena (primarily land survey), the Company is addressing new markets, including the mining and construction market. If the Company cannot adequately compete in new markets through the development and manufacture of new products, there can be no assurance that growth will continue.

In 1995, Commercial Systems revenue was supplemented by \$1.0 million received under a contract with a customer whereby the Company agreed not to compete, and sold exclusive distribution rights.

#### Software and Component Technologies

The Software and Component Technologies business unit revenues have grown 7% in 1996 from 1995 and 88% in 1995 over 1994. The increase in 1996 from 1995 was due to a slight increase in demand. The increase in 1995 from 1994 was due to alliances with Philips Car System and Xanavi Informatics Corporation for in-vehicle navigation and Glenayre Technologies in the timing market. The Software and Component Technologies market consists of OEM (original equipment manufacture) and consumer products.

In 1995, Software & Component Technologies revenue was supplemented by technology licenses of \$1.3 million.

Aerospace



\* Aerospace product sales slight decrease from 1995 to 1996 reflects weak sales for military products in 1996, compared to a strong sales for 1995. These sales were offset by strong sales for aviation products in 1996, compared with weak aviation product sales for 1995. On September 18, 1996, the Company received FAA certification of the HT9100 product allowing production and installation to begin late in the third quarter. This product accounted for most of the increase in Aerospace revenues for the second half of 1996, compared to the second half of 1995. Also, Aviation product sales were higher in the second half of 1996, as compared to 1995, due in part to sales of product acquired from Terra Corporation (See Note 5 to the Consolidated Financial Statements for additional information). The Company considers its Aerospace products to be a long term growth opportunity. It believes that success in this area will be dependent upon the success of a current strategic alliance with Honeywell.

Military sales are highly dependent on contracts which are subject to government approval and are, therefore, expected to continue to fluctuate from period to period. The Company believes that opportunities in this market have been substantially reduced by cutbacks in U.S. and foreign military spending.

Export sales from domestic operations, as a percentage of total revenue, were 25% in 1996, 21% in 1995 and 28% in 1994. Sales to unaffiliated customers in foreign locations, as a percentage of total revenue, was 47% in 1996, 53% in 1995, and 51% in 1994. (See Note 2 to the Consolidated Financial Statements.) The Company anticipates that export revenue and sales made by its subsidiaries in locations outside the U.S. will continue to account for a significant portion of its revenue, and, therefore, the Company is subject to the risks inherent in these sales, including unexpected changes in regulatory requirements, exchange rates, governmental approval, tariffs or other barriers. Even though the U.S. Government announced on March 29, 1996, that it would support and maintain the GPS system, as well as eliminate the use of Selective Availability (S/A) (a method of degrading GPS accuracy), in certain foreign markets there may be a reluctance to purchase products based on GPS technology, given the control of GPS by the U.S. Government. The Company's results of operations could be adversely affected if the Company were unable to continue to generate significant sales in locations outside the U.S.

No single customer, including the U.S. Government and its agencies, accounted for 10% or more of total revenue in 1996, 1995 or 1994. It is possible, however, that in future periods the failure of one or more large customers to purchase products in quantities anticipated by the Company may adversely affect results of operations.

Gross Margin. Gross margin varies due to a number of factors, including product mix, domestic versus international sales, customer type, the effects of production volumes and fixed manufacturing costs on unit product costs and new product start-up costs. In 1996, the gross margin percentage on product sales was 52%, compared with 56% in 1995 and 61% in 1994. The 1996 margins are enhanced by the positive impact of non-product revenues recognized from AMSC of \$2.48 million in 1996. (See "Results of Operations-Revenue" for more details.) The Company has a history of recording such non-recurring items in the past, including revenues of \$2.3 million in 1995. There can be no assurance that similar items will recur in the future. The decrease in the gross margin percentages primarily reflects a shift in product mix from higher margin Commercial Systems sales to lower margin Avionics and OEM products, and decreases in the margins obtained on sales of Commercial Systems products. In addition, because of mix changes within and among the business units, market pressures on unit selling prices, fluctuations in unit manufacturing costs and other factors, there is no assurance that current margins will be sustained. While Commercial Systems products have the highest gross margins of all the Company's products, their margins have decreased primarily due to the need to lower prices in response to competition. The Company expects competition to increase in its Commercial Systems markets and it is therefore likely that further price erosion will occur, with consequent lower gross margins percentages.

\* In the future, the Company expects a higher percentage of its business to be conducted through alliances with strategic partners, e.g. Honeywell and Caterpillar, for example. As a result of volume pricing and the assumption of certain operating costs by the partner, margins for this business are likely to be lower than sales directly to end-users.

Operating Expense. The following table shows operating expenses for the periods indicated, and should be read in conjunction with the narrative descriptions of those operating expenses below:

Years Ended December 31,			
	1996	1995	1994
(In thousands)			
Research and development	\$ 36,705	\$ 31,895	\$ 24,763
Sales and marketing	64,391	62,672	51,621
General and administrative	30,142	24,824	14,735
Restructuring charges	2,134	-	-
Total	\$ 133,372	\$119,391	\$ 91,119

Research and Development. Research and development spending increased during 1996, representing 16% of revenue as compared with 14% in both 1995 and 1994. The increase from 1995 to 1996 is due primarily to an increase in personnel and the related expenses which accompany an increase in the number of employees. There was also an increase in the number of specialized engineering consultants and temporary employees. The increase in research and development is part of the Company's continuing aggressive development of future products.

\* Sales and Marketing. Sales and marketing expenses increased during 1996, representing 28% of revenue, 27% in 1995, and 29% in 1994. The primary reason for the dollar increases in expenses since 1994 is an increase in personnel and advertising costs. Other less significant reasons for the increases are higher marketing related and field service support costs. Selling and marketing expenses are expected to decrease in the future as a percentage of revenue, as a result of the restructuring actions taken in September 1996. Sales offices in China, Egypt, Italy and Poland were closed, and the sizes of certain offices in the US has been reduced.

The Company's future growth will depend on the timely development and continued viability of the markets in which the Company currently competes, and upon the Company's ability to continue to identify and exploit new markets for its products. In addition, the Company has encountered significant competition in selected markets, and the Company expects such competition to intensify as the market for GPS applications receives acceptance. Several of the Company's competitors are major corporations with substantially greater financial, technical, marketing and manufacturing resources. Increased competition is likely to result in reduced market share and in price reductions of GPS-based products, which could adversely affect the Company's revenues and profitability.

General and Administrative. General and administrative expenses increased in 1996 over 1995 primarily as a result of the higher litigation and legal settlement costs incurred in the first six months of the year, as compared to the same period in 1995, as well as an increase in the bad debt expense and amortization of goodwill related to the Terra acquisition. The Company expects legal fees to continue to be high, due to the Company's involvement in litigation matters. (See Note 13 to the Consolidated Financial Statements.) The increase in 1995 over 1994 was due to increased legal fees, information systems support costs, an increase in the provision for uncollectible accounts receivable, as well as an increase in administrative costs in the business units.

Restructuring Charges. During the quarter ended September 30, 1996, the Company recorded a restructuring charge of \$2,046,000. An additional \$88,000 was added in the fourth quarter of 1996. As of December 31, 1996, \$1,345,000 of restructuring costs had been paid. Components of this restructuring reserve included employee severance packages, the costs of redundant office space, and write-downs of idle assets. The Company took this action in order to bring operating expenses into line with revenues and to restructure existing operations in a more efficient manner. As part of the restructuring, the Company reorganized itself into three business units--Commercial Systems, Software and Component Technologies, and Aerospace. There can be no guarantee that the results of the restructuring will be successful and will have the intended

effect.

Nonoperating income (expense), net. Nonoperating income (expense), net, includes interest income and expense, as well as gains and losses on foreign currency transactions and, in 1994, a royalty arbitration settlement charge.

Foreign exchange losses were \$4,000 in 1996, compared with a gain of \$1.1 million in 1995. In the second quarter of 1995 the Company adopted a policy of hedging its exposure to foreign currency transactions to minimize the effect of changes in foreign currency exchange rates on consolidated results of operations. Gains and losses arising from foreign currency forward contracts offset gains and losses resulting from the underlying hedged transactions. Most of the foreign exchange gains recorded in 1995 were incurred in the period before this policy was in place.

Interest income increased in 1996 due to higher interest income received on cash and short term investments in the first half of 1996, compared with the first half of 1995, primarily from the Company's public offering proceeds in August 1995. Interest income increased in 1995 over 1994, primarily due to higher interest income received on higher levels of cash and short term investments resulting primarily from the Company's public offering proceeds.

Interest expense increased slightly in 1996 due to higher fees on unused lines of credit. Interest expense includes interest on a \$30 million note issued in August 1995, and fees on unused lines of credit. (See Notes 4 and 7 to the Consolidated Financial Statements for details of long-term debt and lines of credit.)

During 1994, the Company recorded a charge of \$1.4 million to reflect an unfavorable court decision related to a dispute between the Company and Avion Systems Inc. as to certain technology the Company licensed from Avion in 1991. (See Notes 13 to the Consolidated Financial Statements.)

Income Tax Provision. The Company's combined federal, foreign and state effective income tax benefit of 3% in 1996 is less than the federal statutory tax rate of 35%, primarily due to limitations on the utilization of the 1996 operating loss. The income tax provision of 20% in 1995, and 18% in 1994 is less than the statutory rate, primarily due to realization of previously reserved deferred tax assets. The 1995 rate is higher than the 1994 rate, primarily due to higher foreign taxes.

Inflation. The effects of inflation upon the Company's financial results have not been significant to date.

#### LITIGATION

\* The Company is involved in a number of legal matters that occupy an increasing amount of management time and expense. These matters are more fully discussed in Note 13 to the Consolidated Financial Statements. While the Company does not expect to suffer significant adverse effects from this litigation, or unasserted claims, the nature of litigation is unpredictable, and there can be no assurance that it will not do so.

#### LIQUIDITY AND CAPITAL RESOURCES

\* In 1996 the cash used in operating activities was \$3.9 million. Cash provided by sales of common stock in 1996 represents proceeds from purchases made pursuant to the Company's stock option and employee stock purchase plans, and totaled \$5.8 million. During 1996 the Company has relied primarily on cash provided by financing activities and net sales of short-term investments to fund operations, capital expenditures and other investing activities. The Company's ability to generate cash from operations will depend in large part on revenues and the rate of collections of accounts receivable.

In 1995 operating activities provided cash flows of \$11.4 million. Cash flow from financing activities consisted primarily of \$57.2 million from the sale of 2.1 million shares of Common Stock in an underwritten public offering, and \$7.3 million from issuances under various employee stock plans. These sources of cash flow were used primarily to pay down long-term debt of \$1.6 million and purchase property and equipment of \$14.6 million. The remaining cash

flow was used to increase cash, cash equivalents and short-term investments.

In August 1995, the Company entered into a \$30.0 million unsecured line of credit agreement with two banks; it expires in July 1997. The agreement enables the Company to borrow up to \$30.0 million provided that certain financial and other covenants are met. The agreement provides for payment of a commitment fee of 0.5% for the unused portion of the line of credit. Borrowings bear interest at the higher of (i) one of the bank's annual prime rate, and (ii) the federal

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funds rate plus 0.5%. In August 1995 the Company terminated a prior \$15 million line of credit agreement originally entered into in January 1993. No borrowings were made under either the old or new lines of credit during 1996 and 1995.

\* In February 1996, the Company announced that it had approved a discretionary program whereby up to 600,000 shares of its common stock may be repurchased to offset potential dilutive effects to earnings per share from the issuance of stock options. The Company intends to use existing cash, cash equivalents and short-term investments to finance any stock repurchases under this program. In 1996, 250,000 shares were purchased at a cost of \$3,545,000 and the Company intends to continue repurchasing its common stock under this program.

\* The Company presently expects 1997 capital expenditures to be approximately \$14.0 million, primarily for production equipment, computer equipment, software, and leasehold improvements associated with business expansion.

\* At December 31, 1996, the Company had cash and cash equivalents of \$22.7 million and \$59.9 million in short term investments. The Company's long-term debt consisted primarily of a \$30.0 million note obligation due in 2001, and the Company had no debt outstanding under its line of credit. The Company believes that its current cash balances, available bank financing, and cash flow from operations will be sufficient to meet its anticipated cash needs in the foreseeable future.

#### CERTAIN OTHER RISK FACTORS

Revenue has tended to fluctuate on a quarterly basis due to the timing of shipments of products under contracts, the sale of licensee rights, and seasonal patterns favoring spring and summer for Commercial Systems business. This pattern was not repeated in 1996 and the Company can give no assurances that there will be any reversion to the seasonal revenue trends. A significant portion of quarterly revenues occurs from orders received and immediately shipped to customers in the last few weeks and days of a quarter. If orders are not received, or if shipments were to be delayed a few days at the end of a quarter, the operating results and reported earnings per share could be significantly impacted. Future revenues are difficult to predict, and projections are based primarily on historical models which are not necessarily accurate representations of the future.

\* The Company has a relatively fixed cost structure in the short term which is determined by the business plans and strategies the Company intends to implement in the markets it addresses. This effective leveraging means that increases or decreases in revenues have more than a proportional impact on net income or losses. The Company estimates that a change in product revenue of \$1 million would change earnings per share by 2 to 3 cents.

A number of products that were previously being manufactured by Terra have yet to be certified by the Federal Aviation Authority. Unless the Company receives this certification, revenues from sales of Terra products may be lower than expected.

\* In the longer term, the Company believes that the Software and Component Technologies business unit will comprise a significant portion of the Company's business. The Software and Component Technologies business unit differs in nature from most of the Company's markets because volumes are high and margins relatively low. Software and Component Technologies customers are extremely price sensitive. As costs decrease through technological advances, these advances will be passed on to the customer. To compete in the Software and Component Technologies market requires high-volume production and manufacturing techniques. Customers expect high quality standards with very low defect rates.

The Company is relatively inexperienced compared to competitors with far greater resources in such high-volume manufacturing and associated support activities.

The value of the Company's products relies substantially on the Company's technical innovation in fields in which there are many current patent filings. The Company recognizes that as new patents are issued or are brought to the Company's attention by the holders of such patents, it may be necessary for the Company to withdraw products from the market, take a license from such patent holders, or redesign its products. The Company does not believe any of its products infringe patents or other proprietary rights of third parties, but cannot be certain that they do not. (See Note 13 to the Consolidated Financial

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Statements.) In addition, the legal costs and engineering time required to safeguard intellectual property or to defend against litigation could become a significant expense of operations. Such events could have a material adverse effect on the Company's revenues or profitability.

The Company is continually evaluating alliances and external investments in technologies related to its business, and has already entered into alliances and made relatively small investments in GPS related technology companies. Acquisitions of companies, divisions of companies, or products and alliances entail numerous risks, including (i) the potential inability to successfully integrate acquired operations and products or to realize anticipated synergies, economies of scale or other value, (ii) diversion of management's attention, and (iii) loss of key employees of acquired operations. Any such problems could have a material adverse effect on the Company's business, financial condition, and results of operations. No assurances can be given that the Company will not incur problems from current or future alliances, acquisitions, or investments. Furthermore, there can be no assurance that the Company will realize value from any such alliances, acquisitions, or investments.

Information with respect to GPS Navstar satellite system is included in Part I hereof under the caption "Background" paragraph number 6.

NEW ACCOUNTING STANDARDS

In June 1996, the Financial Accounting Standards Board issued SFAS No. 125, "Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities." This statement is effective for transfers and servicing of financial assets and extinguishment of liabilities occurring after December 31, 1996. At December 31, 1996, the Company was contingently liable to a Japanese bank for \$4,146,000, at year end exchange rates arising from customers' notes receivable which the Company sold with recourse to the bank. The implementation of the new accounting standard, if adopted early, would have increased liabilities and accounts receivable by this amount. (See Note 4 to the Consolidated Financial Statements.) The Company will adopt this accounting standard on January 1, 1997, as required.

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Item 8. Financial Statements

CONSOLIDATED BALANCE SHEETS

December 31,	1996	1995
-----		
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 22,671	\$ 29,711
Short-term investments	59,867	67,451
Accounts receivable, less allowance for doubtful accounts of \$2,393 and \$1,074	34,374	39,123
Inventories	38,858	31,201
Deferred income taxes	-	722

Other current assets	3,633	3,198
	-----	-----
Total current assets	159,403	171,406
Property and equipment, at cost less accumulated depreciation	21,504	19,751
Intangible assets less accumulated amortization	4,493	870
Deferred income taxes	383	852
Other assets	4,058	3,884
	-----	-----
Total assets	\$ 189,841	\$ 196,763
	=====	=====
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Current portion of long-term debt	\$ 316	\$ 2,014
Accounts payable	13,763	15,329
Accrued compensation and benefits	6,552	5,745
Customer advances	3,000	1,080
Accrued liabilities	10,358	8,340
Income taxes payable	869	3,002
	-----	-----
Total current liabilities	34,858	35,510
Noncurrent portion of long-term debt and other liabilities	30,938	31,316
	-----	-----
Total liabilities	65,796	66,826
	-----	-----
Commitments and contingencies		
Shareholders' equity:		
Preferred stock, no par value; 3,000 shares authorized; none outstanding	-	-
Common stock, no par value; 40,000 shares authorized; 22,063 and 21,642 outstanding, respectively	125,535	120,449
Common stock warrants	700	700
Retained earnings (deficit)	(2,603)	8,699
Unrealized gain (loss) on short-term investments	20	102
Foreign currency translation adjustment	393	(13)
	-----	-----
Total shareholders' equity	124,045	129,937
	-----	-----
Total liabilities and shareholders' equity	\$ 189,841	\$ 196,763
	=====	=====

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF OPERATIONS

Years ended December 31,	1996	1995	1994
-----			
(In thousands, except per share data)			
Revenue	\$ 233,660	\$ 235,360	\$ 175,694
	-----	-----	-----



See accompanying notes to consolidated financial statements

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CONSOLIDATED STATEMENTS OF CASH FLOWS

Years ended December 31 (In thousands)	1996	1995	1994
Cash flow from operating activities:			
Net income (loss) .....	(\$ 11,302)	\$ 11,261	\$ 10,024
Adjustments to reconcile net income (loss) to cash flows from operating activities:			
Depreciation and amortization expense .....	10,140	8,042	7,692
Deferred revenue amortization .....	--	(79)	(237)
Rental inducement receipts .....	--	(111)	720
Other .....	178	673	63
Decrease (increase) in assets:			
Accounts receivable, net .....	5,501	(10,519)	(2,178)
Inventories .....	(7,073)	(7,618)	(242)
Other current and noncurrent assets .....	(2,603)	(3,020)	58
Deferred income taxes .....	1,191	248	(1,822)
Increase (decrease) in liabilities:			
Accounts payable .....	(2,102)	5,180	(2,383)
Accrued compensation and benefits .....	807	1,909	269
Customer advances .....	1,920	1,080	--
Accrued liabilities .....	1,608	2,777	1,110
Income taxes payable .....	(2,133)	1,561	1,015
Net cash provided (used) by operating activities	----- (3,868)	----- 11,384	----- 14,089
Cash flow from investing activities:			
Acquisition of property and equipment .....	(10,359)	(14,553)	(7,869)
Costs of capitalized patents .....	(762)	(915)	(217)
Purchase of short-term investments .....	(75,663)	(115,527)	(26,524)
Maturities of short-term investments .....	83,247	68,600	6,000
Net cash used by investing activities .....	----- (3,537)	----- (62,395)	----- (28,610)
Cash flow from financing activities:			
Issuance of common stock .....	5,774	7,283	3,722
Net proceeds from common stock offering .....	--	57,248	--
Repurchase of common stock .....	(3,545)	--	--
Collection of notes receivable .....	66	145	--
Bank loan repayments .....	--	--	(1,311)
Proceeds from issuance of note .....	--	--	29,348
Payment of long-term debt .....	(1,930)	(1,597)	(1,466)
Net cash provided by financing activities .....	----- 365	----- 63,079	----- 30,293
Increase (decrease) in cash and cash equivalents	(7,040)	12,068	15,772
Cash and cash equivalents, beginning of period .	29,711	17,643	1,871
Cash and cash equivalents, end of period .....	----- \$ 22,671	----- \$ 29,711	----- \$ 17,643
	=====	=====	=====

See accompanying notes to consolidated financial statements

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 -- Summary of significant accounting policies:

Use of estimates. The preparation of financial statements in conformity



with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Due to the inherent nature of those estimates, actual results could differ from expectations.

Principles of consolidation. The consolidated financial statements include the accounts of Trimble Navigation Limited (the Company) and its wholly-owned subsidiaries after elimination of all material intercompany balances and transactions.

Foreign currency translation. Assets and liabilities of the Company's foreign subsidiaries are translated into U.S. dollars at year-end exchange rates and revenues and expenses are translated at average rates prevailing during the year. Local currencies are considered to be the functional currencies for the Company's non-U.S. subsidiaries. Translation adjustments are deferred in a separate component of shareholders' equity. Foreign currency transaction gains and losses are included in results of operations as incurred.

Forward foreign currency exchange contracts. In the second quarter of 1995, the Company adopted a policy of hedging its exposure to foreign currency transactions to minimize the effect of changes in foreign currency exchange rates on consolidated results of operations. To date, the Company has entered into forward foreign currency exchange contracts to offset the effects of changes in exchange rates on foreign-denominated intercompany receivables. Realized and unrealized gains and losses on the contracts are included in results of operations. At December 31, 1996, the Company had forward foreign currency exchange contracts to sell \$7,895,000 of Japanese Yen and \$1,290,000 of German Marks, and to buy \$2,380,000 of New Zealand dollars, at contracted rates which mature over the next five months.

Cash and cash equivalents. Cash and cash equivalents include all cash and highly liquid investments with original maturities of three months or less. The carrying amount of cash and cash equivalents approximates fair value because of the short maturity of those instruments.

Short-term investments. The Company has classified all its short-term investments as "available for sale." Available-for-sale securities are carried at fair value, with the unrealized holding gains and losses, net of tax effects, reported in a separate component of shareholders' equity. Fair value is based on quoted market prices. The cost of debt securities in this classification is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization, as well as interest, dividends, and realized gains and losses, is included in interest and investment income. The cost of securities sold is based on the specific identification method.

At December 31, 1996, the Company's short-term investments consisted of U.S. Treasury securities totaling \$59,867,000 at cost, which had unrealized gains of \$20,000 and had original maturities of less than one year from the date of purchase. At December 31, 1995, the Company's short-term investments in U.S. Treasury securities and Federal Government Agencies had a cost of \$67,323,000 and had unrealized gains of \$128,000.

Concentration of credit risk. In entering into forward foreign exchange contracts, the Company has assumed the risk which might arise from the possible inability of counterparties to meet the terms of their contracts. The counterparties to these contracts are major multinational commercial banks, and the Company does not expect any losses as a result of counterparty defaults. The Company performs ongoing credit evaluations of its customers and generally does not require collateral. The expenses recorded for doubtful accounts receivable were \$1,159,000 in 1996, and \$352,000 in 1995, and a credit of \$272,000 was recorded in 1994.

Inventories. Inventories are stated at the lower of standard cost or market. Standard costs approximate average actual costs.

In December 1995, the Company announced that it had temporarily halted shipments of certain tracking and communications products deliverable under a large contract with a single customer. Inventories included approximately \$3,348,000 of materials at December 31, 1996, and \$5,400,000 of materials at December 31, 1995, that had been received in anticipation of making shipments to the customer. Shipments under this contract are expected to resume in the first half of 1997 and, accordingly, the Company has not provided any reserves against the products included in inventory. However, there can be no assurance that the

shipments under this contract will be resumed. If shipments under the contract are not resumed, related inventories would represent more than two years' sales to other customers of the products.

Revenue recognition. The Company recognizes revenue from product sales at the time of shipment, except as to revenue deferred for extended warranty obligations. Substantially all technology licenses and research revenue have consisted of initial license fees and royalties, and were recognized when earned.

Product warranty. The Company provides for estimated warranty costs at the time of sale. The warranty period is generally for one year from date of shipment except for aviation products, for which the period is generally three years and for the HT9100 product for Honeywell, which has a five year warranty period.

Advertising Costs. The Company expenses the production costs of advertising as incurred. Advertising expenses were \$7,587,000, \$7,683,000, and \$7,136,000 in 1996, 1995, and 1994, respectively.

Stock Compensation. In accordance with the provisions of Statement of Financial Accounting Standards (SFAS) No. 123, "Accounting for Stock-Based Compensation," the Company applies Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees" (APB 25) and related Interpretations in accounting for its stock option plans and stock purchase plan. Accordingly, it does not recognize compensation cost for stock options granted at or above. Note 11 to the Consolidated Financial Statements describes the plans operated by the Company and contains a summary of the pro forma effects to reported net income and earnings per share for 1996 and 1995 if the Company had elected to recognize compensation cost based on the fair value of the options granted at grant date as prescribed by SFAS No. 123.

Depreciation and amortization. Depreciation of property and equipment owned or under capitalized leases is computed using the straight-line method over the shorter of the estimated useful lives or the lease terms. Useful lives range from three years for machinery and equipment to five years for furniture and fixtures. Amortization of intangibles is computed using the straight-line method over periods of four years or less.

Interest. All interest costs incurred have been charged to interest expense.

Net income (loss) per share. Per share data is computed using the weighted average number of shares of common stock outstanding and dilutive common equivalent shares arising from the assumed exercise of stock options and warrants using the treasury stock method.

Note 2 -- The Company, industry segment, geographic, and customer information:

The Company operates in a single industry segment as a leading supplier of products that determine precise geographic location and time using the Global Positioning System (GPS). The Company develops, manufactures and markets its products for applications in surveying and mapping, tracking and communications, OEM, avionics and military markets. The Company sells its products through a direct sales force located in twelve countries, as well as through a worldwide network of dealers, distributors and authorized representatives. Research and development activities are conducted at the Company's facilities in Sunnyvale, California; Austin, Texas; and Christchurch, New Zealand. Manufacturing is performed primarily in Sunnyvale, California, and to a lesser extent in Austin, Texas.

The following table sets forth revenue by market. Revenues in 1994 and 1995 have been reclassified to conform with the Company's organization structure in 1996.

	1996	1995	1994
	(In thousands)		
Commercial Systems	\$158,273	\$162,393	\$127,817
Software & Component Technologies	38,054	35,416	18,809

Aerospace	37,333	37,551	29,068
Total revenue	\$233,660	\$235,360	\$175,694

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Information regarding geographic areas is as follows:

	Geographic Area				Total
	Domestic	Europe / Middle East	Pac. Rim, Asia and Japan	Eliminations	
(In thousands)					
1996					
Sales to unaffiliated customers	\$ 164,663	\$ 47,972	\$ 21,025	\$ --	\$ 233,660
Intergeographic transfers	70,366	--	1,474	(71,840)	--
Total revenue	\$ 235,029	\$ 47,972	\$ 22,499	\$ (71,840)	\$ 233,660
Operating income (loss)	\$ (18,670)	\$ 14,917	\$ (8,382)	\$ (173)	\$ (12,308)
Identifiable assets	\$ 166,405	\$ 14,355	\$ 10,037	\$ (956)	\$ 189,841
1995					
Sales to unaffiliated customers	\$ 158,800	\$ 51,040	\$ 25,520	\$ --	\$ 235,360
Intergeographic transfers	42,621	--	1,361	(43,982)	--
Total revenue	\$ 201,421	\$ 51,040	\$ 26,881	\$ (43,982)	\$ 235,360
Operating income (loss)	\$ 3,902	\$ 19,000	\$ (8,858)	\$ (741)	\$ 13,303
Identifiable assets	\$ 170,390	\$ 14,112	\$ 13,105	\$ (844)	\$ 196,763
1994					
Sales to unaffiliated customers	\$ 134,112	\$ 38,439	\$ 3,143	\$ --	\$ 175,694
Intergeographic transfers	16,480	5	860	(17,345)	--
Total revenue	\$ 150,592	\$ 38,444	\$ 4,003	\$ (17,345)	\$ 175,694
Operating income (loss)	\$ 7,279	\$ 14,917	\$ (6,841)	\$ (74)	\$ 15,281
Identifiable assets	\$ 92,109	\$ 12,762	\$ 4,540	\$ (48)	\$ 109,363

Transfers between domestic and foreign geographic areas are made at prices based on total costs and contributions of the supplying geographic area. The Company's subsidiaries in the Pacific Rim, Asia and Japan have derived revenue from commissions from domestic operations in each of the periods presented. These commission revenues and expenses are excluded from total revenue and operating income (loss) in the table above. Commencing in April 1995, sales to unaffiliated customers in Japan were made by the Company's Japanese subsidiary. Previously, such sales were treated as domestic export sales.

Export revenue (defined as sales to unaffiliated customers in foreign countries made by the Company's domestic operations) as a percentage of total revenue was as follows:

	1996	1995	1994
Europe/Middle East	2 %	2 %	1 %
Pacific Rim, Asia and Japan	13	12	20
Other	10	7	7
	-----	-----	-----
	25 %	21 %	28 %

No single customer accounted for 10% or more of total revenues in 1996, 1995 or 1994.

The geographic distribution of sales to unaffiliated customers by customer location as a percentage of total revenue was as follows:

	1996	1995	1994
	-----	-----	-----

United States	53 %	47 %	49 %
Europe/Middle East	21	23	22
Pacific Rim, Asia and Japan	19	23	22
Other	7	7	7
	-----	-----	-----
	100 %	100 %	100 %

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Note 3 -- Balance sheet components:

December 31,	1996	1995
-----		
(In thousands)		
Inventories		
Raw materials .....	\$24,145	\$15,892
Work-in-process .....	5,174	6,782
Finished goods .....	9,539	8,527
	-----	-----
	\$38,858	\$31,201
	=====	=====
Property and equipment		
Machinery and equipment .....	\$52,277	\$45,516
Furniture and fixtures .....	4,758	4,113
Leasehold improvements .....	6,231	5,483
	-----	-----
	63,266	55,112
Less accumulated depreciation	41,762	35,361
	-----	-----
	\$21,504	\$19,751
	=====	=====

Note 4 -- Bank line of credit:

In August 1995, the Company entered into a \$30,000,000 unsecured line of credit agreement with two banks that expires in July 1997. The agreement enables the Company to borrow up to \$30,000,000 provided that certain financial and other covenants are met. The agreement provides for payment of a commitment fee of 0.5% for the unused portion of the line of credit. Borrowings bear interest at the higher of (i) one of the bank's annual prime rate and (ii) the federal funds rate plus 0.5%. No borrowings were made under the line of credit during 1996 and 1995. Under the line of credit the Company is restricted from paying dividends.

At December 31, 1996, the Company was contingently liable to a Japanese bank for \$4,146,000 at year end exchange rates arising from customers' notes receivable which the Company sold with recourse to the bank. The implementation of a new accounting standard, if adopted early, would have increased liabilities and accounts receivable by this amount. The Company will adopt this accounting standard on January 1, 1997, as required.

Note 5 -- Acquisition

On July 2, 1996, the Company purchased certain assets and assumed certain liabilities of Terra Corporation (Terra), a New Mexico corporation which manufactured components for the aviation market, in exchange for 140,860 shares of the Company's common stock and options to purchase 12,000 shares of the Company's common stock. The Company's results of operations include the results of operations of Terra Corporation from July 2, 1996. The Company recorded \$3,189,000 of goodwill on the acquisition. The Company is amortizing this goodwill over five years. As of December 31, 1996, the Company had recorded accumulated amortization of \$318,900.

Prior to its acquisition by the Company, Terra had limited revenues and operated at loss. As of July 2, 1996, Terra had cumulative losses of approximately \$255,000. The amount of the loss is not determinable with respect to individual periods. If the acquisition had occurred at January 1, 1995, based on the purchase price recorded, the Company would have recorded amortization of

goodwill and a reduction of net income before taxes of \$637,800 in 1995 or \$0.03 per share and additional amortization of goodwill and an increase in net loss before income taxes of \$318,900 in 1996 or \$0.01 per share.

Note 6 -- Restructuring:

During 1996, the Company recorded restructuring charges of \$2,134,000. As of December 31, 1996, \$1,345,000 of restructuring costs had been paid. Components of this restructuring reserve included employee severance packages, the costs of redundant office space, write-downs of idle assets, and the costs of moving people.

Note 7 -- Long-term debt and other noncurrent liabilities:

Long-term debt consists of the following:

December 31,	1996	1995
-----		
(In thousands)		
Subordinated notes .....	\$29,507	\$29,423
Capitalized leases (Note 8) ...	--	631
Equipment financing obligations	316	1,699
Other .....	1,431	1,577
	-----	-----
	31,254	33,330
Less-current portion .....	316	2,014
	-----	-----
Noncurrent portion .....	\$30,938	\$31,316
	=====	=====

Scheduled payments of equipment loan obligations are as follows: \$316,000 in 1997.

During June 1994, the Company issued \$30 million of subordinated promissory notes bearing interest at an annual rate of 10% and with principal due on June 15, 2001. Interest payments are due monthly in arrears. The notes are subordinated to the Company's senior debt, which is defined as all pre-existing indebtedness for borrowed money and certain future indebtedness for borrowed money (including, subject to certain restrictions, secured bank borrowings and borrowed money for the acquisition of property and capital equipment) and trade debt incurred in the ordinary course of business. If the Company prepays any portion of the principal, it is required to pay additional amounts if U.S. Treasury obligations of a similar maturity exceed a specified yield. Under the agreement the Company is restricted from paying dividends.

The issuance of the notes also included warrants entitling holders to purchase 400,000 shares of common stock at a price of \$10.95 per share at any time through June 15, 2001. The warrants are included in shareholders' equity at their appraised fair value of \$700,000 at the time of issue. The net proceeds of the notes were \$29,348,000 after issuance costs of \$652,000. The notes are shown under noncurrent liabilities, net of appraised fair value attributed to the warrants. The value of the warrants and the issuance costs are being amortized and included in interest expense using the interest rate method over the term of the subordinated promissory notes. The effective annual interest rate on the notes is 11.5%. Under the terms of the note, the Company is required to, among other things, meet certain specified amounts of tangible net worth.

Equipment financing obligations are payable over 60 month terms ending no later than 1997, bear interest at annual rates ranging from approximately 10 to 11%, and are secured by the equipment financed. At December 31, 1996, equipment financing obligations outstanding were \$316,000, of which all is included in the current portion of long-term debt.

Other long-term debt primarily represents deferred rent obligations and rental inducements on certain of the Company's leased facilities. The lease agreements provide for scheduled increases in lease payments over the terms of the leases.

Note 8 -- Lease obligations and commitments:

The Company's principal facilities in the United States are leased under noncancelable operating leases which expire at various dates from 1998 through 2001. The Company has options to renew these leases for an additional five years. The Company's United Kingdom subsidiary leases a facility under an operating lease which expires in 2015.

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At December 31, 1996, the Company had no outstanding equipment lease obligations.

Future minimum payments required under noncancelable operating leases are as follows:

	Operating Leases
-----	
(In thousands)	
1997	\$ 5,340
1998	5,220
1999	3,738
2000	3,308
2001	781
Thereafter	1,882
	=====
Total	\$20,269
	=====

Rent expense on operating leases was \$6,004,800 in 1996, \$5,577,000 in 1995 and \$3,933,000 in 1994.

Note 9 -- Fair value of financial instruments:

Statement of Financial Accounting Standard No. 107, "Disclosures about Fair Value of Financial Instruments," requires disclosure of the following information about the fair value of certain financial instruments for which it is practicable to estimate that value. None of the financial instruments are held or issued for trading purposes. The carrying amounts and fair values of the Company's financial instruments are as follows:

	Carrying Amount	Fair Value
	-----	-----
December 31,	1996	
-----		
(In thousands)		
Assets:		
Cash and cash equivalents (Note 1) .....	\$ 22,671	\$ 22,671
Short-term investments (Note 1) .....	59,867	59,867
Forward foreign exchange contracts (Note 1)	429	76
Liabilities:		
Subordinated notes (Note 7) .....	29,507	30,838
Equipment financing obligations (Note 7) ..	316	318

The fair value of the subordinated notes has been estimated using an estimate of interest rate the Company would have had to pay on issuance of notes with a similar maturity, and discounting the cash flows at that rate. The fair value of equipment loans have been estimated in a similar manner. The fair values do not give an indication of the amount that the Company would have to pay to extinguish any of this debt.

The fair value of forward foreign exchange contracts is estimated based on quoted market prices of comparable contracts. The difference between fair value and carrying amount primarily reflects the difference between the exchange rates in effect when contracts were entered into and the exchange rates in effect at December 31, 1996.

## Note 10 -- Income taxes:

The income tax provision (benefit) consists of the following:

Years ended December 31,	1996	1995	1994
-----			
(In thousands)			
Federal:			
Current .....	\$ (2,557)	\$ 1,380	\$ 2,307
Deferred .....	1,208	389	(1,597)
	-----	-----	-----
	(1,349)	1,769	710
	-----	-----	-----
State:			
Current .....	5	4	303
Deferred .....	--	--	--
	-----	-----	-----
	5	4	303
	-----	-----	-----
Foreign:			
Current .....	1,060	1,183	1,412
Deferred .....	(16)	(141)	(225)
	-----	-----	-----
	1,044	1,042	1,187
	-----	-----	-----
Income tax provision (benefit)	\$ (300)	\$ 2,815	\$ 2,200
	=====	=====	=====

The domestic income (loss) before taxes (including royalty income subject to foreign withholding taxes) was approximately (\$13,300,000), \$12,800,000, and \$8,800,000 in 1996, 1995 and 1994.

The income tax provision (benefit) differs from the amount computed by applying the statutory federal income tax rate to income before taxes. The sources and tax effects of the differences are as follows:

Years ended December 31,	1996	1995	1994
-----			
(In thousands)			
Expected tax at 35% in all years .....	\$ (4,061)	\$ 4,926	\$ 4,278
Tax account valuation adjustments .....	(1,630)	(2,464)	(2,419)
Operating loss not utilized .....	4,577	--	--
Foreign withholding taxes .....	170	242	--
Foreign tax rate differential .....	277	356	(7)
State income taxes .....	5	4	303
Benefit of Foreign Sales Corporation, net	--	(312)	--
Other .....	362	63	45
	-----	-----	-----
Income tax provision (benefit) .....	\$ (300)	\$ 2,815	\$ 2,200
	=====	=====	=====
Effective tax rate .....	(3%)	20%	18%

The components of deferred taxes consist of the following:

	December 31,	
	1996	1995
-----		
(In thousands)		

Deferred tax liabilities:		
Goodwill .....	\$ 1,139	\$ --
Individually immaterial items .....	229	650
	-----	-----
Total deferred tax liabilities .....	1,368	650
	-----	-----
Deferred tax assets:		
Inventory valuation differences .....	6,645	4,437
Federal credit carryforwards .....	5,793	5,575
State credit carryforwards .....	1,626	662
Federal net operating loss (NOL) carryforward.....	1,410	--
Deferred revenue .....	1,371	--
Other individually immaterial items .....	4,847	4,152
	-----	-----
Total deferred tax assets .....	21,692	14,826
Valuation allowance .....	(19,941)	(12,602)
	-----	-----
Total deferred tax assets .....	1,751	2,224
	-----	-----
Total net deferred tax assets .....	\$ 383	\$ 1,574
	=====	=====

The NOL and credit carryforwards listed above expire in the years 1999 through 2011.

The valuation allowances increased by \$1.3 million in 1995. Approximately \$5.5 million of the valuation allowance at December 31, 1996 relates to the tax benefits of stock option deductions which will be credited to equity when realized.

Note 11 -- Shareholders' equity:

Employees and others have been granted options to purchase common shares under stock option plans adopted in 1990, 1992 and 1993. Details of these plans, the 1988 Employee Stock Purchase Plan and similar compensation plans are set out below.

1993 Stock Option Plan In 1992, the Company's Board of Directors adopted the 1993 Stock Option Plan to replace the 1983 Stock Option Plan which expired in January 1993. The 1993 Stock Option Plan provides for the granting of incentive and nonstatutory stock options for up to 2,000,000 shares of Common Stock to employees, consultants and directors of the Company. Incentive stock options may be granted for exercise prices that are not less than 100% of the fair market value of Common Stock on the date of grant. All options granted have 63 month terms and vest at a rate of 20% at the first anniversary of grant and monthly thereafter at an annual rate of 20%, with full vesting occurring at the fifth anniversary of grant. The exercise price of nonstatutory stock options must be at least 85% of the fair market value of Common Stock on the date of grant. As of December 31, 1996, options on 1,919,481 shares were outstanding and 393,439 shares were available for future grant under the 1993 Stock Option Plan. Options outstanding under the 1983 Stock Option Plan were for 455,265 shares.

1990 Director Stock Option Plan In December 1990, the Company adopted a Director Stock Option Plan under which the Company has reserved 280,000 shares of Common Stock for options to be granted to nonemployee directors. At December 31, 1996, options were outstanding on 158,333 shares and 175,833 shares were available for future grants under the Director Stock Option Plan.

1992 Management Discount Stock Option Plan In 1992 the Company's Board of Directors and shareholders approved the 1992 Management Discount Stock Option Plan ("Discount Plan"). Under the Discount Plan, 300,000 nonstatutory stock options were reserved for grant to management employees at exercise prices that are significantly discounted from the fair market value of Common Stock on the dates of grant. Options are generally exercisable six months from the date of

grant. As of December 31, 1996, 129,974 shares were available for future grants. For accounting purposes, compensation cost is measured by the excess over the



discounted exercise prices of the fair market value of Common Stock on the dates of option grant. Noncash compensation cost related to options exercised in 1996 amounted to \$48,744. Accrued compensation and benefits at December 31, 1996, include \$305,000 of compensation cost relating to outstanding options on 44,804 shares.

1988 Employee Stock Purchase Plan In 1988, the Company established an employee stock purchase plan under which 1,700,000 shares of common stock were reserved for issuance. The plan permits full-time employees to purchase Common Stock through payroll deductions at 85% of the lower of the fair market value of the Common Stock at the beginning or at the end of each six-month offering period. In 1996, 194,323 shares were issued under the plan for aggregate proceeds of \$2,387,400. At December 31, 1996, the number of shares reserved for future purchases was 305,779.

As stated in Note 1, the Company has elected to follow APB 25 and related Interpretations in accounting for its employee stock options and stock purchase plans. The alternative fair value accounting provided for under SFAS 123 requires use of option pricing models that were not developed for use in valuing employee stock options. Under APB 25, because the exercise price of the Company's employee stock options equals the market price of the underlying stock on date of grant, no compensation expense is recognized.

Pro forma information regarding net income and earnings per share is required by SFAS 123 and has been determined as if the Company had accounted for its employee stock options and purchases under the Employee Stock Purchase Plan using the fair value method of that Statement. The fair value for these options was estimated at the date of grant using a Black-Scholes option pricing model with the following weighted-average assumptions for 1995 and 1996:

	1996	1995
	-----	-----
Expected dividend yield .....	\$ --	\$ --
Expected stock price volatility .....	58.76%	59.48%
Risk-free interest rate .....	6.29%	6.79%
Expected life of options after vesting	0.77	0.77

The Black-Scholes option valuation model was developed for use in estimating the fair value of traded options which have no vesting restrictions and are fully transferable. In addition, option valuation models require the input of highly subjective assumptions including the expected stock price volatility. Because the Company's employee stock options have characteristics significantly different from those of traded options and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models do not necessarily provide a reliable single measure of its employee stock options.

For purposes of pro forma disclosures, the estimated fair value of the options is amortized to expense over the options' vesting period. The estimated fair value of purchases under the Employee Stock Purchase Plan is expensed in the year of purchase. The Company's pro forma information (in thousands except for per share data) is as follows:

	1996	1995
	-----	-----
Net income - as reported	\$ (11,302)	\$ 11,261
Net income - pro forma	\$ (15,806)	\$ 9,166
Earnings per share - as reported	\$ (0.51)	\$ 0.53
Earnings per share - pro forma	\$ (0.72)	\$ 0.44

Because the fair value method is applicable only to options granted subsequent to December 31, pro forma effects will not be fully reflected until 1997. Accordingly, these figures are unlikely to be representative of the effects on reported net income for future years.

Exercise prices for options outstanding as of December 31, 1996 ranged from \$5.00 to \$29.625. The weighted average remaining contractual life of those options is 3.63 years. In view of the wide range of exercise prices, the Company considers it appropriate to provide the following additional information in respect of options outstanding:

Range	Number (in thousands)	Total Weighted-average exercise price	Weighted- average remaining contractual life	Currently exercisable Number (in thousands)	Weighted- average exercise price
\$5.0000-\$8.6250	560	\$8.02	1.25	480	\$7.98
\$8.8750-\$12.2500	447	\$9.90	2.88	244	\$9.90
\$12.5000-\$13.1250	201	\$13.09	3.18	87	\$13.04
\$15.3750-\$15.3750	1,080	\$15.38	4.95	--	\$--
\$16.8750-\$23.0000	285	\$18.96	4.78	79	\$18.81
\$29.6250-\$29.6250	3	\$29.63	3.58	1	\$29.63
\$5.0000-\$29.6250	2,576	\$13.06	3.63	891	\$9.99

The fair value of each option granted is estimated on the date of grant using the Black-Scholes option-pricing model with the following assumptions:

Activity during 1996, 1995 and 1994 under the combined plans was as follows:

IN THOUSANDS, EXCEPT FOR PER SHARE DATA

	1996		1995		1994	
	Options	Weighted average exercise price	Options	Weighted average exercise price	Options	Weighted average exercise price
Outstanding at beginning of year	2,525	\$13.49	2,392	\$8.98	2,339	\$7.46
Granted	1,522	\$16.57	907	\$21.19	667	\$11.17
Exercised	(316)	\$9.35	(663)	\$7.49	(470)	\$4.54
Canceled	(1,154)	\$19.61	(111)	\$14.80	(144)	\$8.90
Outstanding at end of year	2,577	\$13.06	2,525	\$13.49	2,392	\$8.98
Exercisable at end of year	886	\$9.99	764	\$9.13	938	\$7.70
Weighted-average fair value of options granted during year		\$5.24		\$10.21		

During 1996, under a program approved by the Board of Directors (the "Board"), all employees, with the exception of officers, were offered an exchange option to replace the stock options previously issued to them with new stock options (at an exchange ratio of 1 to 1, with a vesting period commencing on the date of exchange) at a new lower price. Options on 825,456 shares were canceled (reported above as cancellations) and replaced (reported above as options granted).

401(k) Plan Under the Company's 401(k) Plan, U.S. employee participants may direct the investment of contributions to their accounts among certain mutual funds and the Trimble Navigation Limited Common Stock Fund. The Fund purchased 33,981 shares of Common stock for an aggregate of \$582,000 in 1996. The Company, at its discretion, matches individual employee 401(k) Plan contributions up to \$100 per month. Company matching contributions to the 401(k) Plan were \$1,031,000 in 1996, \$827,000 in 1995 and \$665,000 in 1994.

Profit Sharing Plan In 1995, the Company introduced an employee profit sharing plan in which all employees, excluding executives, participate. The plan distributes approximately 5% of quarterly income before taxes to employees. Payments under the plan during 1996 were \$43,000, and during 1995 were \$722,000.

Common shares reserved for future issuances As of December 31, 1996, the Company has reserved 3,581,908 common shares for issuance upon exercise of options outstanding and options available for grant under the 1983 and 1993 Stock Option, 1990 Director Stock Option, and 1992 Management Discount Stock Option plans and available for issuance under the 1988 Employee Stock Purchase plan.

Note 12 -- Statement of cash flows data:

Years ended December 31,	1996	1995	1994
-----			
(In thousands)			
Supplemental schedule of noncash financing activities:			
Warrants issued with subordinated promissory notes	\$ --	\$ --	\$ 700
	-----	-----	-----
Tax benefit from stock options exercises	\$ --	\$ 160	\$ --
	-----	-----	-----
Supplemental schedule of noncash investing activities:			
Common stock issued for Terra Corporation	\$ 2,857	\$ --	\$ --
	-----	-----	-----
Supplemental disclosure of cash flow information:			
Interest paid	\$ 3,457	\$ 3,678	\$ 2,753
	-----	-----	-----
Income taxes paid	\$ 483	\$ 1,032	\$ 3,586
	-----	-----	-----

Note 13 -- Litigation:

Settled Matters In July 1994, a Federal judge held that the Company had not adequately complied with the terms of the July 1993 arbitration decision in connection with an arbitration case related to a dispute between the Company and Avion Systems, Inc. as to certain technology the Company licensed from Avion in 1991. On October 3, 1994, the Company entered into a settlement with Avion under which Avion acknowledged Trimble's full satisfaction of a July 1993 arbitration award. Under the October 1994 settlement agreement Trimble paid Avion a total of \$1,400,000. Trimble and Avion have also executed a mutual release of claims.

In November 1994, the Company was named as a defendant in an action commenced in the United States District Court for the District of Rhode Island, NovAtel Communication Ltd. v. Trimble Navigation Limited, C.A. No. 94-0498 (ML). Plaintiff NovAtel sought preliminary and permanent injunctive relief, unspecified damages and interest thereon, costs and disbursements, including reasonable attorneys' fees, based upon the Company's alleged infringement of U.S. Patent No. 5,101,416 (the `416 patent).

On April 21, 1995, the Company filed suit against NovAtel for infringement of the Company's U.S. Patent No. 4,754,465 (the `465 patent) in the United States District Court, Northern District of California, San Jose Division, Trimble Navigation v. NovAtel Communications Ltd, C.A. No. C95-2405 SI. On February 27, 1996, Trimble filed a Complaint against NovAtel at the International Trade Commission in Washington, D.C. alleging unfair acts in the importation of goods, namely, infringement of its `465 patent, and seeking a permanent exclusion order to interdict the importation by or on behalf of NovAtel into this country of infringing GPS receivers manufactured and sold by NovAtel.

On July 16, 1996, the Company and NovAtel entered into an agreement resolving all matters in dispute and cross-licensing certain technologies. The agreement ends all litigation between the parties.

In February 1995, DAC International Inc. ("DAC"), then a distributor and sales representative of the Company, terminated its sales representative agreement with the Company and thereafter filed an arbitration claim against the Company in Palo Alto, California, seeking damages of approximately \$2,100,000. On July 15, 1996, the Arbitrator issued a Final Liability and Opinion Award which called for the Company to pay a total of \$1,021,000, including interest, all of which has now been paid.

On March 26, 1996, DAC filed a lawsuit titled DAC International, Inc. v Trimble Navigation Ltd., Case No. 96-02032, filed in the District Court of Travis County, Texas. In April 1996, the Company removed this case to the Federal District Court for the Western District of Texas. On August 6, 1996, Trimble agreed to pay DAC \$500,000 which was charged to income in the second quarter of 1996. As a result of this agreement all litigation between the Company and DAC has been settled.

Pending Matters On December 6, 1995, two shareholders filed a class action lawsuit against the Company and certain directors and officers of the Company. Subsequent to that date, additional lawsuits were filed by other shareholders. The lawsuits were subsequently amended and consolidated into one Complaint which was filed on April 5, 1996. The amended consolidated Complaint seeks to bring an action as a class action consisting of all persons who purchased the common stock of the Company during the period April 18, 1995, through December 5, 1995 (the "Class Period"). The plaintiffs allege that the defendants sought to induce the members of the Class to purchase the Company's common stock during the Class Period at artificially inflated prices. The plaintiffs seek rescissory or compensatory damages with interest thereon, as well as reasonable attorneys' fees and extraordinary equitable and/or injunctive relief. The Company filed a motion to dismiss, which was heard by the Court on August 16, 1996. The court rejected the plaintiffs lawsuit, but allowed thirty days to resubmit its complaint. On September 24, 1996, the plaintiffs filed an amended complaint. On February 28, 1997, a hearing was held by the Court, which took the Company's motion to dismiss the second amended complaint under submission and indicated an order would be issued in the near future. The Company does not believe that it is possible to predict the outcome of this litigation.

In March 1995, the Company signed a large contract for the supply of Galaxy/GPS land mobile satellite terminals to American Mobile Satellite Corporation (AMSC), a Reston, Virginia, based company that provides a variety of voice and data services via satellite. AMSC contracted for delivery of product beginning in mid-1995 and continuing through 1996. AMSC requested late in the fourth quarter of 1995 that the Company cease delivery due in part to delays in their completion of software. Shipments under the original contract were halted in the fourth quarter of 1995 and the contract was modified. Since that time the Company has made only limited shipments to AMSC.

In October 1996 the Company filed a complaint against AMSC in the Superior Court of California in Santa Clara County. The complaint alleges that AMSC breached its March 1995 contract with the Company by refusing to accept additional deliveries of Galaxy product. The complaint also alleges that AMSC fraudulently induced the Company to execute a modification to the March 1995 contract. The complaint seeks unspecified damages, including lost profits and exemplary damages. AMSC has acknowledged receipt of the complaint but has not yet filed a responsive pleading. On February 20, 1997, the Company and AMSC signed an agreement to resume shipments of product to AMSC, and as a result of this agreement the complaint has been dropped by the Company.

In July 1993, an individual filed a complaint against the Company in which the individual alleges the Company has an obligation to him for commissions earned and services provided in an amount in excess of \$1,500,000. In June 1995 the Company's motion for summary judgment on all claims was granted by the court. The individual filed an appeal with the California Court of Appeals for the Sixth District. On November 26, 1996, the summary judgment was affirmed by the California Court of Appeals for the Sixth District. On January 8, 1997, the individual petitioned for review by the Supreme Court of California. The Company believes the Complaint is without merit and intends to defend itself vigorously.

A former shareholder has filed an action against the Company claiming rights to shares that were previously canceled on the Company's stock records pursuant to lost stock certificate indemnification agreements. The Company does not believe that there will be any adverse consequences to the Company as a result of this case.

In October 1995, an employee who was terminated by the Company in 1992 filed a Complaint against the Company, alleging that his incentive stock options

continued to vest subsequent to his termination. He seeks damages in excess of \$1,000,000. The Company has filed a general denial in answer to the Complaint,

and a trial date has been set for May 12, 1997. The Company does not believe that the Complaint will be successful.

The Company is also a party to other disputes incidental to its business. The Company believes the ultimate liability of the Company as a result of such disputes, if any, would not be material to its overall financial position, results of operations, or liquidity.

Note 14 -- Selected quarterly financial data (unaudited):

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
(In thousands, except per share data)				
1996				
Total revenue .....	\$56,722	\$58,602	\$54,086	\$64,250
Gross margin .....	\$30,707	\$31,565	\$26,632	\$32,160
Operating income (loss) .....	\$(1,594)	\$(3,480)	\$(8,466)	\$ 1,232
Net income (loss) .....	\$(1,146)	\$(2,585)	\$(8,834)	\$ 1,263
Net income (loss) per share .....	\$ (0.05)	\$ (0.12)	\$ (0.40)	\$ 0.06
	=====	=====	=====	=====
1995				
Total revenue .....	\$49,897	\$59,012	\$62,826	\$63,625
Gross margin .....	\$29,815	\$35,475	\$35,290	\$32,114
Operating income .....	\$ 2,755	\$ 5,480	\$ 4,717	\$ 351
Net income .....	\$ 1,927	\$ 4,287	\$ 4,340	\$ 707
Net income per share .....	\$ 0.10	\$ 0.21	\$0.2	\$ 0.03
	=====	=====	=====	=====

Significant quarterly items include the following: (i) revenues in the fourth quarter of 1995 were supplemented by proceeds from a covenant not to compete, and the sale of exclusive distribution rights of \$1,000,000; (ii) in the third quarter of 1995 the Company recorded revenue of \$1,333,000 from a technology license; (iii) in the first quarter of 1996 the Company recorded revenue of \$1,080,000 from AMSC related to contract renegotiation fees; (iv) in the second quarter of 1996 the Company recorded \$1,000,000 from AMSC related to contractual shutdown fees. (v) in the third quarter of 1996 the Company recorded \$2,046,000 of restructuring charges and recorded an additional \$88,000 in the fourth quarter of 1996.

REPORT OF ERNST & YOUNG LLP, INDEPENDENT AUDITORS

The Board of Directors and Shareholders Trimble Navigation Limited

We have audited the accompanying consolidated balance sheets of Trimble Navigation Limited as of December 31, 1996 and 1995, and the related consolidated statements of operations, shareholders' equity, and cash flows for each of the three years in the period ended December 31, 1996. Our audits also included the financial statement schedule listed in the index at Item 14(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with generally accepted auditing

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

In our opinion, the financial statements and schedule referred to above present fairly, in all material respects, the consolidated financial position of Trimble Navigation Limited at December 31, 1996 and 1995, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 1996, in conformity with generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

ERNST & YOUNG LLP

Palo Alto, California  
January 28, 1997

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

Not applicable.

PART III

Item 10. Directors and Executive Officers of the Registrant

The section titled "Nominees" and the section titled "Section 16(a) Beneficial Ownership Reporting Compliance" in the Company's Proxy Statement for its 1997 annual meeting of shareholders ("Proxy Statement") with respect to directors of the Company and compliance of the directors and executive officers of the Company with Section 16(a) of the Exchange Act required by this item are incorporated herein by reference.

The information with respect to the executive officers of the Company required by this item is included in Part I hereof under the caption "Executive Officers of the Registrant."

Item 11. Executive Compensation

The following sections in the Proxy Statement are incorporated herein by reference: "Compensation of Executive Officers"; "Compensation of Directors"; "Compensation Committee Interlocks and Insider Participation"; and "Compensation Committee Report."

Item 12. Security Ownership of Certain Beneficial Owners and Management

The section titled "Security Ownership of Certain Beneficial Owners and Management" in the Proxy Statement is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions

The section titled "Certain Relationships and Related Transactions" in the Proxy Statement is incorporated herein by reference.

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PART IV

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

(a)1. Financial Statements

The following consolidated financial statements required by this item are included in Part II Item 8 hereof under the caption "Financial Statements and Supplementary Data."

	Page In This Annual Report On Form 10-K
Consolidated Balance Sheets at December 31, 1996 and December 31, 1995.....	37
Consolidated Statements of Operations for each of the three years in the period ended December 31, 1996.....	38
Consolidated Statement of Shareholders' Equity for the three years ended December 31, 1996.....	39
Consolidated Statements of Cash Flows for each of the three years in the period ended December 31, 1996.....	40
Notes to Consolidated Financial Statements	41-56

2. Financial Statement Schedules

The following financial statement schedule is filed as part of this report:

	Page In This Annual Report On Form 10-K
Schedule II - Valuation and Qualifying Accounts.....	S-1

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

3. Exhibits

Exhibit  
Number

- 3.1 Restated Articles of Incorporation of the Company filed June 25, 1986. (1)
- 3.2 Certificate of Amendment of Articles of Incorporation of the Company filed October 6, 1988. (1)
- 3.3 Certificate of Amendment of Articles of Incorporation of the Company filed July 17, 1990. (1)
- 3.4 Bylaws of the Company, as amended. (1)
- 3.5 Certificate of Amendment of Bylaws of the Company dated December 19, 1990. (2)
- 3.6 Certificate of Amendment of Bylaws of the Company dated November 25, 1991. (5)
- 4.1 Specimen copy of certificate for shares of Common Stock of the Company. (1)

- 10.1(a)+ 1983 Stock Option Plan. (4)
- 10.1(b)+ Forms of Incentive and Nonstatutory Stock Option Agreements under the 1983 Stock Option Plan. (8)
- 10.2+ 1988 Employee Stock Purchase Plan, as amended, and form of Subscription Agreement. (8)
- 10.3 Form of Employee Restricted Stock Purchase Agreement. (1)
- 10.4 Form of Indemnification Agreement between the Company and its officers and directors. (1)
- 10.5 Loan Agreement dated December 21, 1984, between the Company and certain lenders. (1)
- 10.6 Note Purchase Agreement dated July 7, 1986, between the Company and certain purchasers. (1)
- 10.7 Form of Common Stock Purchase Agreement dated March 1989 between the Company and certain investors. (1)
- 10.8\* Memorandum of Understanding dated March 11, 1988, and License Agreement dated September 5, 1988, between the Company and AEG Aktiengesellschaft, with Amendments No. 1, No. 2, and No. 3 thereto, and Letter Agreement dated December 22, 1989, between Trimble and Telefunken Systemtechnik GmbH. (1)
- 10.9 Note Purchase Agreement dated December 6, 1988, between the Company and AEG Aktiengesellschaft. (1)
- 10.10 Master Equipment Lease Agreement dated April 26, 1990, between the Company and MATSCO Financial Corporation, and schedule of lease extensions. (1)
- 10.11\* Agreement dated February 6, 1989, between the Company and Pioneer Electronic Corporation. (1)
- 10.15 International OEM Agreement dated May 30, 1989, between the Company and Geotronics AB. (1)
- 10.16 Patent License Agreement dated January 18, 1990, between the Company and the United States Navy. (1)
- 10.18 Asset Purchase Agreement dated April 19, 1990, between the Company; TR Navigation Corporation, a subsidiary of the Company; and Tracor Aerospace, Inc. (1)
- 10.19 Promissory Note dated April 20, 1990, for the principal amount of \$400,000 issued by TR Navigation Corporation to DAC International, Inc. (1)
- 10.20 Guarantee dated April 20, 1990, between the Company and DAC International,
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- 10.21 Indemnification Agreement dated April 20, 1990, between the Company; TR Navigation Corporation, a subsidiary of the Company; DAC International, Inc.; and Banner Industries, Inc. (1)
- 10.22 Distributor Agreement dated April 20, 1990, between TR Navigation Corporation, a subsidiary of the Company, and DAC International, Inc. (1)
- 10.23 Distributor Agreement dated December 6, 1989, between the Company and DAC International, Inc. (1)
- 10.24 Lease Agreement dated April 26, 1990, between the Company and NCB Texas National Bank, Trustee for the Company's offices located at 2105 Donley Drive, Austin, Texas. (1)
- 10.32 1990 Director Stock Option Plan, as amended, and form of Outside Director Non statutory Stock Option Agreement. (8)



- 10.35 Sublease Agreement dated January 2, 1991, between the Company, Aetna Insurance Company, and Poget Computer Corporation for property located at 650 North Mary Avenue, Sunnyvale, California. (2)
- 10.36 Lease Agreement dated February 20, 1991, between the Company, John Arrillaga Separate Property Trust, and Richard T. Peery Separate Property Trust for property located at 880 West Maude, Sunnyvale, California. (2)
- 10.37 Share and Asset Purchase Agreement dated February 22, 1991, among the Company and Datacom Group Limited and Datacom Software Research Limited. (3)
- 10.38 License Agreement dated June 29, 1991 between the Company and Avion Systems, Inc. (3)
- 10.40 Industrial Lease Agreement dated December 3, 1991 between the Company and Aetna Life Insurance Company for property located at 585 North Mary Avenue, Sunnyvale, California. (5)
- 10.41 Industrial Lease Agreement dated December 3, 1991 between the Company and Aetna Life Insurance Company for property located at 570 Maude Court, Sunnyvale, California. (5)
- 10.42 Industrial Lease Agreement dated December 3, 1991 between the Company and Aetna Life Insurance Company for property located at 580 Maude Court, Sunnyvale, California. (5)
- 10.43 Industrial Lease Agreement dated December 3, 1991 between the Company and Aetna Life Insurance Company for property located at 490 Potrero Avenue, Sunnyvale, California. (5)
- 10.44 Master Lease Agreement dated September 18, 1991 between the Company and United States Leasing Corporation. (5)
- 10.45 Equipment Financing Agreement dated May 15, 1991 between the Company and Corestates Bank, N.A. (5)
- 10.46+ 1992 Management Discount Stock Option and form of Nonstatutory Stock Option Agreement (5).
- 10.48 Equipment Financing Agreement dated April 27, 1992 with AT&T Systems Leasing Corporation. (7)
- 10.49\*\* Memorandum of Understanding dated December 24, 1992 between the Company and Pioneer Electronic Corporation. (7)
- 10.50+ 1993 Stock Option Plan, as amended, and Forms of Incentive and Nonstatutory Stock Option Agreements. (14)
- 10.51 Revolving Credit Agreement for \$15,000,000 dated January 27, 1993 with Barclays Business Credit, Inc. (7)
- 10.52 \$30,000,000 Note and Warrant Purchase Agreement dated June 13, 1994 with John Hancock Life Insurance Company. (9)
- 10.53 Revolving Credit Agreement for \$20,000,000 and \$10,000,000, dated August 4, 1995, with The First National Bank of Boston and Mellon Bank N.A., respectively. (11)
- 10.54 Revolving Credit Agreement - First Amendment (12)
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- 10.55 Revolving Credit Agreement - Second Amendment (12)
- 10.56 Revolving Credit Agreement - Third Amendment (13)
- 11.1 Statement of computation of earnings per share. (14)
- 21.1 Subsidiaries of the Company. (14)
- 23.1 Consent of Ernst & Young LLP, Independent Auditors (see page 59).

24.1 Power of Attorney (included on page 53).

27 Financial Data Schedule (14)

\* Confidential treatment has been previously granted for certain portions of this exhibit pursuant to an order dated July 11, 1990.

\*\* Confidential treatment has been previously granted for certain portions of this exhibit pursuant to an order dated March 2, 1995.

+ Management contract or compensatory plan or arrangement required to be filed as an exhibit to this Annual Report on Form 10-K pursuant to Item 14(c) thereof.

- (1) Incorporated by reference to identically numbered exhibits filed in response to Item 16(a), "Exhibits," of the registrant's Registration Statement on Form S-1, as amended (File No. 33-35333), which became effective July 19, 1990.
- (2) Incorporated by reference to identically numbered exhibits filed in response to Item 14(a), "Exhibits," of the registrant's Report on Form 10-K for the fiscal year ended December 31, 1990.
- (3) Incorporated by reference to identically numbered exhibits filed in response to Item 16, "Exhibits and Forms 8-K," of the registrant's Report on 10-Q for the quarter ended September 30, 1991, as amended on Form 8 filed February 11, 1992.
- (4) Incorporated by reference to Exhibit No. 4.1 filed in response to Item 8, "Exhibits," of the registrant's Registration Statement on Form S-8 (File No. 33-45167), which became effective January 21, 1992.
- (5) Incorporated by reference to identically numbered exhibits filed in response to Item 16(a) "Exhibits," of the registrant's Registration Statement on Form S-1 (File No. 33-45990), which was filed February 18, 1992.
- (6) Incorporated by reference to Exhibits 4.1, 4.2 and 4.3 filed in response to Item 8, "Exhibits," of the Registrant's Registration Statement on Form S-8 (File No. 33-57522), which was filed on January 28, 1993.
- (7) Incorporated by reference to identically numbered exhibits filed in response to Item 14(a), "Exhibits," of the Registrant's Report on Form 10-K for the fiscal year ended December 31, 1992.
- (8) Incorporated by reference to identically numbered exhibits filed in response to Item 14(a), "Exhibits," of the registrant's Report on Form 10-K for the fiscal year ended December 31, 1993.
- (9) Incorporated by reference to identically numbered exhibits filed in response to Item 6A, "Exhibits," of the registrant's Report on Form 10-Q for the quarter ended June 30, 1994.
- (10) Incorporated by reference to identically numbered exhibits filed in response to Item 14(a), "Exhibits," of the Registrant's Report on Form 10-K for the fiscal year ended December 31, 1994.
- (11) Incorporated by reference to identically numbered exhibits filed in response to Item 14(a), "Exhibits," of the Registrant's Report on Form 10-K for the fiscal year ended December 31, 1995.
- (12) Incorporated by reference to identically numbered exhibits filed in response to Item 6A, "Exhibits," of the registrant's Report on Form 10-Q for the quarter ended June 30, 1996.
- (13) Incorporated by reference to identically numbered exhibits filed in response to Item 6A, "Exhibits," of the registrant's Report on Form 10-Q for the quarter ended September 30, 1996.

(14) Filed herewith.

(b) Reports on Form 8-K

No reports on Form 8-K were filed by the registrant during the fourth quarter ended December 31, 1996.

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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 on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

TRIMBLE NAVIGATION LIMITED

By: /s/ Charles R. Trimble  
Charles R. Trimble,  
President and Chief  
Executive Officer

March 24, 1997

POWER OF ATTORNEY

Know all persons by these presents, that each person whose signature appears below constitutes and appoints Charles R. Trimble as his attorney-in-fact, with the power of substitution, for him in any and all capacities, to sign any amendments to this Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorney-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

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Pursuant to the requirements of the Securities Exchange Act of 1934, this Report on Form 10-K has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Signature	Capacity in which Signed	Date
/s/ Charles R. Trimble	President, Chief Executive Officer (principal executive officer) and Director	March 24, 1997
/s/ Dennis R. Ing	Vice President, Finance and Chief Financial Officer (principal financial and principal accounting officer)	March 24, 1997
/s/ Robert S. Cooper	Director	March 17, 1997
/s/ John B. Goodrich	Director	March 24, 1997

/s/ William Hart Director March 17, 1997

/s/ Bradford W. Parkinson Director March 16, 1997

SCHEDULE II

TRIMBLE NAVIGATION LIMITED  
VALUATION AND QUALIFYING ACCOUNTS  
(IN THOUSANDS OF DOLLARS)

Allowance for doubtful accounts:	Balance at beginning of period	(Reductions) Additions	Write-Offs *	Balance at end of period
	-----	-----	-----	-----
Year ended December 31, 1994	\$ 2,005	\$ (272)	\$ 641	\$ 1,092
Year ended December 31, 1995	1,092	165	183	1,074
Year ended December 31, 1996	1,074	1,595	276	2,393

Inventory Reserves:	Balance at beginning of period	(Reductions) Additions	Write-Offs *	Balance at end of period
	-----	-----	-----	-----
Year ended December 31, 1994	\$ 5,980	\$ 1,324	\$ 2,173	\$ 5,131
Year ended December 31, 1995	5,131	1,126	688	5,569
Year ended December 31, 1996	5,569	6,189	1,876	9,882

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\* Net of recoveries

NUMBER	EXHIBIT	PAGE
10.50	1993 Stock Option Plan (amended as of March 19, 1997)	57-66
11.1	Statement of computation of earnings (loss) per share	67
21.1	Subsidiaries of the Company	68
23	Consent of Ernst & Young LLP, Independent Auditors	69
27	Financial Data Schedule	70

TRIMBLE NAVIGATION LIMITED  
EXHIBIT 10.50  
1993 STOCK OPTION PLAN  
(amended as of March 19, 1997)

I. Purposes of the Plan. The purposes of this Stock Option Plan are to attract and retain the best available personnel for positions of substantial responsibility, to provide additional incentive to the Employees and Consultants of the Company and to promote the success of the Company's business.

Options granted hereunder may be either Incentive Stock Options or Nonstatutory Stock Options, at the discretion of the Board and as reflected in the terms of the written option agreement.

I. Definitions. As used herein, the following definitions shall apply:

A. "Administrator" means the Board or any of its Committees appointed pursuant to Section 4 of the Plan.

A. "Board" shall mean the Committee, if one has been appointed, or the Board of Directors of the Company, if no Committee is appointed.

A. "Code" shall mean the Internal Revenue Code of 1986, as amended.

A. "Committee" shall mean the Committee appointed by the Board of Directors in accordance with paragraph (a) of Section 4 of the Plan, if one is appointed.

A. "Common Stock" shall mean the Common Stock of the Company.

A. "Company" shall mean Trimble Navigation Limited, a California corporation.

A. "Consultant" shall mean any person who is engaged by the Company or any Parent or Subsidiary to render consulting services and is compensated for such consulting services, and any director of the Company whether compensated for such services or not, provided that the term Consultant shall not include directors who are not compensated for their services or are paid only a director's fee by the Company.

A. "Continuous Status as an Employee or Consultant" shall mean the absence of any interruption or termination of service as an Employee or Consultant. Continuous Status as an Employee or Consultant shall not be considered interrupted in the case of sick leave, military leave, or any other leave of absence approved by the Company or any Parent or Subsidiary of the Company; provided that such leave is for a period of not more than 90 days or reemployment upon the expiration of such leave is guaranteed by contract or statute.

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A. "Employee" shall mean any person, including officers and directors, employed by the Company or any Parent or Subsidiary of the Company. The payment of a director's fee by the Company shall not be sufficient to constitute "employment" by the Company.

A. "Exchange Act" means the Securities Exchange Act of 1934, as amended.

A. "Fair Market Value" means, as of any date, the value of Common Stock determined as follows:

1. If the Common Stock is listed on any established stock exchange or a national market system including without limitation the National Market System of the National Association of Securities Dealers, Inc. Automated Quotation ("NASDAQ") System, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported, as quoted on such system or exchange for the last market trading day prior to the time of determination) as reported in the Wall Street Journal or such other source as the Administrator deems reliable;

1. If the Common Stock is quoted on the NASDAQ System (but not on the National Market System thereof) or regularly quoted by a recognized securities

dealer but selling prices are not reported, its Fair Market Value shall be the mean between the high and low asked prices for the Common Stock or;

1. In the absence of an established market for the Common Stock, the Fair Market Value thereof shall be determined in good faith by the Administrator.

A. "Incentive Stock Option" shall mean an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code.

A. "Nonstatutory Stock Option" shall mean an Option not intended to qualify as an Incentive Stock Option.

A. "Option" shall mean a stock option granted pursuant to the Plan.

A. "Optioned Stock" shall mean the Common Stock subject to an Option.

A. "Optionee" shall mean an Employee or Consultant who receives an Option.

A. "Parent" shall mean a "parent corporation", whether now or hereafter existing, as defined in Section 424(e) of the Code.

A. "Plan" shall mean this 1993 Stock Option Plan.

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A. "Share" shall mean a share of the Common Stock, as adjusted in accordance with Section 11 of the Plan.

B. "Subsidiary" shall mean a "subsidiary corporation", whether now or hereafter existing, as defined in Section 424(f) of the Code.

I. Stock Subject to the Plan. Subject to the provisions of Section 11 of the Plan, the maximum aggregate number of shares which may be optioned and sold under the Plan is 3,200,000 shares of Common Stock. The Shares may be authorized, but unissued, or reacquired Common Stock.

If an Option should expire or become unexercisable for any reason without having been exercised in full, the unpurchased Shares which were subject thereto shall, unless the Plan shall have been terminated, become available for future grant under the Plan. Notwithstanding any other provision of the Plan, shares issued under the Plan and later repurchased by the Company shall not become available for future grant or sale under the Plan.

I. Administration of the Plan.

A. Procedure.

1. Multiple Administrative Bodies. The Plan may be administered by different Committees with respect to different groups of Employees and Consultants.

1. Section 162(m). To the extent that the Administrator determines it to be desirable to qualify Options granted hereunder as "performance-based compensation" within the meaning of Section 162(m) of the Code, the Plan shall be administered by a Committee of two or more "outside directors" within the meaning of Section 162(m) of the Code.

1. Rule 16b-3. To the extent desirable to qualify transactions hereunder as exempt under Rule 16b-3, the transactions contemplated hereunder shall be structured to satisfy the requirements for exemption under Rule 16b-3.

A. Powers of the Administrator. Subject to the provisions of the Plan and in the case of a Committee, the specific duties delegated by the Board to such Committee, the Administrator shall have the authority, in its discretion:

1. to determine the Fair Market Value of the Common Stock, in accordance with Section 2(k) of the Plan;

1. to select the officers, Consultants and Employees to whom Options may from time to time be granted hereunder;

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1. to determine whether and to what extent Options are granted hereunder;

1. to determine the number of shares of Common Stock to be covered by each such award granted hereunder;

2. to approve forms of agreement for use under the Plan;

1. to determine the terms and conditions, not inconsistent with the terms of the Plan, of any award granted hereunder (including, but not limited to, the share price and any restriction or limitation, or any vesting acceleration or waiver of forfeiture restrictions regarding any Option and/or the shares of Common Stock relating thereto, based in each case on such factors as the Administrator shall determine, in its sole discretion);

1. to determine whether and under what circumstances an Option may be settled in cash under subsection 9(e) instead of Common Stock;

1. to determine whether, to what extent and under what circumstances Common Stock and other amounts payable with respect to an award under this Plan shall be deferred either automatically or at the election of the participant (including providing for and determining the amount, if any, of any deemed earnings on any deferred amount during any deferral period);

1. to reduce the exercise price of any Option to the then current Fair Market Value if the Fair Market Value of the Common Stock covered by such Option shall have declined since the date the Option was granted; and

A. Effect of Administrator's Decision. All decisions, determinations and interpretations of the Administrator shall be final and binding on all Optionees and any other holders of any Options.

A. Grant Limits. The following limitations shall apply to grants of Options under the Plan:

1. No employee shall be granted, in any fiscal year of the Company, Options under the Plan to purchase more than 100,000 Shares, provided that the Company may make an additional one-time grant of up to 250,000 Shares to newly-hired Employees.

1. The foregoing limitations shall be adjusted proportionately in connection with any change in the Company's capitalization as described in Section 11.

1. If an Option is cancelled (other than in connection with a transaction described in Section 11), the cancelled Option shall be counted against the limits set forth in Section 4(d)(i). For this purpose, if the exercise price of an Option is reduced, the transaction will be treated as a cancellation of the Option and the grant of a new Option.

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#### I. Eligibility.

A. Nonstatutory Stock Options may be granted only to Employees, Directors, and Consultants. Incentive Stock Options may be granted only to Employees. An Employee, Director, or Consultant who has been granted an Option may, if he is otherwise eligible, be granted an additional Option or Options.

A. Each Option shall be designated in the written option agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. However, notwithstanding such designations, to the extent that the aggregate Fair Market Value of the Shares with respect to which Options designated as Incentive Stock Options are exercisable for the first time by any Optionee during any calendar year (under all plans of the Company or any Parent or Subsidiary) exceeds \$100,000, such excess Options shall be treated as Nonstatutory Stock Options.

A. For purposes of Section 5(b), Incentive Stock Options shall be taken into account in the order in which they were granted, and the Fair Market Value of the Shares shall be determined as of the time the Option with respect to such Shares is granted.

A. The Plan shall not confer upon any Optionee any right with respect to continuation of employment or consulting relationship with the Company, nor shall it interfere in any way with his right or the Company's right to terminate



his employment or consulting relationship at any time, with or without cause.

I. Term of Plan. The Plan shall become effective upon the earlier to occur of its adoption by the Board of Directors or its approval by the shareholders of the Company as described in Section 18 of the Plan. It shall continue in effect for a term of ten (10) years unless sooner terminated under Section 14 of the Plan.

I. Term of Option. The term of each Option shall be ten (10) years from the date of grant thereof or such shorter term as may be provided in the Option Agreement. However, in the case of an Incentive Stock Option granted to an Optionee who, at the time the Option is granted, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Option shall be five (5) years from the date of grant thereof or such shorter term as may be provided in the Option Agreement.

I. Exercise Price and Consideration.

A. The per Share exercise price for the Shares to be issued pursuant to exercise of an Option shall be such price as is determined by the Board, but shall be subject to the following:

1. In the case of an Incentive Stock Option

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a) granted to an Employee who, at the time of the grant of such Incentive Stock Option, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the per Share exercise price shall be no less than 110% of the Fair Market Value per Share on the date of grant.

a) granted to any Employee, the per Share exercise price shall be no less than 100% of the Fair Market Value per Share on the date of grant.

1. In the case of a Nonstatutory Stock Option, the per Share exercise price shall be determined by the Administrator. In the case of a Nonstatutory Stock Option intended to qualify as "performance-based compensation" within the meaning of Section 162(m) of the Code, the per Share exercise price shall be no less than 100% of the Fair Market Value per Share on the date of grant.

(iii) Notwithstanding the foregoing, Options may be granted with a per Share exercise price of less than 100% of the Fair Market Value per Share on the date of grant pursuant to a merger or other corporate transaction.

A. The consideration to be paid for the Shares to be issued upon exercise of an Option, including the method of payment, shall be determined by the Administrator and may consist entirely of (1) cash, (2) check, (3) promissory note, (4) other Shares which (x) either have been owned by the Optionee for more than six months on the date of surrender or were not acquired, directly or indirectly, from the Company, and (y) have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which said Option shall be exercised, (5) authorization from the Company to retain from the total number of Shares as to which the Option is exercised that number of Shares having a Fair Market Value on the date of exercise equal to the exercise price for the total number of Shares as to which the Option is exercised, (6) delivery of a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company the amount of sale or loan proceeds required to pay the exercise price, (7) delivery of an irrevocable subscription agreement for the Shares which irrevocably obligates the option holder to take and pay for the Shares not more than twelve months after the date of delivery of the subscription agreement, (8) any combination of the foregoing methods of payment, (9) or such other consideration and method of payment for the issuance of Shares to the extent permitted under Applicable Laws. In making its determination as to the type of consideration to accept, the Board shall consider if acceptance of such consideration may be reasonably expected to benefit the Company.

I. Exercise of Option.

A. Procedure for Exercise; Rights as a Shareholder. Any Option granted hereunder shall be exercisable at such times and under such conditions as

determined by the Board, including performance criteria with respect to the Company and/or the Optionee, and as shall be permissible under the terms of the Plan.

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An Option may not be exercised for a fraction of a Share.

An Option shall be deemed to be exercised when written notice of such exercise has been given to the Company in accordance with the terms of the Option by the person entitled to exercise the Option and full payment for the Shares with respect to which the Option is exercised has been received by the Company. Full payment may, as authorized by the Board, consist of any consideration and method of payment allowable under Section 8(b) of the Plan. Until the issuance (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company) of the stock certificate evidencing such Shares, no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to the Optioned Stock, notwithstanding the exercise of the Option. The Company shall issue (or cause to be issued) such stock certificate promptly upon exercise of the Option. No adjustment will be made for a dividend or other right for which the record date is prior to the date the stock certificate is issued, except as provided in Section 11 of the Plan.

Exercise of an Option in any manner shall result in a decrease in the number of Shares which thereafter may be available, both for purposes of the Plan and for sale under the Option, by the number of Shares as to which the Option is exercised.

A. Termination of Status as an Employee or Consultant. In the event of termination of an Optionee's Continuous Status as an Employee or Consultant (as the case may be), such Optionee may, but only within thirty (30) days (or such other period of time, not exceeding three (3) months in the case of an Incentive Stock Option or six (6) months in the case of a Nonstatutory Stock Option, as is determined by the Board) after the date of such termination (but in no event later than the date of expiration of the term of such Option as set forth in the Option Agreement), exercise his Option to the extent that he was entitled to exercise it at the date of such termination. To the extent that he was not entitled to exercise the Option at the date of such termination, or if he does not exercise such Option (which he was entitled to exercise) within the time specified herein, the Option shall terminate.

A. Disability of Optionee. Notwithstanding the provisions of Section 9(b) above, in the event of termination of an Optionee's Continuous Status as an Employee or Consultant as a result of his total and permanent disability (as defined in Section 22(e)(3) of the Code), he may, but only within six (6) months (or such other period of time not exceeding twelve (12) months as is determined by the Board) from the date of such termination (but in no event later than the date of expiration of the term of such Option as set forth in the Option Agreement), exercise his Option to the extent he was entitled to exercise it at the date of such termination. To the extent that he was not entitled to exercise the Option at the date of termination, or if he does not exercise such Option (which he was entitled to exercise) within the time specified herein, the Option shall terminate.

A. Death of Optionee. In the event of the death of an Optionee:

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1. during the term of the Option who is at the time of his death an Employee or Consultant of the Company and who shall have been in Continuous Status as an Employee or Consultant since the date of grant of the Option, the Option may be exercised, at any time within twelve (12) months following the date of death (but in no event later than the date of expiration of the term of such Option as set forth in the Option Agreement), by the Optionee's estate or by a person who acquired the right to exercise the Option by bequest or inheritance, but only to the extent of the right to exercise that would have accrued had the Optionee continued living and remained in Continuous Status as an Employee or Consultant twelve (12) months after the date of death, subject to the limitation set forth in Section 5(b); or 2. within thirty (30) days (or such other period of time not exceeding three (3) months as is determined by the

Board) after the termination of Continuous Status as an Employee or Consultant, the Option may be exercised, at any time within twelve (12) months following the date of death (but in no event later than the date of expiration of the term of such Option as set forth in the Option Agreement), by the Optionee's estate or by a person who acquired the right to exercise the Option by bequest or inheritance, but only to the extent of the right to exercise that had accrued at the date of termination.

A. Buyout Provisions. The Administrator may at any time offer to buy out for a payment in cash or Shares, an Option previously granted, based on such terms and conditions as the Administrator shall establish and communicate to the Optionee at the time that such offer is made.

I. Non-Transferability of Options. Options may not be sold, pledged, assigned, hypothecated, transferred or disposed of in any manner other than by will or by the laws of descent and distribution or pursuant to a qualified domestic relations order as defined by the Code or Title I of the Employee Retirement Income Security Act, or the rules thereunder. The designation of a beneficiary by an Optionee does not constitute a transfer. An Option may be exercised, during the lifetime of the Optionee, only by the Optionee or a transferee permitted by this Section 10.

I. Adjustments Upon Changes in Capitalization or Merger. Subject to any required action by the shareholders of the Company, the number of shares of Common Stock covered by each outstanding Option, and the number of shares of Common Stock which have been authorized for issuance under the Plan but as to which no Options have yet been granted or which have been returned to the Plan upon cancellation or expiration of an Option, as well as the price per share of Common Stock covered by each such outstanding Option, shall be proportionately adjusted for any increase or decrease in the number of issued shares of Common Stock resulting from a stock split, reverse stock split, stock dividend, combination or reclassification of the Common Stock, or any other increase or decrease in the number of issued shares of Common Stock effected without receipt of consideration by the Company; provided, however, that conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration." Such adjustment shall be made by the Board, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock subject to an Option.

In the event of the proposed dissolution or liquidation of the Company, the Board shall notify the Optionee at least fifteen (15) days prior to such proposed action. To the extent it has not been previously exercised, the Option will terminate immediately prior to the consummation of such proposed action. In the event of a merger of the Company with or into another corporation, the Option shall be assumed or an equivalent option shall be substituted by such successor corporation or a parent or subsidiary of such successor corporation. In the even the successor corporation does not agree to assume the option or the substitute and equivalent option, the Board shall, in lieu of such assumption or substitution, provide for the Optionee to have the right to vest in and exercise the Option as to all of the Optioned Stock, including Shares as to which the Option would not otherwise be vested or exercisable. If the Board makes an Option fully vested and exercisable in lieu of assumption or substitution in the event of a merger, the Board shall notify the Optionee that the Option shall be fully vested and exercisable for a period of fifteen (15) days from the date of such notice, and the Option will terminate upon the expiration of such period. If, in such a merger, the Option is assumed or an equivalent option is substituted by such successor corporation or a parent or subsidiary of such successor corporation, and if during a one-year period after the effective date of such merger, the Optionee's Continuous Status as an Employee or Consultant is terminated for any reason other than the Optionee's voluntary termination of such relationship, then the Optionee shall have the right within thirty days thereafter to exercise the Option as to all of the Optioned Stock, including Shares as to which the Option would not be otherwise exercisable, effective as of the date of such termination.

I. Stock Withholding to Satisfy Withholding Tax Obligations. At the discretion of the Administrator, Optionees may satisfy withholding obligations as provided in this paragraph. When an Optionee incurs tax liability in

connection with an Option, which tax liability is subject to tax withholding under applicable tax laws, and the Optionee is obligated to pay the Company an amount required to be withheld under applicable tax laws, the Optionee may satisfy the withholding tax obligation by electing to have the Company withhold from the Shares to be issued upon exercise of the Option, if any, that number of Shares having a Fair Market Value equal to the amount required to be withheld. The Fair Market Value of the Shares to be withheld shall be determined on the date that the amount of tax to be withheld is to be determined.

I. Time of Granting Options. The date of grant of an Option shall, for all purposes, be the date on which the Board makes the determination granting such Option. Notice of the determination shall be given to each Employee or Consultant to whom an Option is so granted within a reasonable time after the date of such grant.

I. Amendment and Termination of the Plan.

A. Amendment and Termination. The Board may at any time amend, alter, suspend or discontinue the Plan, but no amendment, alteration, suspension or discontinuation shall be made which would impair the rights of any Optionee under any grant theretofore made, without his or her consent. In addition, to

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the extent necessary and desirable to comply with Section 422 of the Code (or any other applicable law or regulation, including the requirements of the NASD or an established stock exchange), the Company shall obtain shareholder approval of any Plan amendment in such a manner and to such a degree as required.

A. Effect of Amendment or Termination. Any such amendment or termination of the Plan shall not affect Options already granted and such Options shall remain in full force and effect as if this Plan had not been amended or terminated, unless mutually agreed otherwise between the Optionee and the Board, which agreement must be in writing and signed by the Optionee and the Company.

I. Conditions Upon Issuance of Shares. Shares shall not be issued pursuant to the exercise of an Option unless the exercise of such Option and the issuance and delivery of such Shares pursuant thereto shall comply with all relevant provisions of law, including, without limitation, the Securities Act of 1933, as amended, the Exchange Act, the rules and regulations promulgated thereunder, and the requirements of any stock exchange upon which the Shares may then be listed, and shall be further subject to the approval of counsel for the Company with respect to such compliance.

As a condition to the exercise of an Option, the Company may require the person exercising such Option to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required by any of the aforementioned relevant provisions of law.

I. Reservation of Shares. The Company, during the term of this Plan, will at all times reserve and keep available such number of Shares as shall be sufficient to satisfy the requirements of the Plan.

The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority shall not have been obtained.

I. Option Agreement. Options shall be evidenced by written option agreements in such form as the Board shall approve.

I. Shareholder Approval. Continuance of the Plan shall be subject to approval by the shareholders of the Company within twelve (12) months before or after the date the Plan is adopted. Such shareholder approval shall be obtained in the degree and manner required under Applicable Laws.

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TRIMBLE NAVIGATION LIMITED  
EXHIBIT 11.1

Computation of Earnings (Loss) Per Share

	Years Ended December 31,		
	1996	1995	1994
(In thousands, except per share data)			
PRIMARY EARNINGS (LOSS) PER SHARE			
Computation of common and common equivalent shares outstanding:			
Common stock outstanding .....	22,005	19,949	18,340
Common stock options .....	--	1,159	689
Common stock warrants .....	--	198	33
	-----	-----	-----
Total weighted average common and dilutive common equivalent shares outstanding	22,005	21,306	19,062
	=====	=====	=====
Net income (loss) .....	\$ (11,302)	\$11,261	\$10,024
	=====	=====	=====
Primary earnings (loss) per share .....	\$ (0.51)	\$ 0.53	\$ 0.53
	=====	=====	=====
FULLY DILUTED EARNINGS (LOSS) PER SHARE			
Computation of common and common equivalent shares outstanding:			
Common stock outstanding .....	22,005	19,949	18,340
Common stock options .....	--	1,193	728
Common stock warrants .....	--	204	35
	-----	-----	-----
Total weighted average common and dilutive common equivalent shares outstanding	22,005	21,346	19,103
	=====	=====	=====
Net income (loss) .....	\$ (11,302)	\$11,261	\$10,024
	=====	=====	=====
Fully diluted earnings (loss) per share .....	\$ (0.51)	\$ 0.53	\$ 0.53
	=====	=====	=====

TRIMBLE NAVIGATION LIMITED  
EXHIBIT 21.1  
LIST OF SUBSIDIARIES OF REGISTRANT

TR Navigation Corporation  
(incorporated in California)

Trimble Specialty Products, Inc.  
(incorporated in California)

Trimble Navigation Europe Limited  
(organized under the laws of the United Kingdom)

Trimble Navigation International Foreign Sales Corporation  
(organized under the laws of Barbados)

Trimble Navigation International Limited  
(incorporated in California)

TNL Flight Services, Inc.  
(incorporated in Texas)

Trimble Navigation New Zealand Limited  
(organized under the laws of New Zealand)

DataCom Software Research Limited  
(organized under the laws of New Zealand)

Trimble Navigation Italia s.r.l.  
(organized under the laws of Italy)

Trimble Navigation Deutschland GmbH  
(organized under the laws of Germany)

Trimble Navigation France S.A.  
(organized under the laws of France)

Trimble Navigation Singapore PTE Limited  
(organized under the laws of Singapore)

Trimble Navigation Iberica S.L.  
(organized under the laws of Spain)

Trimble Navigation Australia Pty Limited  
(organized under the laws of Australia)

Trimble Japan K.K.  
(organized under the laws of Japan)

Trimble Export Limited  
(incorporated in California)

Trimble Middle East WLL  
(incorporated under the laws of Egypt)

Trimble Brasil Limitada  
(incorporated under the laws of Brazil)

Trimble Mexico S. de R.L.  
(incorporated under the laws of Mexico)

TRIMBLE NAVIGATION LIMITED  
EXHIBIT 23

CONSENT OF ERNST & YOUNG LLP, INDEPENDENT AUDITORS

We consent to the use of our report dated January 28, 1997 in this Annual Report (Form 10-K) of Trimble Navigation Limited for the year ended December 31, 1996.

We also consent to the incorporation by reference in the Registration Statement (Form S-8 Nos. 33-37384, 33-39647, 33-45167, 33-45604, 33-46719, 33-50944, 33-57522, 33-62078, 33-78502, 33-84362, 33-91858 and 333-04670) pertaining to the 1983 Stock Option Plan, the Trimble Navigation Savings and Retirement Plan, the 1990 Director Stock Option Plan, the "Position for Us for Progress" 1992 Employee Stock Bonus Plan, the 1992 Management Discount Stock Option Plan, and the 1993 Stock Option Plan, and the related Prospectuses, of our report dated January 28, 1997 with respect to the consolidated financial statements and schedule of Trimble Navigation Limited included in the Annual Report for the year ended December 31, 1996 (Form 10-K).

/s/ Ernst & Young LLP

Palo Alto, California  
March 21, 1997

WARNING: THE EDGAR SYSTEM ENCOUNTERED ERROR(S) WHILE PROCESSING THIS SCHEDULE.

<ARTICLE>

5

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THE SCHEDULE CONTAINS SUMMARY FINANCIAL INFORMATION EXTRACTED FROM THE  
CONSOLIDATED BALANCE SHEET AND CONSOLIDATED STATEMENT OF EARNINGS AND  
IS QUALIFIED IN ITS ENTIRETY BY REFERENCE TO SUCH FINANCIAL STATEMENTS

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