AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON JANUARY 19, 1999

REGISTRATION NO. 333-9207 AND 16539

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

POST EFFECTIVE AMENDMENT NO. 2

TO

FORM SB-2
REGISTRATION STATEMENT
ON
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

INTEGRATED SURGICAL SYSTEMS, INC.

(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE	1850 RESEARCH PARK DRIVE	60-0232575
(STATE OR OTHER JURISDICTION OF INCORPORATION OR ORGANIZATION)	DAVIS, CALIFORNIA 95616-4884 TELEPHONE: (530) 792-2600 TELECOPIER: (530) 792-2690 (ADDRESS AND TELEPHONE NUMBER OF PRINCIPAL EXECUTIVE OFFICES)	(I.R.S. EMPLOYER IDENTIFICATION NO.)

DR. RAMESH C. TRIVEDI
CHIEF EXECUTIVE OFFICER AND PRESIDENT
INTEGRATED SURGICAL SYSTEMS, INC.
1850 RESEARCH PARK DRIVE
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(NAME, ADDRESS AND TELEPHONE NUMBER OF AGENT FOR SERVICE)

COPIES TO:

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APPROXIMATE DATE OF PROPOSED SALE TO THE PUBLIC:
As soon as practicable after the effective date of this registration statement.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. [ ]

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. [X]

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. [ ]

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933 OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE SECURITIES AND EXCHANGE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

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EXPLANATORY NOTE

The number of shares of common stock that may be acquired upon exercise of the warrants and the underwriters' warrants to be offered by the form of prospectus included in this post effective amendment to Registration Statements Nos. 333-9207 and 16539 exceeds the number of shares offered by earlier prospectuses included in the Registration Statements as a result of adjustments made in accordance with the antidilution provisions of those warrants and underwriters' warrants. The additional shares to be offered by the form of prospectus included in this post-effective amendment were registered as part of the Registration Statements pursuant to Rule 416 of the Securities Act.

PRELIMINARY PROSPECTUS, SUBJECT TO COMPLETION DATED JANUARY 19, 1999

INTEGRATED SURGICAL SYSTEMS, INC.
2,261,598 SHARES OF COMMON STOCK
AND
WARRANTS TO PURCHASE 169,612 SHARES OF COMMON STOCK

Integrated Surgical Systems, Inc. is offering 2,261,598 shares of common stock and warrants to purchase 169,612 shares of common stock. The shares are issuable upon exercise of warrants issued in our initial public offering in November 1996 and underwriters' warrants issued to the underwriters of that offering. The warrants are issuable upon exercise of the underwriters' warrants.

You may purchase, for each warrant registered in your name, one share of common stock at an exercise price of $5.47 per share, subject to adjustment in certain events, at any time on or before November 19, 2001. We may redeem the warrants for $.10 per warrant at any time prior to November 19, 2001, on not less than 30 days prior written notice, provided the average of the closing bid quotations of the common stock during the period of 20 consecutive trading days ending on the third day prior to the date of such notice is at least 150% of the then current exercise price of the warrants.

You may purchase, for each underwriters' warrant registered in your name, one share of common stock at an exercise price of $7.42 per share and one warrant at an exercise price of $.165 per warrant, at any time on or before November 19, 2001.

The common stock and the warrants are quoted on The Nasdaq SmallCap Market under the symbols "RDOC" and "RDOCW", respectively, and are listed on the Pacific Exchange Incorporated under the symbols "ROB" and "ROBWS", respectively. The common stock also has been admitted for trading on the European Association of Securities Dealers' Automated Quotation system under the symbol "RDOC".

THE COMMON STOCK AND WARRANTS ARE SPECULATIVE INVESTMENTS AND INVOLVE A HIGH DEGREE OF RISK. YOU SHOULD READ THE DESCRIPTION OF CERTAIN RISKS UNDER THE CAPTION "RISK FACTORS" COMMENCING ON PAGE BEFORE PURCHASING THE COMMON STOCK OR WARRANTS.

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SEC OR ANY STATE SECURITIES COMMISSION NOR HAS THE SEC OR ANY STATE SECURITIES COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

THE DATE OF THIS PROSPECTUS IS , 1999

INFORMATION CONTAINED HEREIN IS SUBJECT TO COMPLETION OR AMENDMENT. A REGISTRATION STATEMENT RELATING TO THESE SECURITIES HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION. THESE SECURITIES MAY NOT BE SOLD NOR MAY OFFERS TO BUY BE SOLD NOR MAY OFFERS TO BUY BE ACCEPTED PRIOR TO THE TIME THE REGISTRATION STATEMENT BECOMES EFFECTIVE. THIS PROSPECTUS SHALL NOT CONSTITUTE AN OFFER TO SELL OR THE SOLICITATION OF AN OFFER TO BUY NOR SHALL THERE BE ANY SALE OF THESE SECURITIES IN ANY STATE IN WHICH SUCH OFFER, SOLICITATION OR SALE WOULD BE UNLAWFUL PRIOR TO REGISTRATION OR QUALIFICATION UNDER THE SECURITIES LAWS OF ANY STATE.

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This prospectus is part of a registration statement we filed with the SEC. You should rely only on the information or representations provided in this prospectus. We have not authorized anyone to provide you with different information. The common stock will not be offered in any state where an offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the cover of this prospectus.

RISK FACTORS

ABILITY TO OPERATE PROFITABLY. We have incurred losses since we commenced operations in 1990. We incurred a net loss of approximately $4,478,000 (on net sales of approximately $4,934,000) for the fiscal year ended December 31, 1997 and a net loss of approximately $3,449,000 (on net sales of approximately $2,280,000) for the fiscal year ended December 31, 1996. We incurred a net loss of approximately $7,454,000 (on net sales of approximately $4,188,000) for the nine months ended September 30, 1998, as compared to a net loss of approximately $2,851,000 (on net sales of approximately $2,818,000) for the nine months ended September 30, 1997. As a result of continuing losses, our accumulated deficit was approximately $31,049,000 at September 30, 1998. We expect to continue to incur operating losses until such time, if ever, as we derive significant revenues from the sale of our products. Our ability to operate profitably depends upon market acceptance of our orthopaedic and neurosurgical products, our development of an effective sales and marketing organization, and our development of new products and improvements to existing products. Our ability to market the ROBODOC System in the United States is dependent upon approval by the Food and Drug Administration. See "Risk Factors -- U.S. Regulation by the Food and Drug Administration." We cannot give you any assurance that we will obtain FDA approval to market the ROBODOC System in the United States or that our products will achieve market acceptance in the United States, Europe and other foreign markets to generate sufficient revenues to become profitable.

DEPENDENCE ON PRINCIPAL PRODUCT. For the near term, we expect to derive most of our revenues from sales of the ROBODOC System. Accordingly, our potential future success and financial performance will depend almost entirely on our ability to successfully market the ROBODOC System. If we are unable to obtain the requisite regulatory approvals or to achieve commercial acceptance of the ROBODOC System, our business, financial condition and results of operations will be materially and adversely affected. We have not obtained, and we cannot give you any assurance that we will obtain, clearance or approval to market the ROBODOC System in the United States. See "Risk Factors -- U.S. Regulation by the Food and Drug Administration."

UNCERTAINTY OF MARKET ACCEPTANCE. To successfully commercialize our systems we must commit substantial marketing efforts and expend significant funds to inform potential customers, including hospitals and physicians, of the distinctive characteristics and advantages of using our systems instead of traditional surgical tools and procedures. Since our systems employ innovative technology, rather than being an improvement of existing technology, and represent a substantial capital expenditure, we expect to encounter resistance to change, which we must overcome to successfully market our products. If our systems do not achieve significant market acceptance, our business, financial condition and results of operations would be materially and adversely affected.

ALTERNATIVES TO OUR PRODUCTS. The principal competition for the ROBODOC System is manual surgery performed by orthopaedic surgeons, using surgical power tools and manual devices. The providers of these instruments are the major orthopaedic companies, which include Howmedica, Inc. (a subsidiary of Stryker Corporation), located in New York; Zimmer, Inc. (a subsidiary of Bristol-Myers Squibb Company), located in Indiana; Johnson & Johnson Orthopaedics, Inc. (a subsidiary of Johnson & Johnson), located in New Jersey; DePuy, Inc. (a subsidiary of Johnson & Johnson) located in Indiana; Biomet, Inc., located in Indiana; and Osteonics, Inc. (a subsidiary of the Stryker Corporation), located in New Jersey. MAQUET, a manufacturer of operating tables located in Germany, has announced that it intends to market a device similar to the ROBODOC System. The principal competition for the NeuroMate System are frame-based and frameless navigators, which are manually operated. Approximately twenty navigator models have been introduced, including those by Radionics, Sofamor-Danek and Ohio Medical Surgical products, all located in the United States; Elekta, located in Sweden; and Fischer Leibingher and Brain Lab, both located in Germany. In general, there are companies in the medical products industry capable of developing and marketing computer-controlled robotic systems for surgical applications, many of whom have significantly greater financial, technical, manufacturing, marketing and distribution resources than us, and have established reputations in the medical device industry. Furthermore, we cannot give you any assurance that IBM or the University of California, which developed the technology embodied in the ROBODOC System and hold patents relating thereto, will not enter the market or license the technology to other companies.

We cannot give you any assurance that future competition will not have a material adverse effect on our business. The cost of our systems represents a significant capital expenditure for a customer and accordingly may discourage purchases by certain customers.

U.S. REGULATION BY THE FOOD AND DRUG ADMINISTRATION. The FDA regulates the clinical testing, manufacture, labeling, sale, distribution and promotion of medical devices in the United States. Noncompliance with applicable requirements can result in, among other things, fines, injunctions, civil penalties, recall or seizure of products, total or partial suspension of production, failure of the government to grant pre-market clearance or pre-market approval for devices, withdrawal of marketing clearances or approvals, and criminal prosecution. The FDA also has the authority to request recall, repair, replacement or refund of the cost of any device that we manufacture or distribute. If we fail to comply with regulatory requirements, including any future changes to such requirements, our business, financial condition and results of operations could be materially and adversely affected.

- Need to Obtain FDA Approval to Market ROBODOC System in the United States. Before a new medical device can be introduced into the U.S. market, the manufacturer must obtain FDA permission to market through either the 510(k) pre-market notification process for medical devices which are substantially similar to other approved medical devices or the costlier, lengthier and less certain pre-market approval application process. Following a pre-filing meeting with representatives of the FDA in early 1998, we stated that we intended to file our pre-market approval application to market the ROBODOC System with the FDA in the second quarter of 1998. As a result of further discussions with representatives of the FDA as part of the pre-submission review process (which process is intended to expedite the FDA's formal pre-market approval process), we have deferred the filing of our pre-market approval application with the FDA so that we may incorporate our DigiMatch Single Surgery System, and possibly other technical developments, as part of our pre-market approval application. We believe, based upon our discussions with representatives of the FDA, that the incorporation of the DigiMatch Single Surgery System will enhance our prospects for obtaining FDA approval. However, we cannot give you any assurance as to when or if the FDA will grant pre-market approval for the ROBODOC System or that such approval, if obtained, will not include unfavorable limitations or restrictions.

  New surgical applications for the ROBODOC System generally will require FDA clearance through the 510(k) pre-market notification process or approval of a new 510(k) notice or a pre-market approval supplement or, possibly, a new pre-market approval application. We also are likely to require additional FDA approvals, supported by additional clinical data, before incorporating new imaging modalities such as ultrasound and MRI or other different technologies in the ROBODOC System.

- Ability to Demonstrate Safety and Effectiveness of ROBODOC System. In order to obtain FDA clearance or approval, we must demonstrate that the ROBODOC System is safe and effective, and we may be required to show a clinical benefit to patients. We believe that a reduced incidence of intraoperative fractures with the ROBODOC System compared to conventional total hip replacement surgery would offer an important benefit. The number of patients enrolled in our U.S. clinical study is less than the 300 patients (150 ROBODOC System; 150 control group) we initially requested to study in our investigational device exemption application to the FDA. Nonetheless, over 3,300 primary surgeries have been performed with the ROBODOC System in the U.S. clinical trial and the European treatment population without a single reported intraoperative fracture. Since the observed fracture rate in the control group in the U.S. clinical trial was lower than anticipated, the data from this study are not sufficient to establish a statistically significant reduction in intraoperative fractures compared to the control group. Nevertheless, the data from both the U.S. and the European group of patients suggest that the ROBODOC System reduces intraoperative fractures when compared to the fracture rate of approximately 3 to 28 percent for conventional surgery reported in the scientific and medical literature. However, we cannot give you any assurance that the FDA will agree that the ROBODOC System offers a clinically significant reduction in intraoperative fractures, in the absence of a controlled trial demonstrating such a reduction, or that such a reduction is of clinical benefit to patients.

The FDA has advised us that it believes long-term functional assessments are the primary endpoints for evaluating the safety and effectiveness of the ROBODOC System. Our preliminary review of the functional assessment data from the U.S. clinical trial shows equivalence between the ROBODOC System and conventional surgery. We believe that achieving better implant fit and alignment in the femoral cavity are significant factors in the success of cementless total hip replacement surgery, although the FDA has questioned whether fit is an appropriate endpoint and has not addressed alignment.

Our most recent statistical analysis of fit and alignment parameters from 3-month radiographs showed that the ROBODOC System surgeries produced better fit and alignment when compared to conventional surgeries. We believe a more accurate fit of the prosthesis reflects the implant manufacturers' design goals for implant cavity preparation. We also reviewed 24-month radiographs evaluating prosthesis stability. We cannot give you any assurance that the FDA will accept our data that demonstrates the ROBODOC System achieves better implant fit, alignment and stability, or that the FDA will agree that better fit and alignment are significant surgical endpoints. In addition, we cannot give you any assurance that the FDA will agree that the greater surgery time and blood loss associated with the ROBODOC System does not pose a significant safety concern or create an unfavorable risk/benefit ratio. Further, we cannot give you any assurance that the FDA will not require us to obtain additional clinical data from a randomized, controlled trial to resolve any concern about the risk/benefit ratio offered by the ROBODOC System. If we must obtain such additional data, the FDA review process could be prolonged by several years.

In February 1995, a law firm specializing in FDA regulatory matters examined an interim report of preliminary data and concluded that it was doubtful that the FDA would find that the device was safe and effective for its intended use, or provided a therapeutic benefit, sufficient to permit pre-market approval, if the FDA were presented with the then existing preliminary data or future data qualitatively similar to the preliminary data. We believe that the additional data analyzed subsequent to the law firm's February 1995 report address many of the concerns identified in that report. These data and analyses include non-radiographic clinical follow-up data from the U.S. trial, preliminary analysis and review by an outside radiologist and an outside biostatistician of 3-month, 12-month and 24-month radiographic films from the U.S. clinical trial. We cannot give you any assurance that the data, once fully analyzed and reviewed, will demonstrate that the ROBODOC System is safe and effective for its intended use, provides a clinical benefit, or has an acceptable risk/benefit ratio in light of increased surgery time and intraoperative blood loss. In addition, our Director of Regulatory Affairs and Quality Assurance resigned in September 1996 and subsequently asserted that one of the reasons for his resignation was his concern, similar to that expressed in the February 1995 law firm report, about the adequacy of our clinical data to support product approval.

If the FDA concludes that the existing clinical data are insufficient to establish the safety and efficacy of the ROBODOC System, the FDA could require us to obtain additional clinical data from a randomized, controlled trial, which could significantly delay completion of the pre-market approval review process, and accordingly have a material adverse effect on our business, financial condition and results of operations.

- No Assurance of Approvals; Subsequent Review of Approvals. We cannot give you any assurance that any of our current or future products will obtain required FDA approvals on a timely basis, or at all, or that we will have the necessary resources to obtain such approvals. If any of our products are not approved for use in the United States, we will be limited to marketing them in foreign countries. Furthermore, approvals that have been or may be granted are subject to continual review, and later discovery of previously unknown problems can result in product labeling restrictions or withdrawal of the product from the market.

- Adverse Effect of Delays or Loss of Approvals. If we experience delays in the receipt of, or fail to receive, FDA approvals or clearances, or lose any previously received approvals or clearances, or the

FDA imposes limitations on intended use as a condition of such approvals or clearances, our business, financial condition and results of operations could be materially and adversely affected.

- Compliance with Quality System and other FDA Reporting and Inspection Requirements. Assuming we obtain the necessary FDA approvals and clearances for our products, in order to maintain such approvals and clearances we must, among other things, register our establishment and list our devices with the FDA and with certain state agencies, maintain extensive records, report any adverse experiences on the use of our products and submit to periodic inspections by the FDA and certain state agencies. The Food, Drug, and Cosmetic Act also requires devices to be manufactured in accordance with the quality system regulation, which sets forth good manufacturing practices requirements with respect to manufacturing and quality assurance activities. The quality system regulation revises the previous good manufacturing practices regulation and imposes certain enhanced requirements that are likely to increase the cost of compliance, including design controls.

- Modifications to Cleared Devices. We have made certain minor modifications to the ORTHODOC and the NeuroMate System which we do not believe require the submission of new 510(k) notices. However, we cannot give you any assurance that the FDA would agree with any of our determinations not to submit a new 510(k) notice for any of these changes or would not require us to submit a new 510(k) notice for any of the changes made to the device. If the FDA requires us to submit a new 510(k) notice for any device modification, we may be prohibited from marketing the modified device until the 510(k) notice is cleared by the FDA.

FOREIGN REGULATION. The introduction of our products in foreign markets has subjected and will continue to subject us to foreign regulatory clearances, which may be unpredictable and uncertain, and which may impose substantial additional costs and burdens. Many countries also impose product standards, packaging requirements, labeling requirements and import restrictions on devices. We cannot give you any assurance that any of our products will receive further approvals or clearances, if required on a timely basis, or at all.

UNCERTAINTY REGARDING PATENTS AND PROTECTION OF PROPRIETARY TECHNOLOGY. Our ability to compete successfully may depend, in part, on our ability to obtain and protect patents, protect trade secrets and operate without infringing the proprietary rights of others. Certain robotic medical technology underlying our products is the subject of a United States patent issued to IBM, which IBM has agreed not to enforce against the manufacture and sale of our products. We have been issued four U.S. patents and filed seven patent applications covering various aspects of our technology.

Our U.S. patents include

- Computer assisted software system for planning and performing hip revision surgery

- Computer assisted system and method for creating cavities in the femur that will accept a prosthesis

- Computer system and method for creating a pre-operative surgical plan for hip replacement surgery

- Method for orienting real patient anatomy to a digital image of the patient's anatomy

We cannot give you any assurance that our pending or future patent applications will mature into issued patents, or that we will continue to develop our own patentable technologies. Further, we cannot give you any assurance that any patents that may be issued to us effectively protect our technology or provide a competitive advantage for our products or will not be challenged, invalidated, or circumvented in the future. In addition, we cannot give you any assurance that competitors, many of which have substantially more resources than us and have made substantial investments in competing technologies, will not obtain patents that will prevent, limit or interfere with our ability to make, use or sell our products either in the United States or internationally.

The medical device industry has been characterized by substantial competition and litigation regarding patent and other proprietary rights. We intend to vigorously protect and defend our patents and other proprietary rights relating to our proprietary technology. Litigation alleging infringement claims against us (with or without merit), or instituted by us to enforce patents and to protect trade secrets or know-how owned by us or to determine the enforceability, scope and validity of the proprietary rights of others, is costly and time consuming. If any relevant claims of third-party patents are upheld as valid and enforceable in any litigation or administrative proceedings, we could be prevented from practicing the subject matter claimed in such patents, or could be required to obtain licenses from the patent owners of each patent, or to redesign our products or processes to avoid infringement. We cannot give you any assurance that such licenses would be available or, if available, would be available on terms acceptable to us or that we would be successful in any attempt to redesign our products or processes to avoid infringement. Accordingly, an adverse determination in a judicial or administrative proceeding or failure to obtain necessary licenses could prevent us from manufacturing and selling our products, which would have a material adverse effect on our business, financial condition and results of operations.

LIMITED PRODUCTION EXPERIENCE. Our success will depends in part on our ability to assemble our products in a timely, cost-effective manner and in compliance with good manufacturing practices, and manufacturing requirements of other countries, including the International Standards Organization 9000 standards and other regulatory requirements. The assembly of our products is a complex operation involving a number of separate processes and components. Our production activities to date have consisted primarily of assembling limited quantities of systems for use in clinical trials and systems for commercial sale. We do not have experience in assembling our products in larger commercial quantities. Furthermore, as a condition to receipt of pre-market approval, our facilities, procedures and practices will be subject to pre-approval and ongoing good manufacturing practices inspections by the FDA.

Manufacturers often encounter difficulties in scaling up manufacturing of new products, including problems involving product yields, quality control and assurance, component and service availability, adequacy of control policies and procedures, lack of qualified personnel, compliance with FDA regulations, and the need for further FDA approval of new manufacturing processes and facilities. We cannot give you any assurance that production yields, costs or quality will not be adversely affected as we seek to increase production, and any such adverse effect could have a material adverse effect on our business, financial condition and results of operations.

DEPENDENCE ON SUPPLIER FOR ROBOT. Although we have multiple sources for most of our components, parts and assemblies used in the ROBODOC and NeuroMate Systems, we are dependent on Sankyo Seiki of Japan for the ROBODOC System robot arm and Audemars-Piguet of Switzerland for the supply of the customized NeuroMate robot. Although we can obtain the robot for either the ROBODOC System or the NeuroMate System from other suppliers, with appropriate modifications and engineering effort, we cannot give you any assurance that delays resulting from the required modifications or engineering effort to adapt alternative components would not have a material adverse effect on our business, financial condition and results of operations.

RELIANCE ON FOREIGN SALES. Since we commenced operations, substantially all of our sales have been to customers in Germany, Austria, France and Japan. We believe that until such time, if ever, as we receive approval from the FDA to market the ROBODOC System in the United States, substantially all of our sales for the ROBODOC System will be derived from customers in foreign markets. Foreign sales are subject to certain risks, including economic or political instability, shipping delays, fluctuations in foreign currency exchange rates, changes in regulatory requirements, custom duties and export quotas and other trade restrictions, any of which could have a material adverse effect on our business. To date, payment for substantially all ROBODOC Systems in Europe has been fixed in U.S. Dollars. However, we cannot give you any assurance that in the future customers will be willing to make payment for our products in U.S. Dollars. If the U.S. Dollar strengthens substantially against the foreign currency of a country in which we sell our products, the cost of purchasing our products in U.S. Dollars would increase and may inhibit purchases of our products by customers in that country. We are unable to predict the nature of future changes in foreign markets or the effect, if any, they might have on us.

UNCERTAINTY CONCERNING THIRD PARTY REIMBURSEMENT. We expect that our ability to successfully commercialize our products will depend significantly on the availability of reimbursement for surgical procedures using our products from third-party payors, such as governmental programs, private insurance and private health plans. Reimbursement is a significant factor considered by hospitals in determining whether to acquire new equipment. Notwithstanding FDA approval, if granted, third-party payors may deny reimbursement if the payor determines that a therapeutic medical device is unnecessary, inappropriate, not cost-effective or experimental or is used for a nonapproved indication. Although we are not aware of any potential customer that has declined to purchase the ROBODOC System based upon third party reimbursement policies, cost control measures adopted by third-party payors may have a significant effect on surgeries performed with the ROBODOC System or as to the levels of reimbursement. We cannot give you any assurance that levels of reimbursement, if any, will not be decreased in the future, or that future legislation, regulation, or reimbursement policies of third-party payors will not otherwise adversely affect the demand for our products or our ability to sell our products on a profitable basis. Fundamental reforms in the healthcare industry in the United States and Europe that could affect the availability of third-party reimbursement continue to be proposed, and we cannot predict the timing or effect of any such proposal. If third-party payor coverage or reimbursement is unavailable or inadequate, our business, financial condition and results of operation could be materially and adversely affected.

LENGTHY SALES CYCLE. Since the purchase of a ROBODOC System or NeuroMate System represents a significant capital expenditure for a customer, the placement of orders may be delayed due to customers' internal procedures to approve large capital expenditures. We anticipate that the period between initial contact of a customer for a system and submission of a purchase order by that customer could be as long as 9 to 12 months. Furthermore, the current lead time required by the supplier of the robot for either the ROBODOC System or the NeuroMate System is approximately four months after receipt of the order. We may be required to expend significant cash resources to fund our operations until the purchase price is paid. Accordingly, we may not recognize the sales price of a system until a fiscal quarter subsequent to the fiscal quarter in which we incurred marketing and sales expenses associated with an order.

ABILITY TO MANAGE GROWTH. We plan to expand our sales and marketing, research and development and technical personnel to increase and support sales of systems and to develop additional surgical applications for our orthopaedic and neurosurgical systems. Our anticipated growth will likely result in new and increased responsibilities for management personnel and place significant strain upon our management, operating and financial systems and resources. To accommodate such growth and compete effectively, we must continue to implement and improve our operational, financial, management and information systems, procedures and controls, and to expand, train, motivate and manage our personnel. We cannot give you any assurance that our personnel, systems, procedures and controls will be adequate to support our future operations. If we fail to implement and improve our operational, financial, management and information systems, procedures or controls, or to expand, train, motivate or manage our employees, our business, financial condition and results of operations could be materially and adversely affected.

NEED FOR ADDITIONAL FINANCING. Although we believe that we have sufficient funding to finance our operations through 1999, we cannot give you any assurance that additional financing will not be needed at an earlier date. This will depend upon our ability to generate sufficient sales of our products and the timing of required expenditures. We cannot give you any assurance that if we need additional financing in the future, such financing will be available on acceptable terms, if at all.

PRODUCT LIABILITY. The manufacture and sale of medical products exposes us to the risk of significant damages from product liability claims. Although we maintain product liability insurance against product liability claims in the amount of $5 million per occurrence and $5 million in aggregate, we cannot give you any assurance that the coverage limits of our insurance policies will be adequate or that such insurance can be maintained at acceptable costs. Although we have not experienced any product liability claims to date, a successful claim brought against us in excess of our insurance coverage could have a materially adverse effect on our business, financial condition and results of operations.

DEPENDENCE ON KEY PERSONNEL. Our business and marketing plan was formulated by, and is to be implemented under the direction of, Dr. Ramesh C. Trivedi, Chief Executive Officer and President. Dr. Trivedi is employed pursuant to an employment agreement that may be terminated by either Dr. Trivedi or us at any time. If we terminate Dr. Trivedi's employment other than for cause, we must pay him his monthly salary (currently, $23,320) for a period of 18 months following the date of termination. We maintain key-man insurance on the life of Dr. Trivedi. Our growth and future success also will depend in large part on the continued contributions of key technical and senior management personnel, as well as our ability to attract, motivate and retain highly qualified personnel generally and, in particular, trained and experienced professionals capable of developing, selling and installing the Systems and training surgeons in their use. Competition for such personnel is intense, and we cannot give you any assurance that we will be successful in hiring, motivating or retaining such qualified personnel. None of our executive or key technical personnel, other than Dr. Trivedi, is employed pursuant to an employment agreement. The loss of the services of Dr. Trivedi or other senior management or key technical personnel, or the inability to hire or retain qualified personnel, could have a material adverse effect on our business, financial condition and results of operations.

OWNERSHIP OF SHARES BY MANAGEMENT. Our executive officers and directors own (directly or indirectly) 1,065,792 shares of common stock, or approximately 20% of the outstanding shares of common stock. Although these securityholders may or may not agree on any particular matter that is the subject of a vote of the stockholders, these securityholders may be effectively able to control the outcome of any issues which may be subject to a vote of securityholders, including the election of directors, proposals to increase the authorized capital stock, or the approval of mergers, acquisitions, or the sale of all or substantially all of our assets.

LIMITATION ON DIRECTOR LIABILITY. Our certificate of incorporation provides that a director shall not be personally liable to the company or its stockholders for monetary damages for breach of fiduciary duty as a director, with certain exceptions under Delaware law. This may discourage stockholders from bringing suit against a director for breach of fiduciary duty and may reduce the likelihood of derivative litigation brought by stockholders on behalf of the company against a director. In addition, our by-laws provide for mandatory indemnification of directors and officers.

ABSENCE OF DIVIDENDS. Since inception, we have has not paid any dividends on the common stock and do not anticipate paying such dividends in the foreseeable future. We intend to retain earnings, if any, to finance our operations.

POSSIBLE VOLATILITY OF MARKET PRICE FOR THE COMMON STOCK. From time to time and in particular during the last several months, the stock market generally, and the securities of technology companies in particular, have experienced a high level of price and volume volatility, and market prices for the securities of many companies have experienced wide price fluctuations not necessarily related to the operating performance of such companies. We believe that factors such as announcement of developments related to our business, announcements of technological innovations or new products by us or our competitors, sales of our common stock in the public market, and shortfalls or changes in the our financial results from analysts' expectations could cause the price of the common stock to fluctuate substantially. Our operating results and various factors affecting the medical device industry generally also may significantly impact the market price of the common stock.

SHARES ELIGIBLE FOR FUTURE SALE. We cannot give you any assurance as to the effect, if any, that future sales of common stock, or the availability of shares of common stock for future sales, will have on the market price of the common stock from time to time. Sales of substantial amounts of common stock, or the possibility of such sales, could adversely affect the market price of the common stock and also impair our ability to raise capital through an offering of equity securities in the future. As of December 1, 1998, there were 5,643,372 shares of common stock outstanding. Except for 1,039,792 shares of common stock (representing approximately 18.4% of the outstanding common stock) owned by EJ Financial Investments V, L.P., which may be sold in accordance with the volume limitations of Rule 144, substantially all of the outstanding shares of common stock are transferable without restriction under the Securities Act. An additional

- 1,760,000 shares are issuable upon conversion of our Series A preferred stock, at an assumed conversion price of $2.00 per share

- 2,274,066 shares are issuable upon exercise of warrants owned by IBM at exercise prices ranging from $.01 to $.07

- 2,091,986 shares are issuable upon exercise of warrants issued in our initial public offering at an exercise price of $5.47 per share

- 1,321,058 shares are issuable upon exercise of stock options granted pursuant to our employee stock option plans at exercise prices ranging from $.07 to $8.63 per share

- 408,155 shares are issuable upon exercise of warrants having exercise prices ranging from $4.31 to $7.42 per share

Substantially all of such shares (other than the shares issuable upon exercise of the warrants owned by IBM), when issued, may be immediately resold in the public market pursuant to effective registration statements under the Securities Act or pursuant to Rule 144. In April 1998, we amended the warrants owned by IBM to permit IBM to exercise them without the payment of cash for a lesser number of shares, based upon the difference between the market price of the common stock at the time of exercise and the exercise price, in which case such shares could be sold immediately under Rule 144 since under applicable SEC interpretations, the holding period under Rule 144 for shares acquired in this manner includes the period for which the selling shareholder owned the warrants.

Certain securityholders have agreed to limit the number of shares they may sell:

- IBM has agreed to limit sales of shares acquired upon exercise of its warrants to the volume limitations of Rule 144, whether or not applicable, and has granted us or our designee a right of first refusal with respect to such sales.

- Former securityholders of Innovative Medical Machines International, S.A., which we acquired in September 1997 in exchange for shares of common stock, have agreed to limit future sales of shares under a currently effective registration statement to the volume limitations of Rule 144, except that during the period from December 6, 1998 through March 5, 1999, they may sell an aggregate of 100,000 shares plus 1% of the total number of shares of common stock traded on Nasdaq during the preceding three month period.

We have granted registration rights to:

- The selling securityholders with respect to the shares of common stock covered by this prospectus.

- IBM, EJ Financial Investments V,L.P and certain other institutional investors owning or having the right to acquire 4,030,649 shares of common stock. These investors have agreed that they will not exercise these registration rights prior to May 21, 1999.

- Holders of warrants to purchase 166,837 shares of common stock issued in connection with our European offering in November 1997 have demand and piggyback registration rights for those shares.

- The holder of warrants to purchase 27,706 shares of common stock has piggyback registration rights for those shares, fully subordinated to the registration rights of our other securityholders.

DILUTIVE EFFECT OF CONVERSION OF SERIES A PREFERRED STOCK. The conversion of our series A preferred stock at a discount to the then prevailing market price of the common stock, at an assumed conversion price of $2.00 per share, would result in the issuance of up to 1,760,000 shares of common stock, or approximately 23.8% of the outstanding shares, and consequently could have an immediately adverse effect on the market price of the common stock, and will have a dilutive impact on other stockholders.

POSSIBLE ADVERSE EFFECT OF OTHER ISSUANCES OF PREFERRED STOCK. Our certificate of incorporation authorizes the issuance of 1,000,000 shares of "blank check" preferred stock, with designations, rights and preferences determined from time to time by the Board of Directors. Accordingly, the Board of Directors is empowered, without further stockholder approval, to issue preferred stock with dividend, liquidation, conversion, voting or other rights that could adversely affect the voting power or other rights of the holders of the common stock. In the event of issuance, the preferred stock could be used, under certain circumstances, as

a method of discouraging, delaying or preventing a change in control of the company, since the terms of the preferred stock that might be issued could effectively restrict our ability to consummate a merger, reorganization, sale of all or substantially all of its assets, liquidation or other extraordinary corporate transaction without the approval of the holders of the preferred stock. The series A preferred stock is the only series of preferred stock outstanding.

FORWARD LOOKING STATEMENTS

Some of the information in this prospectus and the documents we incorporate by reference may contain forward-looking statements. Such statements can be identified by the use of forward-looking terminology such as "may," "will," "expect," "believe," "intend," "anticipate," "estimate," "continue" or similar words. These statements discuss future expectations, estimate the happening of future events or our financial condition or state other "forward-looking" information. When considering such forward-looking statements, you should keep in mind the risk factors and other cautionary statements in this prospectus and the documents that we incorporate by reference. The risk factors noted in this prospectus and other factors noted throughout this prospectus, including certain risks and uncertainties, could cause our actual results to differ materially from those contained in any forward-looking statement.

USE OF PROCEEDS

We will use the net proceeds from the exercise of the warrants and the underwriters' warrants for working capital and general corporate purposes. We cannot give you any assurance that any or all of the warrants or underwriters' warrants will be exercised, or if exercised, as to the time of exercise.

INFORMATION ABOUT THE COMPANY

At Integrated Surgical Systems, Inc., we develop, assemble, market and service image-directed, computer-controlled robotic products for orthopaedic and neurosurgical applications. Our principal orthopaedic product is the ROBODOC(R) Surgical Assistant System, consisting of a computer-controlled surgical robot and our ORTHODOC(R) Presurgical Planner, and our principal neurosurgical product is the NeuroMate System(TM).

We file reports, proxy statements and other information with the SEC. You may read and copy any document we file at the Public Reference Room of the SEC at Judiciary Plaza, 450 Fifth Street, N.W., Washington, D.C. 20549 and at the Regional Offices of the SEC at Seven World Trade Center, Suite 1300, New York, New York 10048 and at 500 West Madison Street, Suite 1400, Chicago, Illinois 60661-2511. Please call 1-800-SEC-0330 for further information concerning the Public Reference Room. Our filings also are available to the public from the SEC's website at www.sec.gov. We distribute to our stockholders annual reports containing audited financial statements.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with it, which means that we can disclose important information to you by referring to those documents. The information incorporated by reference is considered to be part of this prospectus, and information we file later with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act until the offering is completed:

1. Annual Report on Form 10-KSB for the fiscal year ended December 31, 1997.

2. Proxy Statement dated March 26, 1998.

3. Quarterly Reports on Form 10-QSB for the fiscal quarters ended March 31, 1998, June 30, 1998 and September 30, 1998.

4. The description of the common stock and warrants contained in our Registration Statement on Form 8-A (File No. 1-12471) under Section 12 of the Securities Exchange Act, including any amendment or report updating that description.

You may request a copy of these filings, at no cost, by writing or calling us at:

INTEGRATED SURGICAL SYSTEMS
1850 Research Park Drive
Davis, California 95616-4884
Attention: Corporate Secretary
Telephone: (530) 792-2600

RECENT DEVELOPMENT

DIGIMATCH SINGLE SURGERY SYSTEM. We have developed and commenced marketing to our customers in Europe our DigiMatch Single Surgery System, that, in most cases, eliminates the need for an initial surgery to place registration pins in a patient's femur before using the ROBODOC System in total hip replacement surgery. More than 150 patient surgeries have been successfully performed at a clinic in Frankfurt, Germany with our DigiMatch Single Surgery System.

We plan to amend our investigational device exemption under the Food, Drug and Cosmetic Act, which allowed us to conduct clinical trials for the ROBODOC System in the United States, to permit us to perform a relatively small clinical study showing a correlation between the ROBODOC System using the DigiMatch technology and the three pin system that we used in our initial clinical evaluations. We have deferred the filing of our pre-market approval application to market the ROBODOC System in the United States so that we may incorporate our DigiMatch Single Surgery System, and possibly other technical developments, as part of our

pre-market approval submission with the Food and Drug Administration. We believe, based upon our discussions with representatives of the FDA, that the incorporation of the DigiMatch Single Surgery System will enhance our prospects for obtaining FDA approval. However, we cannot give you any assurance as to when or if the FDA will approve our pre-market approval application to market the ROBODOC System or that such approval, if obtained, will not include unfavorable limitations or restrictions. See "Risk Factors -- U.S. Regulation by the Food and Drug Administration."

LEGAL MATTERS

The validity of the securities offered by this prospectus has been passed upon by Snow Becker Krauss P.C., 605 Third Avenue, New York, New York 10158-0125.

EXPERTS

The consolidated financial statements of Integrated Surgical Systems, Inc. at December 31, 1997 and for the years ended December 31, 1996 and 1997, appearing in our Annual Report (on Form 10-KSB) for the year ended December 31, 1997 have been audited by Ernst & Young LLP, independent auditors, as set forth in their report thereon incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given upon the authority of such firm as experts in accounting and auditing.

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

The expenses payable by the Registrant in connection with the issuance and distribution of the securities being registered are estimated below:

Legal fees and expenses	$10,000.00
Printing expenses	7,500.00
Accounting fees	5,000.00
Miscellaneous	2,500.00
Total	$25,000.00

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Article VI of the Registrant's by-laws provides that a director or officer shall be indemnified against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement (provided such settlement is approved in advance by the Registrant) in connection with certain actions, suits or proceedings, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation -- a "derivative action") if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. A similar standard of care is applicable in the case of derivative actions, except that indemnification only extends to expenses (including attorneys' fees) incurred in connection with the defense or settlement of such an action, except that no person who has been adjudged to be liable to the Registrant shall be entitled to indemnification unless a court determines that despite such adjudication of liability but in view of all of the circumstances of the case, the person seeking indemnification is fairly and reasonably entitled to be indemnified for such expenses as the court deems proper.

Article 6.5 of the Registrant's by-laws further provides that directors and officers are entitled to be paid by the Registrant the expenses incurred in defending the proceedings specified above in advance of their final disposition. provided that such payment will only be made upon delivery to the Registrant by the indemnified party of an undertaking to repay all amounts so advanced if it is ultimately determined that the person receiving such payments is not entitled to be indemnified.

Article 6.4 of the Registrant's by-laws provides that a person indemnified under Article VI of the by-laws may contest any determination that a director, officer, employee or agent has not met the applicable standard of conduct set forth in the by-laws by petitioning a court of competent jurisdiction.

Article 6.6 of the Registrant's by-laws provides that the right to indemnification and the payment of expenses incurred in defending a proceeding in advance of its final disposition conferred in the Article will not be exclusive of any other right which any person may have or acquire under the by-laws, or any statute or agreement. or otherwise.

Finally, Article 6.7 of the Registrant's by-laws provides that the Registrant may maintain insurance, at its expense, to reimburse itself and directors and officers of the Registrant and of its direct and indirect subsidiaries against any expense, liability or loss, whether or not the Registrant would have the power to indemnify such persons against such expense, liability or loss under the provisions of Article VI of the by-laws. The Registrant maintains and has in effect such insurance.

Article 11 of the Registrant's certificate of incorporation eliminates the personal liability of the Registrant's directors to the Registrant or its stockholders for monetary damages for breach of their fiduciary duties as a director to the fullest extent provided by Delaware law. Section 102(b) (7) of the Delaware General Corporation Law provides for the elimination of such personal liability, except for liability (i) for any

breach of the director's duty of loyalty to the Registrant or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL or (iv) for any transaction from which the director derived any improper personal benefit.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 (the "Securities Act") may be permitted to directors, officers or persons controlling the Registrant pursuant to the foregoing provisions, the Registrant has been informed that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

ITEM 16. EXHIBITS.

EXHIBIT NO.		DESCRIPTION
4.1	--	Form of Underwriters' Warrant.*
4.2	--	Form of Public Warrant Agreement.*
4.3	--	Specimen Common Stock Certificate.*
23.2	--	Consent of Ernst & Young LLP, independent auditors

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* Previously filed.

ITEM 17. UNDERTAKINGS.

(a) RULE 415 OFFERING

The undersigned small business issuer hereby undertakes that it will:

(1) File, during any period in which it offers or sells securities, a post-effective amendment to this registration statement to:

(i) Include any prospectus required by section 10(a)(3) of the Securities Act.

(ii) Reflect in the prospectus any facts or events which, individually or in the aggregate, represent a fundamental change in the information set forth in the registrant statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.

(iii) Include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

(2) For determining any liability under the Securities Act, each such post-effective amendment shall be deemed a new registration statement relating to the securities offered therein, and the offering of such securities at that time to be the initial bona fide offering thereof.

(3) Remove from registration by means of a post-effective amendment any of the securities being registered that remain unsold at the termination of the offering.

(e) REQUEST FOR ACCELERATION OF EFFECTIVE DATE

Insofar as indemnification for liabilities arising under the Securities Act of 1933 (the "Securities Act") may be permitted to directors, officers and controlling persons of the small business issuer pursuant to the foregoing provisions, or otherwise, the small business issuer has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such

liabilities (other than the payment by the small business issuer of the expenses incurred or paid by a director, officer, or controlling person of the small business issuer in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the small business issuer will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this post-effective amendment to the Registration Statement to be signed on its behalf by the undersigned, hereunto duly authorized, in the City of Davis, State of California, on January 15, 1999.

INTEGRATED SURGICAL SYSTEMS, INC.

By: /s/ RAMESH C. TRIVEDI	By: /s/ MARK W. WINN
Ramesh C. Trivedi	Mark W. Winn
Chief Executive Officer and President (Principal Executive Officer)	Chief Financial Officer (Principal Financial and Accounting Officer)

Pursuant to the requirements of the Securities Act of 1933, this post-effective amendment to the Registration Statement has been signed by the following persons in the capacities indicated on January 15, 1999.

SIGNATURE	TITLE
/s/ RAMESH C. TRIVEDI Ramesh C. Trivedi	Chief Executive Officer, President and Director (Principal Executive Officer)
/s/ MARK W. WINN Mark W. Winn	Chief Financial Officer (Principal Financial and Accounting Officer)
/s/ JAMES C. MCGRODDY James C. McGroddy	Chairman of the Board of Directors
John N. Kapoor	Director
/s/ PAUL A.H. PANKOW Paul A.H. Pankow	Director
/s/ GERALD D. KNUDSON Gerald D. Knudson	Director
Patrick G. Hays	Director

EXHIBIT INDEX

EXHIBIT NO.		DESCRIPTION
4.1	--	Form of Underwriters' Warrant.*
4.2	--	Form of Public Warrant Agreement.*
4.3	--	Specimen Common Stock Certificate.*
23.2	--	Consent of Ernst & Young LLP, independent auditors

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* Previously filed.

CONSENT OF ERNST & YOUNG LLP, INDEPENDENT AUDITORS

We consent to the reference to our firm under the caption "Experts" in Post-Effective Amendment No. 2 to the Form SB-2 Registration Statement on Form S-3 (Nos. 333-9207 and 16539) and related Prospectus of Integrated Surgical Systems, Inc. for the registration of 2,261,598 shares of its common stock and warrants to purchase 169,612 shares of common stock and to the incorporation by reference therein of our report dated February 26, 1998, with respect to the consolidated financial statements of Integrated Surgical Systems, Inc. included in its Annual Report (Form 10-KSB) for the year ended December 31, 1997, filed with the Securities and Exchange Commission.

ERNST & YOUNG LLP

Sacramento, California
January 15, 1999