

# Plan of Business



**CONTRACT SYSTEMS  
INTEGRATION, INC.**

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## 1. Executive Summary

### 1.1 The Business Concept

Competitive pressures and increased demands are pushing sweeping changes throughout the contract manufacturing industry, as industry leaders aim to continually expand the services they offer. Contract Systems Integration, Inc., (CSI) will provide contract manufacturing services ranging from basic material logistics to full system integration. CSI will be competitive with current contract manufacturers in the industry in terms of price, quality, reliability, delivery, distribution, breadth of service, and manufacturing capabilities by maintaining state-of-the-art equipment, facilities, and leading edge technology. CSI will establish formal and advantageous agreements with primary suppliers to ensure a balanced supply of competitively priced raw materials.

### 1.2 The Opportunity and Strategy

More and more large OEMs are looking for ways to reduce cost and overhead, increase inventory turns, and maximize the utilization of their facility. By outsourcing manufacturing operations, companies can focus on new product development and sales and marketing. According to a recent survey by Technology Forecasters, Inc. the top reasons for and against an OEM's decision to outsource work to a contract manufacturer are:

#### For

- 1- Cost Savings
- 2- Gain Additional Capacity
- 3- Manufacturing is a core competency for contractors but not for OEMs

#### Against

- 1- Not Cost Effective
- 2- Confidentiality Issues
- 3- Loss of Control or Visibility

CSI will market itself as an industry leader in the utilization of the latest manufacturing concepts, material and supply chain management programs, and interactive Internet technology. CSI will use a combination of commercial and proprietary software to employ on-line manufacturing processes and data collection programs to greatly reduce the overhead costs of manufacturing products at CSI facilities.

CSI will market its innovative "Customer Access Technology" to attract new customers and set itself apart from other contract manufacturers. This proprietary tool will allow CSI to literally be an extension of an OEMs manufacturing facility. Web-enabled informational exchange is the next major advancement for contract manufacturing, and will benefit users by providing global accessibility, operational efficiency, greater user-responsiveness, and continuous improvement in quality and on-time deliveries. CSI already has the hardware and software in place to meet the challenges the contract manufacturing industry is placing on its key players. (Visit CSI's web site at [www.csiserver.com](http://www.csiserver.com))

### 1.3 Target Market and Projections

The contract manufacturing industry, which had sales in excess of \$80 billion in 1998, comprises over a \$40 billion market in the U.S. and Canada. The following table represents the growth trend forecasted for contract manufacturing services (CMS) by global region (in billions of dollars).

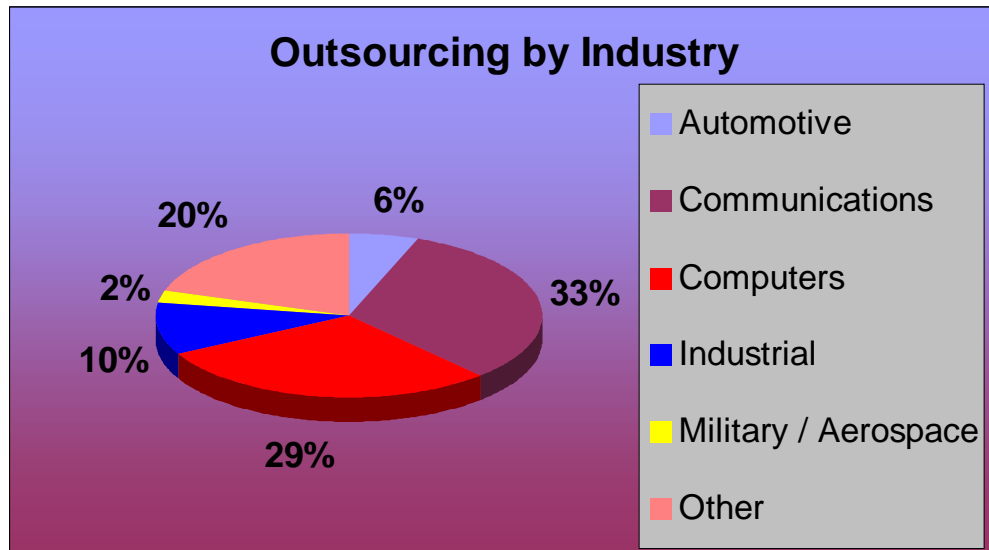
**Table 1.3.1**

Regions	1996	1997	1998	1999	2000	2001	*CAGR
Asia	6.4	7.7	9.3	11.3	13.7	16.5	21%
Japan	13.0	14.4	16.2	18.3	20.9	24.0	13%
Western Europe	10.5	12.6	15.5	19.2	23.8	29.8	23%
US/Canada	27.2	35.4	46.0	60.3	78.9	104.2	31%
Emerging Regions	2.2	2.4	2.6	2.9	3.2	3.5	10%
<b>Total</b>	<b>59.3</b>	<b>72.6</b>	<b>89.6</b>	<b>112.0</b>	<b>140.5</b>	<b>178.0</b>	<b>25%</b>

\*CAGR – Compound Annual Growth Rate from 1996 to 2001

Source: Technology Forecasters, Inc.

Contract manufacturing work is performed for end users that come from a wide array of industries from across the globe. The following chart represents the percentage of work performed by contract manufacturing service firms for various industries.



Source: Technology Forecasters, Inc.

### 1.4 Buy vs. Make Advantages

Outsourcing benefits

- Reduced Cost / Overhead
- Increased Inventory Turns / Cash Flow
- Maximizes the Utilization of Manufacturing Facility
- Increased Engineering Resources
- Reduced Time to Market
- Improved Quality and Product Visibility

## 1.5 Competitive Advantage

CSI will use its advanced manufacturing technologies, strategic location, low overhead cost structure, and years of contract manufacturing experience to compete with the major players within the CMS industry. CSI will offer its customers the utilization of its proprietary interactive Internet software not offered by other contract manufacturers (CMs).

CSI will form strong strategic alliances with its suppliers from various commodities. For example, CSI will leave PCB assembly and complex cable harnesses to the companies that excel in those technologies, thereby allowing CSI to focus on what it does best, electromechanical sub-assemblies and full system integration. By forming strategic alliances and partnerships, CSI will provide its customer a cost competitive choice when selecting the supplier most qualified for any given technology.

CSI is located next to the world-renowned Research Triangle Park and three major universities. This location offers a vast pool of professional, engineering and manufacturing human resources. CSI will offer its associates competitive compensation packages including medical and retirement benefits. CSI's culture will be one which yields high employee morale and traditional work ethic. CSI's emphasis on the importance of its workforce and acknowledgement of a job well done will limit employee turnover and make CSI an employer of choice.

## 1.6 Management Team

The senior management for CSI will initially be comprised of three critical positions. The positions are: President/CEO for strategic planning of finance, marketing, manufacturing, materials, engineering, and quality; Director of Materials will develop and implement policies and procedures to accurately manage the master planning, purchasing, warehousing and movement of all materials; Director of Engineering will develop and implement all manufacturing, test and quality engineering support programs. All three individuals have been involved with the CMS industry for the past several years. These individuals have worked together previously, and they have also worked for major CMS competitors such as the Sanmina Corporation and Electrical Concepts and Assemblies. The management team is well known and highly respected by the large OEMs currently using contract manufacturing services such as: Nortel Networks, Ericsson, Broadband Technologies, and Matrix. The Management Team is considered the most critical element of any successful company. Following is a synopsis on each staff member.

### **William G. Sauls – President/CEO**

Mr. Sauls was President and CEO for Electrical Concepts and Assemblies, Inc. (ECA) from January of 1992 to January of 1997. ECA, now Chatum Technologies, is a full service Electronic Contract Manufacturing Company incorporated in November of 1991 (<http://www.eca.com/eca/>). Mr. Sauls developed startup plans for the company to include staffing, operational budget, marketing plan, identification of the potential customer base, sales implementation strategy (long and short term), plant wide departmental operational goals and objectives. ECA achieved operational break-even in the seventh month of operation. The company grew from 11,000 sq. ft.

and 2 employees in 1992 to 70,000 sq. ft. in March of 1996 with 156 employees. ECA's sales ending 1996 were in excess of \$32,000,000 with zero long-term debt. Prior to the start up of ECA Mr. Sauls was employed by Data General Corporation for fifteen years. Data General designs and manufactures computers. Mr. Sauls held several positions during his employment at Data General, including Operational Start Up Manager for Data General's first plant in North Carolina (Clayton) in 1977, Manufacturing manager responsible for printed circuit board assembly and test, Senior Buyer and Purchasing Manager. Mr. Sauls has a proven record in the development of successful high technology start-up companies. The financial performance of his last company is included in this business plan (ATTACHMENT A).

#### **Brent A. Bogart – Director of Materials**

Mr. Bogart was the Purchasing Manager for Mackay Radio Systems, Inc. (MRS). MRS, a division of Thompson-France, a leading manufacturer of High Frequency (HF) radio systems. While employed with MRS, Mr. Bogart managed a commodity portfolio in excess of \$4,000,000 annually and championed a \$1,500,000 outsourcing project. Prior to his employment with MRS, Mr. Bogart was employed with TCI Materials Management, Inc. and was responsible for all material functions relating to TCI's cable systems throughout the Southeastern U.S. Mr. Bogart also spent time with IBM as a commodity analyst where he was responsible for the procurement and scheduling of components for IBM's build schedules. Mr. Bogart joined CSI's management team in November of 1998 and is currently responsible for all material functions.

#### **Russ Phillips – Director of Engineering**

Mr. Phillips has served as the Director of Engineering for Contract Systems Integration, Inc. since its conception in October of 1997. He has been involved in contract manufacturing since 1992 when he was Sr. Quality Engineer for Electrical Concepts and Assemblies in Smithfield, NC, now Flextronics. Mr. Phillips was instrumental in building the infrastructure of that company which grew to annual sales exceeding \$40 million dollars in its fifth year.

Mr. Phillips was recruited by the Sanmina Corporation, the seventh largest contract manufacturer in the U.S., as Quality Manager for their new RTP facility. There, he was part of a three-man team commissioned to take the RTP division from start-up to \$100 million in annual sales within the first 48 months of operation. While at Sanmina he was responsible for all phases of New Product Introduction, including floor layout and product flow, all quality functions including ISO 9002 registration, supplier development and management, and the development and employment of plant level operational procedures. His emphasis on quality control and customer satisfaction attracted new customers such as Northern Telecom and was instrumental in retaining existing customers such as Wandel and Golderman and IBM. Mr. Phillips' operational procedures were quickly adopted by Sanmina Corporate and instituted at all of Sanmina's 21 facilities worldwide. Prior to Mr. Phillips' arrival, Sanmina's product offering consisted of only board level assemblies and backpanels. Mr. Phillips was the essential player in introducing *box-build* and *full systems level* products to the Sanmina portfolio. The RTP division had just reached its first ever million-dollar month when Mr. Phillips was contacted by Glenn Sauls and was offered his current position as Director of Quality and Engineering for CSI, Inc.

**– Director of Sales and Marketing**

The final selection from several highly qualified candidates has not been made.

## **2. The Company and the Industry**

### **2.1 The Company and the Concept**

Contract Systems Integration will take advantage of opportunities made available by large OEMs and high tech startup companies that don't have or want to have the infrastructure required to manufacture high tech electronics.

The management team of CSI brings the intellectual properties gained through working for other successful OEMs and CMs, such as Data General, AMP, ECA, and Sanmina. CSI will build on the fundamental principles established while at those companies and use advanced technologies, manufacturing methods, and management concepts to create the foundation necessary to grow CSI into the 21<sup>st</sup> century.

To help maintain control of its projected growth plan, CSI will put an ISO 9000 Quality System in place. By following the operational procedures already established, CSI can manage its growth effectively.

The CSI management team understands the important role ISO plays in today's global market. Data General, ECA, and Sanmina are all ISO registered companies and CSI's management team played key roles in the certification process of those companies. CSI will take ISO's documentation requirements one step further by implementing on-line documentation throughout their corporate facility in Raleigh and any subsequent satellite facilities. All manufacturing processes, engineering changes, and operational procedures will be controlled via Window's NT Client-Server software.

Establishing the right culture is extremely important to the founders of Contract System Integration. CSI will create a workplace environment which is envied by its competitors. CSI will take recruiting very seriously and screen perspective employees thoroughly to ensure all members share the same philosophies as the management team. CSI will seek friendly, professional, goal oriented individuals with a desire to make real contributions to the growth and success of CSI. CSI will be committed to the success and promotion of its employees.

### **2.2 The Industry**

As competition in the high tech sector heats up, as technology changes from one minute to the next and mid and high level managers from companies of all sizes are told to do more with less, outsourcing has advanced from a curiosity to a strategic necessity.

Outsourcing allows the OEM to concentrate on its core competence, and at the same time, allows the equipment supplier to focus on its core competence, which is manufacturing. Outsourcing gives OEMs the ability to handle business cycles more effectively, reduces in-house production flow and financial exposure for work-in-



progress, and allows the CM to leverage its vendors' technology and competitive pricing, thereby increasing quality and lowering overall cost structure.

### 2.2.1 Competition

There are a number of companies that compete in the CMS market. It is estimated that more than 80% of CMs specialize in printed circuit board fabrication and PCB assembly. The competition for sub-assembly and full system integration is still relatively small. A list of well known CMs performing work at the sub-assembly or “box build” level is outlined in Table 2.2.1.

**Table 2.2.1**

Company	Product Offering	Advantages	Disadvantages	Our Rating
Sanmina	PCBs, Backplanes, Box Build	High volume PCB and Backplanes. Global presence.	Core competence is in PCB and Backplanes. Little box build expertise. High overhead structure.	Medium
C-MAC	Backplanes, Box Build, Full Systems	Nortel spin-off. Diversified product offering.	High overhead structure.	High
ECA	Box Build, Full Systems	Respected box builder and system integrator.	Non-diversified customer base. Local presence only.	High
QMD	PCBs, Box Build	Cost competitive.	Unable to meet quality requirements.	Low
Mid-South	Box Build, Full Systems	Respected box builder and integrator.	Local presence only.	High

CSI will compete with the key players in the contract manufacturing industry by offering manufacturing services more cost effectively than its competitors without sacrificing quality, service, or on-time deliveries. By utilizing the latest technologies available, CSI will produce its customer’s products more efficiently than its competitors and the OEM itself.

CSI’s on-line documentation controls, customer Internet access technology, sophisticated supply chain management programs, and skilled workforce will allow CSI to maintain a low overhead cost structure, thereby reducing the overall cost associated with manufacturing.

### 2.2.2 Customers

CSI’s targeted customers can be divided into two categories:

- Large OEMs
- Emerging high-tech companies

The large OEMs are discovering that they can increase market share and profitability by outsourcing their manufacturing operations. In most cases with large OEMs, the manufacturing operations have grown so large that process controls are lost and efficiencies are sacrificed. In addition to gaining back control of their manufacturing operations by outsourcing, the large OEM can greatly reduce overhead by scaling back the need for manufacturing engineers, buyer/planners, and material handlers. In addition, the OEM eliminates all of the cost associated with additional square footage when space becomes an issue.

The smaller emerging companies are discovering they can double the size of their business without expanding their facility. In some cases, high-tech startups have no desire to manufacture any of their product. CSI will target these companies and offer manufacturing solutions which will allow these companies to focus on their core competency, sales and marketing and R&D.

CSI's management team is already well known and well respected by many of its targeted customers, such as:

- Nortel Networks
- Broadband Technologies
- Ericsson
- IBM
- C-MAC
- Bell and Howell
- Square D
- Mayville Metals
- Exide Electronics
- Alcatel

### **2.2.3 Suppliers**

In some cases suppliers to CSI will be decreed by the customer via an approved vendor list. When CSI is given the freedom to select its own suppliers, multiple sources will be qualified for any given commodity. CSI will implement a supplier rating based on quality performance, on-time delivery, service after the sale, and price. This system will ensure that its suppliers are providing quality components at competitive prices.

The CSI management team has already formed strong relationships with the following suppliers:

- Advanced Quick Circuits
- Electronic Manufacturing Services (EMS)
- Hi-Tech Fabrication
- Accu-Fab
- Premier Circuits
- Celestica
- AMP
- C-MAC

### **3. Products / Services**

#### **3.1 Products**

CSI is a service organization and will build its customer's product to the customer's design and specifications. CSI will not design, develop, or patent its own products but will assist in the development and design of products for its customers.

#### **3.2 Services Rendered**

- Material Logistics
- Electromechanical Sub-assemblies
- Full System Integration
- Prototype Development
- Design through Strategic Alliances

##### **3.2.1 Material Logistics**

More and more of the large OEMs are looking for contract manufacturers to handle the cumbersome task of procuring, merging (or kitting), and then drop shipping the accessory products that support their main product lines. By eliminating this basic material function, an OEM can significantly reduce overhead by eliminating the support personnel required to perform the following:

- Secure Pricing and Lead Times
- Place Orders
- Track Shipments (incoming)
- Receive / Inspect Incoming Material
- Dock Merging
- Packaging
- Shipping / Tracking (outgoing)
- Material Returns

Material logistics is a service offered by CSI. CSI's management team has years of experiencing buying and moving product both domestically and internationally. CSI has already developed a system to electronically receive and place orders for accessory products or other kitting requirements. Customers can place orders to CSI without ever having to pick up the phone or dial up the fax. In most cases orders can be fulfilled and drop shipped anywhere in the world without ever speaking to CSI personnel.

##### **3.2.2 Electromechanical Sub-assemblies**

Basic material logistics often leads to other services provided by CSI, such as electromechanical assemblies. A sub-assembly will usually consist of a sheet metal housing, a few electronic components, cables, and hardware. Once a high confidence level is established, the OEM may outsource more complex systems.

CSI offers this service in two ways, depending on the customer preference. If the customer chooses to keep all the purchasing functions in-house and just outsource the labor to build the assembly, CSI will provide the manufacturing space, the engineering resources, the manufacturing process, and the labor.

The second option, and most cost effective option, is to outsource the labor and material function of the assembly, referred to as “turnkey” in the CMS industry. This turnkey method allows the OEM to reduce material overhead significantly by putting the material logistical burden (see 3.2.1) on the box builder, in this case CSI. CSI can then focus on the following:

- Competitive pricing
- Matching the customer’s technology with the appropriate supplier
- Controlling the quality of the sub-components

Contract Systems Integration’s management team has already established a high confidence level with many of the OEMs in the industry. Ericsson, Bell and Howell, and Square D have already begun putting subsystems into CSI. Other companies such as Nortel Networks, Exide Electronics, and Mayville have shown great interest.

### **3.2.3 Full System Integration**

In most cases, companies will outsource a small kitting operation or sub-assembly prior to outsourcing more complex full systems. Once a certain confidence level is achieved, an OEM may outsource an entire product line. The CSI management team is experienced at integrating full systems. Ericsson has already qualified CSI as the full system integrator for its Private Radio System, although outsourcing plans are presently unclear. Nortel outsourced its LCE Telephone Switch to ECA, a full system with over 12,000 test points. Annual revenue generated by that product alone was over \$10 million. The management team of CSI was responsible for making that program successful. Broadband Technologies also outsourced an entire product line to ECA, its FLX1100, and is now showing great interest in CSI’s potential to perform similar programs.

### **3.2.4 Prototype Development**

OEMs will typically look to outsource its more stable products, ones that have been in production for several years and that have created a loyal consumer base. However, this is not always the case. Contract manufacturers now have the engineering resources to provide “design for manufacturing”, and because manufacturing is the core competence for CMs, they can usually design a system to be more reliable and cost effective. CSI is currently involved in a prototype program with Bell and Howell. CSI is using its manufacturing and design expertise to further develop Bell and Howell’s mail sorting equipment in efforts to reduce cost and increase reliability.

### **3.2.5 Design through Strategic Alliances**

Through CSI’s strategic alliances, it will be able to offer design services to its customers. CSI has already reverse engineered and designed subassemblies for Ericsson, Nortel, and Bell and Howell using its sheet metal vendors, as well as its own engineering group, as a resource. PCB and cable harness design is also a service offered by CSI through strategic alliances.

## **4. Market Research and Analysis**

### **4.1 Market Trend and Drivers**

According to Technology Forecasters, Inc., today's \$90 billion CMS industry is expected to continue to grow at a 25% compounded annual growth rate to roughly \$178 billion in the year 2001. The strong growth will be driven by OEMs increasingly utilizing contract manufacturing service providers in their business and manufacturing strategies, and seeking to outsource a broad range of manufacturing and related engineering services.

The U.S. / Canadian outsourcing market is forecast to have a 31 percent compound annual growth rate between 1998 and 2001. Almost one-third of all contract manufacturing work completed by firms in the U.S. / Canadian market is for the communications industry. Over 30 percent of all contract manufacturing work completed globally is performed for the telecommunications industry.

Even if the industry grows at the estimated 25% per year to the year 2001, only about 26% of the worldwide electronics cost would be captured by the CMS industry according to Technology Forecasters, Inc.

#### **4.1.1 Reduce Production Costs**

The competitive environment for OEMs requires that they achieve a low-cost manufacturing solution and that they quickly reduce production costs for new products. Due to its established manufacturing expertise, production space and infrastructure, CSI can provide OEMs with higher levels of responsiveness, increased flexibility and reduced overall production costs than in-house manufacturing operations.

#### **4.1.2 Accelerate Time to Market**

Rapid technological advances and shorter product life cycles require OEMs to reduce the time required to bring a product to market in order to remain competitive. By providing engineering services, established infrastructure, and advanced manufacturing expertise, CSI can help OEMs shorten their product introduction cycles.

#### **4.1.3 Focus Resources**

Because the electronics industry is experiencing increased competition and technological change, many OEMs are focusing their resources on activities and technologies where they add the greatest value. CSI will offer comprehensive services that allow OEMs to focus on their core competencies.

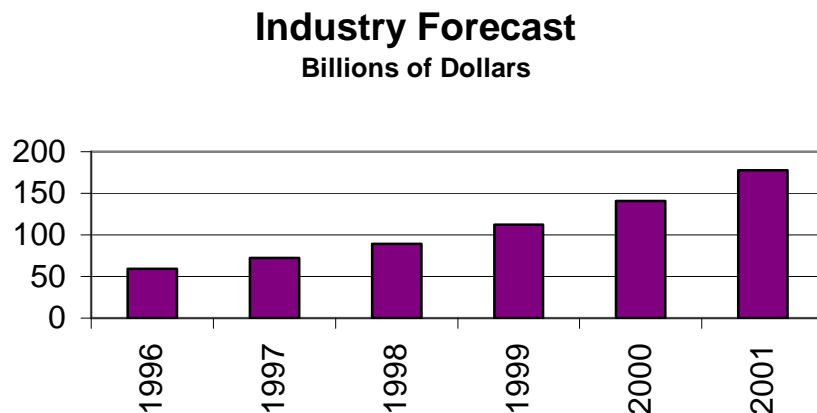
#### **4.1.4 Reduce Investment**

As electronic products have become more technologically advanced, internal manufacturing has required significantly increased investment for working capital, capital equipment, labor, systems, and infrastructure. CSI can enable OEMs to gain access to advanced, high volume manufacturing capabilities without making the capital investments required for internal production.

#### 4.1.5 Improve Inventory and Purchasing Power

OEMs are faced with increased challenges in planning, procuring and managing their inventories efficiently due to frequent design changes, short product life cycles, large investments in electronic components, component price fluctuations and the need to achieve economies of scale in materials procurement. CSI's inventory management expertise and volume procurement capabilities can reduce OEM production and inventory costs, helping them respond to competitive pressures and increase their return on assets.

#### 4.2 CMS Industry Forecast through 2001



### 5. Marketing Plan

#### 5.1 Strategy

CSI will focus on large OEMs of electronic equipment and smaller high-tech start up companies. The marketing and sales effort will focus a significant portion of its energy on companies which already know the CSI management team and its philosophies.

To penetrate companies and regions where CSI is not known, CSI will utilize both in-house sales professionals as well as contracted manufacturing sales representatives. CSI will look first at the southeast region of the U.S. and has already contracted one of the top rated sales rep firms to market its services in North Carolina, South Carolina, Tennessee, Georgia, and Alabama.

#### 5.2 Marketing Mission

CSI's mission is to build a world-class contract manufacturing service with a national presence utilizing the latest manufacturing technology, supply chain management programs, and management principles. CSI will compete with the finest contract manufacturers in the industry today, both big and small, in quality, cost, delivery, and service.

### **5.3 Marketing Goals**

The following are marketing goals for CSI:

- Develop relationships with 15 companies that have the potential of generating \$5 million to \$10 million in annual revenue.
- Increase product portfolio with current customers such as Bell and Howell, Square D, Ericsson, and Nortel Networks.
- Penetrate new markets through direct sales efforts using in-house sales professionals and contracted manufacturing representatives.
- Develop strategic alliances with large sheet metal enclosure companies with needs for further integration of their cabinets.
- Expand promotional activities by creating professional looking promotional materials outlining CSI's competitive advantages, attending trade shows, and increase Internet advertising by registering with all major search engines.

### **5.4 Qualification**

CSI will spend an extensive amount of time training its sales force on the qualification of customers. Manufacturing reps will spend time in CSI's manufacturing facility reviewing its operational procedures, learning the management principles and philosophies by which CSI will operate, gathering knowledge about CSI's core services, and understanding the competitive advantages offered by CSI. Only after a targeted customer is properly qualified will CSI begin the full-blown sales effort.

### **5.5 Future Expansion in other Regions**

In order to react quickly to consumer demands, companies need their suppliers to be located within a close proximity to their manufacturing operations. CSI will strategically locate facilities around the U.S. to accommodate those needs as required. To ensure the success of those facilities, CSI will perform a thorough investigation and market analysis of each region selected for possible expansion. CSI's manufacturing and operations plan for the corporate facility in Raleigh will be duplicated at each new facility. Facilities will be limited to approximately 35,000 square feet in size, thereby minimizing the risk to sudden economic down swings in any given region.

## **6. Manufacturing and Operations Plan**

### **6.1 Introduction**

In the past twelve months, Contract Systems Integration has laid the groundwork for a successful contract manufacturing services operation. CSI will implement proven manufacturing practices to provide the highest quality contract manufacturing service attainable at the most cost competitive prices in the CMS industry. By running operations more efficiently than its competitors, CSI can offer its services for less and still maintain margins above industry standard.

## **6.2 Manufacturing Key Advantages**

### **6.2.1 The Facilities**

CSI will operate from small to medium size facilities located where economic business conditions and customer demand warrants. Operating from such facilities will allow CSI to minimize capital investments, reduce facilitization costs, and lower the high overhead costs normally associated with large manufacturing plants. CSI is headquartered in a 35,000 square foot facility, geographically located next to large OEMs and high-tech electronic equipment manufacturers, typical of the type facility CSI will occupy when it expands into other regions of the U.S.

### **6.2.2 The Layout**

Manufacturing areas will be set up to best utilize floor space. CSI will have dedicated areas for Incoming Inspection, Stocking, Manufacturing, Quality Control, and Shipping. Assembly lines will be versatile, capable of adapting to a variety of assembly methods and product types. Material handling will be kept to a minimum as product moves through the plant and raw material becomes finished goods. CSI will use the most modern and efficient equipment available to minimize labor standards.

### **6.2.3 On-line Manufacturing Processes**

On-line manufacturing processes will be utilized at workstations to further reduce labor standards and increase quality yields. Changes to the product or manufacturing processes will be made quickly via these on-line documents, thereby making implementation of the customer's design changes more efficient, which ultimately reduces the cost per product and time to market for the customer. CSI's use of on-line documentation is a technology not deployed by the vast majority of OEMs or contract manufacturers.

### **6.2.4 Bar Coding / Data Collection**

- Bar coding will be another technology implemented at CSI, which will allow real-time material and data tracking of raw material, as well as finished product, as it moves through various stages of manufacturing. This will allow CSI to monitor material flow and pinpoint bottlenecks or problem areas quickly. Labor standards can be more precisely defined and FIFO procedures implemented more accurately.
- CSI already has a state-of-the-art data collection system in place, which includes proprietary software, that allows quality data to be collected at all incoming and final inspection workstations. By having the inspector enter this data directly into the system, overhead costs are drastically reduced. The need for a high salaried quality engineer or data analyst to manually create quality reports is eliminated. Very few OEMs or CMs utilize this information gathering technology, although all reputable manufacturers require the information generated by QC personnel.



- The data collected is instantly made available to CSI personnel via its Intranet software. The same data used internally by CSI is also made available to its customer's via CSI's interactive web site. Once customers log on using a User ID and password, they can access tables and graphs filled with up-to-the-second information about their products and CSI's suppliers. CSI is setting the standard for such real-time customer informational access via the World Wide Web.
- CSI will empower its inspectors by authorizing them to stop production on an assembly line when the data collection system indicates acceptable quality levels have been breached. This allows a root cause failure analysis to be performed before entire job orders are deemed defective, thereby reducing costly scrap and rework.

### **6.2.5 ISO 9002**

CSI will operate under the procedures and guidelines set forth by ANSI/ASQC Q9002. This will not only yield a more efficiently run manufacturing process, but add to the reliability and overall quality of products produced at CSI. Also, an ISO 9002 registration will allow CSI to service companies operating in global markets. In today's competitive environment, ISO 9000 has become a standard practice for most reputable manufacturing organizations; CSI will exceed ISO requirements by virtue of its tightly controlled on-line documentation procedures.

### **6.2.6 Product Make Up**

The products targeted by CSI can be divided into two primary categories:

- medium to high volume / low mix, with a high material-to-labor ratio
- low volume with a high labor-to-material ratio

To compete with low offshore labor rates, CSI will target medium to high volume products that are made up of a high material content and relatively low labor content. Traditionally, outsourced box build equipment is made up of 75% material and 5% labor which makes domestic manufactures more cost effective than manufacturers overseas, which must pay the expensive transportation cost of getting material in and out of foreign countries.

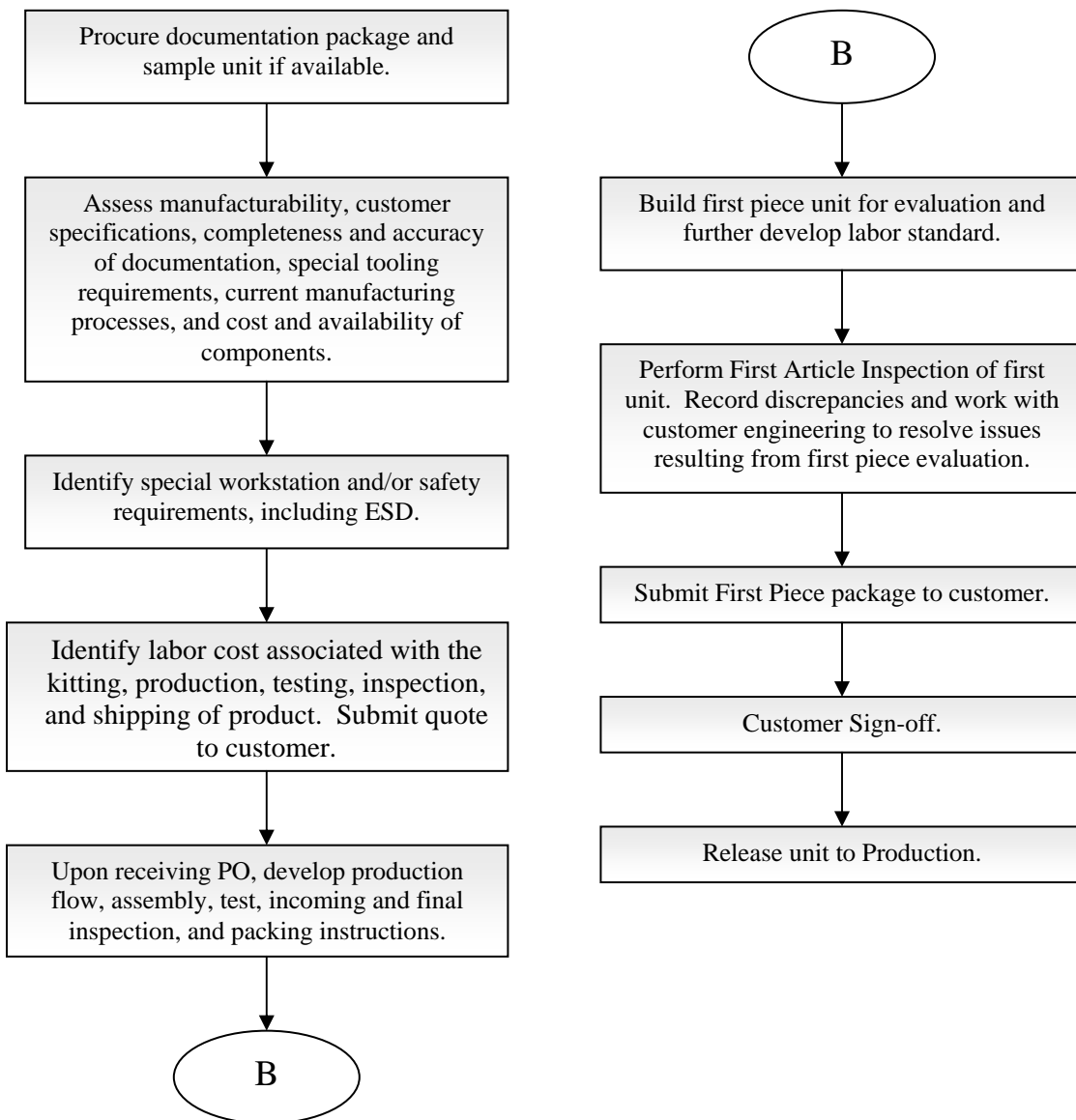
CSI will also target lower volume box build equipment that has a high ratio of labor to materials. In cases with lower volumes, the savings due to lower labor rates do not justify the material logistical expenditures associated with overseas freight.

### **6.2.7 Materials Management**

As previously stated 75% of the cost of products produced by a box builder is in material. The proper management of material is paramount to the success of a contract manufacturer. CSI will employ "Fourth Shift", a sophisticated MRP II Integrated Database Management software to control all material functions of the business, including financials. This system is the same one used by Solectron, the second largest contract manufacturer in the world. CSI will also use materials management concepts such as "just-in-time" delivery to keep inventory turns high, thereby minimizing the amount of working capital tied up in material.

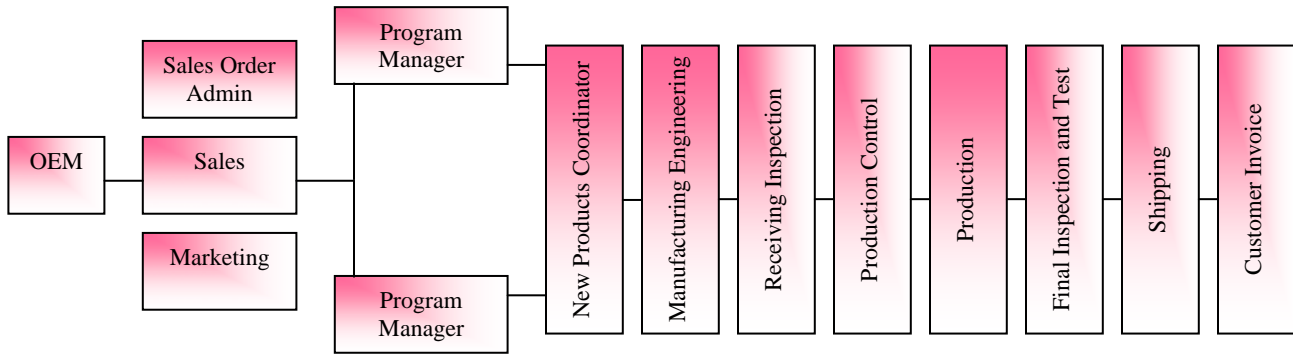
## 6.2.8 New Product Introduction

OEMs are sometimes reluctant to outsource products to contract manufacturers regardless of reputation, after all, it's the OEMs reputation at stake if a product's performance and reliability deteriorate after the product is outsourced. CSI has developed a system for introducing new products into its manufacturing operations that gives the OEM a high confidence level for successful product transfer. The following flow chart briefly outlines the activities that take place every time a product is transferred from an OEM to CSI.

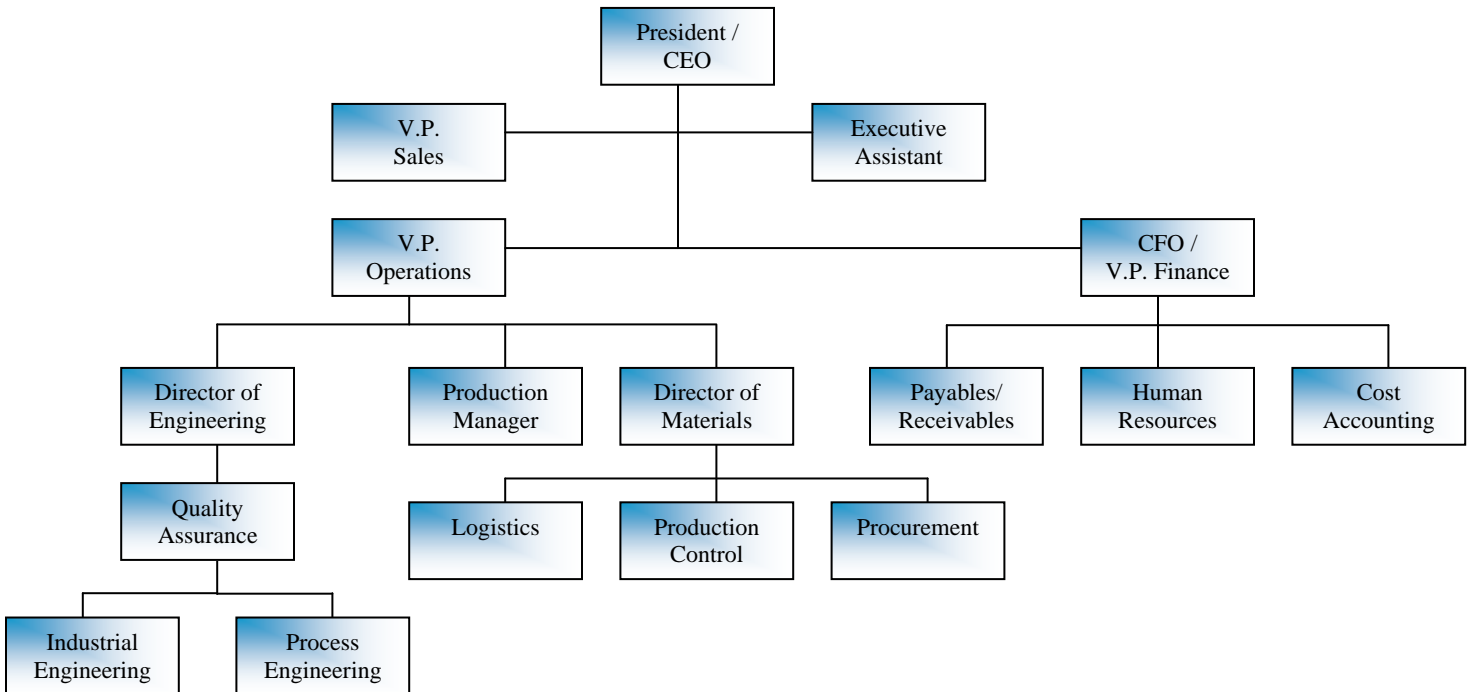


### 6.2.9 Customer to CSI Transition

The following flow chart describes how product evolves from a customer order, through manufacturing, to shipping, and finally invoicing.



### 6.2.10 Organizational Chart



## **7. The Financial Plan**

### **7.1 Pro Forma Financial Statements**

Contract Systems Integration, Inc., has been operational for 16 months, all manufacturing operations and infrastructures are in place and functional. The financial plan will provide the funds to rapidly expand CSI's presence in the industry. As described in Section 4.1, the contact manufacturing industry is forecasted to grow at a 25% annual growth rate. The plan provides for profitable operations in 1999. The plan reflects a very conservative financial position with tight controls of overhead and cash flow.

### **7.2 Gross Operating Margins**

	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
<b>Gross Margins</b>	651,661	1,900,000	3,660,000	5,508,000	7,140,000
<b>Income from Operations</b>	85,643	1,157,550	2,747,800	4,389,625	5,902,250

### **7.3 Breakeven Analysis**

Breakeven occurs in the second quarter of operation 1999.

## 7.4 Income Statement

### Income statement (Year Ended December 31)

	1998	1999	2000	2001	2002	2003
<b>Revenue</b>	695,152	4,076,000	10,000,000	18,000,000	27,000,000	35,000,000
<b>Cost of Sales</b>	847,598	3,424,339	8,100,000	14,340,000	21,492,000	27,860,000
<b>Gross Margins</b>	(152,446)	651,661	1,900,000	3,660,000	5,508,000	7,140,000
<b>Selling and Admin</b>	372,466	556,763	725,950	848,075	1,065,500	1,220,875
<b>Income (loss) from</b>						
<b>Operations</b>	(524,912)	94,898	1,174,050	2,811,925	4,442,500	5,919,125
<b>Interest Expense</b>	4,136	9,255	22,500	64,125	52,875	16,875
<b>Net Income (loss)</b>						
<b>Before Taxes</b>	(529,048)	85,643	1,151,550	2,747,800	4,389,625	5,902,250
<b>Income Taxes</b>	-	29,118	391,527	934,252	1,492,473	2,006,765
<b>Net Income</b>	(529,048)	56,525	760,023	1,813,548	2,897,152	3,895,485
<b>Gross Margins %</b>	-21.93%	15.99%	19.00%	20.33%	20.40%	20.40%
<b>Net Income %</b>	-76.11%	1.39%	7.60%	10.08%	10.73%	11.13%

## 7.5 Balance Sheet (Year Ended December 31)

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
<b>ASSETS</b>						
<b>Current Assets</b>						
Cash	23,996	435,074	5,650	(2,278)	22,447	1,380,475
Accounts Receivable	131,253	862,500	2,116,331	3,810,000	5,715,000	7,408,333
Inventory	50,120	843,429	1,995,383	3,438,000	5,152,685	6,679,406
Short Term Assets	16,950	16,950	16,950	16,950	16,950	16,950
<b>Total Current Assets</b>	<u>222,319</u>	<u>2,157,953</u>	<u>4,134,314</u>	<u>7,262,672</u>	<u>10,907,082</u>	<u>15,485,164</u>
<b>Long Term Assets</b>						
Capital Assets	98,001	198,001	348,001	498,001	648,001	798,001
Accumulated Depreciation	(18,312)	(46,512)	(96,212)	(167,412)	(259,912)	(373,912)
<b>Total Long Term Assets</b>	<u>79,689</u>	<u>151,489</u>	<u>251,789</u>	<u>330,589</u>	<u>388,089</u>	<u>424,089</u>
<b>Total Assets</b>	<u><u>302,008</u></u>	<u><u>2,309,442</u></u>	<u><u>4,386,103</u></u>	<u><u>7,593,261</u></u>	<u><u>11,295,171</u></u>	<u><u>15,909,253</u></u>
<b>LIABILITIES AND CAPITAL</b>						
<b>Liabilities</b>						
Accounts Payable	246,606	597,515	1,414,153	2,507,763	3,737,521	4,831,118
Short-term Liabilities	446	446	500,446	800,446	446	446
Long-term Liabilities	200,000	-	-	-	-	-
<b>Total Liabilities</b>	<u>447,052</u>	<u>597,961</u>	<u>1,914,599</u>	<u>3,308,209</u>	<u>4,112,967</u>	<u>4,831,564</u>
<b>Capital</b>						
Paid in Capital	500,000	2,300,000	2,300,000	2,300,000	2,300,000	2,300,000
Retained Earnings	(529,079)	(645,044)	588,519	171,504	1,985,052	4,882,204
Earnings	(115,965)	56,525	760,023	1,813,548	2,897,152	3,895,485
<b>Total Capital</b>	<u>(145,044)</u>	<u>1,711,481</u>	<u>2,471,504</u>	<u>4,285,052</u>	<u>7,182,204</u>	<u>11,077,689</u>
<b>Total Liabilities and Capital</b>	<u><u>302,008</u></u>	<u><u>2,309,442</u></u>	<u><u>4,386,103</u></u>	<u><u>7,593,261</u></u>	<u><u>11,295,171</u></u>	<u><u>15,909,253</u></u>

## 7.6 Projected Cash Flow

	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
<b>Net Profit</b>	56,525	760,023	1,813,548	2,897,152	3,895,485
<b>Depreciation</b>	28,200	49,700	71,200	92,500	114,000
<b>Change in Accounts Payable</b>	350,909	816,638	1,093,610	1,229,758	1,093,597
<b>Short-term Borrowing (repayment)</b>		500,000	300,000	(425,000)	(375,000)
<b>Long-Term Borrowing (repayment)</b>	(200,000)				
<b>Capital Input</b>	1,800,000				
<b>Subtotal</b>	<u>2,035,634</u>	<u>2,126,361</u>	<u>3,278,358</u>	<u>3,794,410</u>	<u>4,728,082</u>
<b>Less:</b>					
<b>Change in Accounts Receivable</b>	731,247	1,253,831	1,693,669	1,905,000	1,693,333
<b>Change in Inventory</b>	793,309	1,151,955	1,442,617	1,714,685	1,526,721
<b>Capital Expenditures</b>	100,000	150,000	150,000	150,000	150,000
<b>Subtotal</b>	<u>1,624,556</u>	<u>2,555,786</u>	<u>3,286,286</u>	<u>3,769,685</u>	<u>3,370,054</u>
<b>Net Cash Flow</b>	411,078	(429,424)	(7,298)	24,725	1,358,028
<b>Cash Balance</b>	<u>435,074</u>	<u>5,650</u>	<u>(2,278)</u>	<u>22,447</u>	<u>1,380,475</u>

## **8. APPENDIX 1 – Financial Performance of Electrical Concepts and Assemblies**

Mr. Sauls was President and CEO for Electrical Concepts and Assemblies, Inc. (ECA) from 1992 until 1997. ECA, now Chatham Technologies, is a full service Electronic Contract Manufacturing Company incorporated in November of 1991. Mr. Sauls developed startup plans for the company to include staffing, operational budget, marketing plan, identification of potential customer base, sales implementation strategy (long and short term), plant wide departmental operation goals and objectives. ECA achieved operational break-even in the seventh month of operation. The company grew from 11,000 sq. ft. and two employees in 1992 to 70,000 sq. ft. in March of 1996 with 156 employees. ECA's sales ending 1996 were in excess of \$32,000,000 with zero long-term debt. The financial performance of ECA is reflected in the following pages. The appraisal was performed by Trugman Valuation Associated, Inc., an independent business valuation firm specializing in appraisals of closely held businesses ([www.trugmanvaluation.com](http://www.trugmanvaluation.com)).



## 8.1 Financial Statements

Table 8.1A:

### Common Size Balance Sheet as of

	August 31,				Jan 31,	
	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>Integra</u>
<b>Current Assets</b>						
Cash	-0.32%	8.20%	1.83%	20.45%	9.14%	10.30%
Accounts Receivable	48.97%	32.94%	46.05%	40.37%	36.69%	21.90%
Inventories	40.57%	45.86%	38.61%	31.00%	42.69%	28.70%
Prepaid Expenses	0.53%	0.00%	0.00%	0.07%	0.06%	-
Prepaid Taxes	0.00%	0.00%	5.37%	0.00%	0.00%	-
Notes Receivable	0.02%	0.00%	0.00%	0.00%	0.46%	-
Other Current Assets	0.00%	0.00%	0.00%	0.21%	0.06%	3.90%
<b>Total Current Assets</b>	<u>89.76%</u>	<u>87.00%</u>	<u>91.87%</u>	<u>92.10%</u>	<u>89.05%</u>	<u>64.80%</u>
<b>Fixed Assets</b>						
Gross Fixed Assets	11.40%	13.95%	10.47%	10.92%	14.83%	-
Accumulated Depreciation	1.64%	1.55%	2.37%	3.03%	3.88%	-
<b>Net Fixed Assets</b>	<u>9.76%</u>	<u>12.40%</u>	<u>8.10%</u>	<u>7.89%</u>	<u>10.95%</u>	<u>25.30%</u>
<b>Other Assets</b>						
Intangible Assets, Net	0.00%	0.00%	0.00%	0.00%	0.00%	3.00%
Security Deposits	0.01%	0.01%	0.01%	0.00%	0.00%	-
Startup and Organization Costs	0.13%	0.00%	0.00%	0.00%	0.00%	-
Stock Subscription Receivable	0.33%	0.00%	0.00%	0.00%	0.00%	-
Other Assets	0.00%	0.59%	0.02%	0.00%	0.00%	6.90%
<b>Total Other Assets</b>	0.47%	0.60%	0.03%	0.01%	0.00%	9.90%
<b>TOTAL ASSETS</b>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>

Table 8.1B:

**Common Size Balance Sheet  
as of**

	<u>August 31,</u>				<u>Jan 31,</u>	
	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>Integra</u>
<b>Current Liabilities</b>						
Accounts Payable	61.76%	46.47%	64.24%	24.29%	31.30%	12.10%
Long-Term Debt - Current Portion	0.00%	23.00%	0.18%	0.06%	0.00%	-
Notes Payable	23.47%	15.44%	7.20%	0.00%	0.00%	9.10%
Accrued Expenses	2.59%	3.60%	2.38%	5.17%	2.57%	-
Payroll Taxes Payable	0.73%	0.00%	0.00%	0.00%	0.04%	-
Income Taxes Payable	0.14%	7.54%	0.00%	17.87%	1.20%	-
Other Current Liabilities	0.00%	0.00%	0.00%	0.00%	0.00%	10.80%
<b>Total Current Liabilities</b>	<u>88.68%</u>	<u>73.28%</u>	<u>74.00%</u>	<u>47.40%</u>	<u>35.11%</u>	<u>32.00%</u>
<b>Long-Term Liabilities</b>						
Long-Term Debt	0.00%	0.82%	0.42%	0.09%	14.00%	14.60%
Deferred Taxes	0.00%	0.00%	0.02%	0.48%	0.00%	-
Other Liabilities	0.00%	0.00%	0.00%	0.00%	0.00%	2.70%
<b>Total Long-Term Liabilities</b>	<u>0.00%</u>	<u>0.82%</u>	<u>0.44%</u>	<u>0.57%</u>	<u>0.14%</u>	<u>17.30%</u>
<b>Total Liabilities</b>	<u>88.68%</u>	<u>74.10%</u>	<u>74.44%</u>	<u>47.97%</u>	<u>35.24%</u>	<u>49.30%</u>
<b>Stockholders' Equity</b>						
Common Stock	0.33%	0.23%	0.16%	0.13%	0.14%	-
Retained Earnings	10.99%	25.90%	25.56%	52.03%	64.62%	-
Treasury Stock	0.00%	-0.23%	-0.16%	-0.13%	0.00%	-
<b>Total Stockholders' Equity</b>	<u>11.32%</u>	<u>25.90%</u>	<u>25.56%</u>	<u>52.03%</u>	<u>64.76%</u>	<u>50.70%</u>
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>

Table 8.1C:

**Common Size Income Statement  
for the**

	<u>Years Ended August 31,</u>				<b>Period Ended Jan 31</b>	<b><u>Integra</u></b>
	<b><u>1993</u></b>	<b><u>1994</u></b>	<b><u>1995</u></b>	<b><u>1996</u></b>	<b><u>1997</u></b>	
<b>Total Revenues</b>	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
<b>Total Cost of Sales</b>	83.23%	81.87%	88.20%	83.64%	86.34%	67.10%
<b>Gross Profit</b>	16.77%	18.13%	11.80%	16.36%	13.36%	32.90%
<b>Total Operating Expenses</b>	9.95%	10.96%	8.43%	3.64%	4.35%	29.80%
<b>Operating Income</b>	6.82%	7.17%	3.37%	12.71%	9.31%	3.10%
<b>Other Income (Expenses)</b>	0.20%	0.02%	0.05%	0.15%	0.30%	-1.20%
<b>Income Before Taxes</b>	7.02%	7.19%	3.42%	12.87%	9.61%	1.90%
<b>Income Taxes</b>	2.32%	2.83%	1.25%	5.10%	3.79%	0.70%
<b>NET INCOME</b>	4.69%	4.36%	2.16%	7.77%	5.82%	1.20%

## 8.1 Financial Statements

A review of Table 8.1A and 8.1B shows that ECA has significantly improved the health of its balance sheet over the period. Stockholder's equity has grown from 11.32 percent of total assets to 64.76 percent of total assets. This represents a 53.44 percent change in equity.

Current assets are a much larger percentage of total assets than the statistics for the industry. As a result, fixed assets are a lower percentage of total assets for ECA than for the industry. It appears this is a result of the tremendous growth in retained earnings, not an insufficient investment in fixed assets.

Current liabilities as a percentage of total assets for ECA are much lower than for the industry. Long-term liabilities for ECA are almost non-existent, making them much lower than the industry median. This is mainly the result of ECA no having any long-term debt on its balance sheet.

As mentioned previously, stockholders' equity has improved dramatically over the period; ECA significantly outpaces the industry median.

A review of Table 8.1C shows that ECA has had some fluctuations in its gross profit and that it is significantly below the industry median. This may be a result of ECA doing more sub-assembly of other products, while some of the industry comparables are doing some actual manufacturing.

Operating expenses are also well below the median for the industry. In addition, ECA has significantly reduced its operating expenses as a percentage of sales. The change from 1995 to 1996, alone, represents over a 56 percent drop in operating expenses as a percentage of sales. This shows ECA has gained significant efficiencies in its operations as a result of effective management combined with growth. Looking at ECA's pre-tax profitability, it is over 500 percent of the industry median.

Another component of financial analysis is ratio analysis, which is used to help the appraiser determine trends that have taken place in the business' financial performance. It is also another way to compare the subject company with other companies in the industry. The following sections reflect this analysis.

## 8.2 Liquidity Ratios

*Liquidity is a measure of the quality and adequacy of current assets to meet current obligations as they come due.*

### 8.2.1 Current Ratio

	August 31,				Jan 31,	
	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>Integra</u>
Current Ratio	1.0	1.2	1.2	1.9	2.5	2.1

Computation: Total current assets divided by total current liabilities.

$$\frac{\text{Total Current Assets}}{\text{Total Current Liabilities}}$$

Interpretation: This ratio is a rough indication of a firm's ability to service its current obligations. Generally, the higher the current ratio, the greater the "cushion" between current obligations and a firm's ability to pay them. The stronger ratio reflects a numerical superiority of current assets over current liabilities. However, the composition and quality of current assets is a critical factor in the analysis of an individual firm's liquidity.

Appraisal Subject: ECA has shown tremendous improvement in its current ratio, as it has increased two and on-half times from 1992 to 1997. ECA has somewhat better liquidity than the industry norms. Reviewing the balance sheet in Schedule 1 shows high quality current assets comprised of cash, accounts receivable, and inventory.

### 8.2.2 Quick Ratio

	August 31,				Jan 31,	
	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>Integra</u>
Quick Ratio	0.6	0.6	0.7	1.3	1.3	1.0

Computation: Cash and equivalents plus trade receivables divided by total current liabilities.

$$\frac{\text{Cash \& Equivalents + trade Receivables (Net)}}{\text{Total Current Liabilities}}$$

Interpretation: Also known as the "Acid Test" ratio, it is a refinement of the current ratio and is a more conservative measure of liquidity. The ratio expresses the degree to which a company's current liabilities are covered by the most liquid current assets. Generally, any value of less than one to one implies a reciprocal "dependency" on inventory or other current assets to liquidate short-term debt.

Appraisal Subject: As with the current ratio, ECA has shown tremendous improvement in this ratio; it has doubled from 1993 to 1997. The increase in both ratios mainly results from a significant decrease in accounts payable and an elimination of notes payable. Comparing ECA to the industry medians shows ECA's quick ratio is slightly above the industry median. This shows that ECA has built up sufficient liquidity.

### 8.2.3 Sales to Receivables

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Sales to Receivables	6.3	12.5	6.9	10.2	4.6	8.2

Computation: Net sales are divided by trade receivables.

$$\frac{\text{Net Sales}}{\text{Trade Receivables (Net)}}$$

Interpretation: This ratio measures the number of times trade receivables turn over during the year. The higher the turnover of receivables, the shorter the time between sale and cash collection.

Appraisal Subject: Although ECA's turnover of accounts receivable has been somewhat erratic over the period, it is faster than the industry's median indicating that the time between sale and collection of receivables is shorter than the comparative industry. To obtain a comparable ratio for 1997, an adjustment to annualize sales is required. This results in a ratio of 11.1 for 1997. This shows that ECA is effectively managing its accounts receivable and the collection function.

### 8.2.4 Receivables Day Sales

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Receivables Day Sales	57.9	29.2	52.8	35.9	79.2	45.0

Computation: The sales/receivables ratio divided into 365 (the number of days in one year).

$$\frac{365}{\text{Sales/Receivable Ratio}}$$

Interpretation: This figure expresses the average time in days that receivables are outstanding. Generally, the greater number of days outstanding, the greater the probability of delinquencies in accounts receivable. A comparison of a company's daily receivables may indicate the extent of a company's control over credit and collections. The terms offered by a company to its customer, however, may differ from terms within the industry and should be taken into consideration.

Appraisal Subject: Using the adjusted sales to receivables ratio calculated above, results in an adjusted figure of 33.0 days receivable for 1997. Since ECA has a shorter time span between sales and collection of receivables than is counterparts, the average time that receivables are outstanding is shorter. This again shows that management is effectively managing the collection function.

### 8.2.5 Cost of Sales to Inventory

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Cost of Sales to Inventory	6.3	7.4	7.3	11.1	3.4	4.2

Computation: Cost of sales divided by inventory.

$$\frac{\text{Cost of Sales}}{\text{Inventory}}$$

Interpretation: This ratio measures the number of times inventory is turned over during the year. High inventory turnover can indicate better liquidity or superior merchandising. Conversely it can indicate a shortage of needed inventory for sales. Low inventory turnover can indicate poor liquidity, possibly overstocking, obsolescence, or in contrast to these negative interpretations a planned inventory buildup in the case of material shortages. A problem with this ratio is that it compares one day's inventory to cost of goods sold and does not take seasonal fluctuations into account.

Appraisal Subject: ECA has historically turned its inventory much faster than the industry median. The historic results show a general upward trend over the period. The tremendous jump in 1996's ratio is a result of a steady level of inventory, as cost of sales grew approximately 55 percent. Based on our discussions with management, these turns are the result of effective inventory control procedures. Adjusting the 1997 ratio through annualization of cost of sales for comparability results in a ratio of 8.2. The interpretation of this ratio is that management is doing a better job at inventory management than its peers.

### 8.2.6 Inventory Days Sales

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Inventory Days Sales	57.6	49.6	50.2	32.9	106.8	98.0

Computation: The cost of sales/inventory ratio divided into 365 (the number of days in one year).

$$\frac{365}{\text{Cost of Sales/Inventory Ratio}}$$

Interpretation: Division of the inventory turnover ratio into 365 days yields the average length of time units are in inventory.

Appraisal Subject: Using the adjusted cost of sales to inventory ratio results in an inventory days sales figure of 44.5. This shows that ECA holds inventory for a far shorter period of time than the industry norms indicate. This is again a sign of effective inventory management.

### 8.2.7 Cost of Sales to Payables

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Cost of Sales to Payables	4.2	7.3	4.4	14.1	4.7	8.6

Computation: Cost of sales divided by trade payables.

$$\frac{\text{Cost of Sales}}{\text{Trade Payables}}$$

Interpretation: This ratio measures the number of times trade payables turn over during the year. The higher the turnover of payables, the shorter the time between purchase and payment. If a company's payables appear to be turning more slowly than the industry, then the company may be experiencing cash shortages, disputing invoices with suppliers, enjoying extended terms, or deliberately expanding its trade credit. The ratio comparison of company to industry suggest the existence of these possible causes or others. If a firm buys on 30-day terms, it is reasonable to expect this ratio to turn over in approximately 30 days.

A problem with this ratio is that it compares one day's payables to cost of goods sold and does not take seasonal fluctuations into account.

Appraisal Subject: The historic trend in ECA's payable turnover is generally improving, albeit erratic, over the period. The increase in 1994's ratio was a result of a large increase in cost of sales with a less than proportional increase in accounts payable. The drop off in 1995's ratio was a result of just the opposite: a large increase in payables with a relatively small increase in sale. This situation was again reversed in 1996 when sales increased over 64 percent and payables decreased by approximately 52 percent. At current, ECA's ratio adjusted for annualized cost of sales is 11.2, which is well above the industry median. This shows that ECA is paying its creditors in a reasonable period of time and has substantially improved its credit position over time.



### 8.2.8 Days Payables

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Days Payables	87.7	50.3	83.6	25.8	78.3	40.0

Computation: The cost of sales/payables ratio divided into 365 (the number of days in one year).

$$\frac{365}{\text{Cost of Sales/Payables Ratio}}$$

Interpretation: Division of the payables turnover ratio into 365 days yields the average length of time trade debt is outstanding.

Appraisal Subject: Based on the definition of this ratio, its trend mimics that of cost of sales to payables, for the same reasons discussed in the analysis of that ratio. Using the adjusted cost of sales to payables ratio results in a day payable of 32.6. Comparing ECA to the industry medians shows its ratio is far greater than the median. This shows that ECA is adequately turning its payables.

### 8.2.9 Sales to Working Capital

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Sales to Working Capital	286.3	30.0	17.8	9.2	3.1	5.4

Computation: Net sales divided by net working capital (current assets less current liabilities equals net working capital).

$$\frac{\text{Net Sales}}{\text{Net Working Capital}}$$

Interpretation: Working capital is a measure of the margin of protection for current creditors. It reflects the ability to finance current operations. Relating the level of sales arising from operations to the underlying working capital measures how efficiently working capital is employed. A low ratio may indicate an inefficient use of working capital while a very high ratio often signifies overtrading – a vulnerable position for creditors.

Appraisal Subject: ECA's sales to working capital ratio has been on a downward trend during the period. The main reason for this has been the improvement in the Company's working capital position during the period. ECA was clearly in a position of overtrading its working capital in 1993 through 1995. In comparing ECA's 1997 adjusted ratio for annualized sales of 7.5 to the industry data, it is somewhat above the median, showing effective and improved working capital management.

### 8.3 Coverage Ratios

*Coverage ratios measure a firm's ability to service debt.*

#### 8.3.1 Interest Earned

	August 31,				Jan 31,	
	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>Integra</u>
Times Interest Earned	18.8	17.3	9.9	162.1	2909.3	2.3

Computation: Earnings (profit) before annual interest expense and taxes divided by annual interest expense.

$$\frac{\text{Earnings Before Interest \& Taxes}}{\text{Annual Interest Expense}}$$

Interpretation: This ratio is a measure of a firm's ability to meet interest payments. A high ratio may indicate that a borrower would have little difficulty in meeting the interest obligations of a loan. This ratio also serves as an indicator of a firm's capacity to take on additional debt.

Appraisal Subject: ECA has very little interest bearing debt and is significantly more profitable than the industry median. This results in tremendous ratios, indication that ECA has a very large capacity to take on debt. The adjusted ratio based on annualized figures is 6980.9.

## 8.4 Leverage Ratios

*Highly leveraged firms (those with heavy debt in relation to net worth) are more vulnerable to business downturns than those with lower debt to worth positions. While leverage ratios help to measure this vulnerability, it must be remembered that they vary greatly depending on the requirements of particular industry groups.*

### 8.4.1 Net Worth

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Net Fixed to Tangible Net Worth	0.9	0.5	0.3	0.2	0.2	0.5

Computation: Fixed assets (net of accumulated depreciation) divide by tangible net worth.

$$\frac{\text{Net Fixed Assets}}{\text{Tangible Net Worth}}$$

Interpretation: This ratio measures the extent to which owner's equity (capital) has been invested in plant and equipment (fixed assets). A lower ratio indicates a proportionately smaller investment in fixed assets in relation to net worth, and a better "cushion" for creditors in case of liquidation. Similarly, a higher ratio would indicate the opposite situation. The presence of substantial lease fixed assets (not shown on the balance sheet) may deceptively lower this ratio.

Appraisal Subject: ECA's ratio has decreased by over 77 percent during the period. This is mainly a result of significant increases in net worth, while fixed assets have grown at a much slower rate. Comparing ECA to the industry, it is clear that ECA is well below the industry medians. This is due to ECA's greater profitability and equity. This provides an excellent protection to creditors.

## 8.4.2 Debt to Equity

	August 31,				Jan 31,	<u>Integra</u>
	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	
Debt to Equity	7.8	2.9	2.9	0.9	0.6	0.8

Computation: Total liabilities divided by tangible net worth.

$$\frac{\text{Total Liabilities}}{\text{Tangible Net Worth}}$$

Interpretation: This ratio expresses the relationship between capital contributed by creditors and that contributed by owners. It expresses the degree of protection provided by the owners for the creditors. The higher the ratio, the greater the risk being assumed by creditors. A lower ratio generally indicates greater long-term financial safety. A firm with a low debt/worth ratio usually has greater flexibility to borrow in the future. A more highly leverage company has a more limited debt capacity.

Appraisal Subject: ECA has shown dramatic improvement in this ratio through the period. This has been a result of the significant growth in net worth, while total liabilities were increasing at a much slower rate. The industry ratio clearly shows that ECA is much less leveraged than the median company, and has much greater borrowing capacity.

## 8.5 Operating Ratios

*Operating ratios are designed to assist in the evaluation of management performance.*

### 8.5.1 % Profits Before Taxes/Tangible Net Worth

	August 31,				Jan 31,	<u>Integra</u>
	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	
% Profits Before Taxes/Tangible Net Worth	191.6%	114.3%	42.5%	101.6%	25.1%	5.4%

Computation: Profit before taxes divided by tangible net worth and multiplied by 100.

$$\frac{\text{Profit Before Taxes}}{\text{Tangible Net Worth}} \times 100$$

Interpretation: This ratio expresses the rate of return on tangible capital employed. While it can serve as an indicator of management performance, the analyst is cautioned to use it in conjunction with other ratios. A high return, normally associated with effective management, could indicate an undercapitalized firm. Whereas, a low return, usually an indicator of inefficient management performance, could reflect a highly capitalized, conservatively operate business.

Appraisal Subject: ECA's returns far outpace the industry median. ECA's ratio adjusted for annualized pre-tax profits was 60.2 in 1997. Based on our analysis to this point, it is clear that ECA is not under-capitalized, and these returns are generated by superb operational management and performance.

### 8.5.2 % Profit Before Taxes/Total Assets

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
% Profit Before Taxes/Total Assets	21.7%	29.6%	10.9%	52.9%	16.2%	3.0%

Computation: Profit before taxes divided by total assets and multiplied by 100.

$$\frac{\text{Profit Before Taxes}}{\text{Total Assets}} \times 100$$

Interpretation: This ratio expresses the pre-tax return on total assets and measures the effectiveness of management in employing the resources available to it. A heavily depreciated plant and a large amount of intangible assets or unusual income or expense items will cause distortions of the ratio.

Appraisal Subject: ECA's ratio in 1997, when adjusted by annualizing pre-tax income, is 39.0 percent. These returns are clearly superior to the industry median and reflect the highly profitable nature of ECA. This again shows very effective management and asset utilization by ECA.

### 8.5.3 Sales/Net Fixed Assets

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Sales/Net Fixed Assets	31.7	33.2	39.3	52.1	15.4	6.3

Computation: Net sales divided by net fixed assets (net of accumulated depreciation).

$$\frac{\text{Net Sales}}{\text{Net Fixed Assets}}$$

Interpretation: This ratio is a measure of the productive use of a firm's fixed assets. Largely depreciated fixed assets or a labor intensive operation may cause a distortion of this ratio.

Appraisal Subject: ECA's 1997 ratio needs to be adjusted by annualizing sales for comparability to other periods. This result is a ratio of 37.0. At first glance, it may appear that ECA's ratios are distorted. However, this is not the case, as the Company's fixed assets are largely undepriciated. In comparing ECA's figures to the industry median, ECA is utilizing its fixed assets much better than its peers.

#### 8.5.4 Sales/Total Assets

	August 31,				Jan 31,	Integra
	1993	1994	1995	1996	1997	
Sales/Total Assets	3.1	4.1	3.2	4.1	1.7	1.6

Computation: Net sales divided by total assets.

$$\frac{\text{Net Sales}}{\text{Total Assets}}$$

Interpretation: This ratio is a general measure of a firm's ability to generate sales in relation to total assets. It should be used only to compare firms within specific industry groups and in conjunction with other operating ratios to determine the effective employment of assets.

Appraisal Subject: Again, annualization of sales is required, making ECA's 1997 ratio 4.1. Although they have experienced some fluctuation throughout the period, ECA's ratios are superior to the industry median. In fact, ECA's 1997 ratio is more than double the median. Clearly, ECA is employing its assets in a very efficient manner.

Based on our analysis, it appears that ECA is a highly profitable, efficiently run company. ECA either meets or exceeds its peer groups in almost every category we have analyzed. The Company carries no long-term debt, making it a very healthy and well capitalized company.