

Making Money the Old Fashioned Way

By Joe Martin



Taking a business from an old lathe and a Bridgeport mill in a garage to a multi-million dollar manufacturing facility.

SHERLINE
PRODUCTS
INCORPORATED 1974

©2009, Joe Martin, All rights reserved.

No portion of this book can be reproduced in any form for commercial purposes without the express written permission of the author.

This book is published on the honor system. If you enjoy it and feel you received valuable business information, we ask that you make a contribution of a ten dollars or whatever you feel it is worth to the [Joe Martin Foundation for Excellence in Craftsmanship](#). Details on how to contribute can be found at the end of this book.

Foreword

I first met Joe Martin when he was just starting Sherline Products in the early 1970's in the same small industrial complex where I was starting my own graphics business. He needed line illustrations for the instructions for his new tool line, and I was in the right place at the right time. Our association has lasted to this day, and I was fortunate to be able to watch as he took what started as a small business to import tools from Australia and distribute them in the United States and turned it into a major business that now completely manufactures the Sherline product line and distributes it worldwide. He went from one rented 1000 square foot industrial space to a custom-designed 66,000 square foot showplace building housing well over a million dollars worth of production equipment. Joe is a product of the industrial parks that dot our nation. He has learned what it takes to survive in a small business environment and then turn that small business into a profitable venture doing business worldwide.

The growth of his business was not the result of luck or financial trickery...it was the result of hard work, tempered with more than a few hard knocks along the way. He did not climb over the backs of others to get where he is today, but rather brought along others like me to share in the success. Several dozen employees and many dealers around the world make a good living because of his efforts. Many thousands of people enjoy using the high quality tools he produces. Joe has spent the past two years writing about his experiences. Like his first book and the many instructions he wrote, you'll find that this easy-to-read text conveys some very profound thoughts on how to make money "The Old Fashioned Way."

—Craig Libuse

Making Money the Old Fashioned Way

By Joe Martin

"A man who works with his hands is a laborer. A man who works with his hands and mind is a craftsman. A man who works with his hands, mind and heart is an artist."

—From a poster on my Uncle's wall with a quote by Louis Nizar

"A man who works with his mind, heart and billfold is an Entrepreneur."

—Joe Martin, March 5, 2000

Dedication

I dedicate this book to all the expert craftsmen in this world who work hard without being told, who live with their agreements without being forced to and who always produce quality work because of pride. They are the foundation of all nations.

Acknowledgments

I would like to thank all my friends who took the time to read my writings and made so many intelligent suggestions. Mark Rogo, of Morton Machinery, in Los Angeles, California went so far "beyond the call of duty" of a friend that he deserves more than just recognition. I used so many of his well thought out suggestions that I am deeply indebted. Special thanks for my former partner's wife, Barbara Hammons and Russell Millar of Millar Instrument, of Houston, Texas for their expertise in correcting my grammar and spelling.

A Special Tribute to Programmers

It should also be noted that this project would have been an impossible task for me just a few years ago when the marvelous programs created for computers that help me convey my thoughts didn't exist. In a sense, these programmers are the new craftsmen of the 21st century. The Microsoft Word® program that I used was as much as a work of art as the marvelous cathedrals of the 17th century. We just haven't acknowledged it yet.

Table of Contents

The reader should note that I have purposely left out the usual table of contents. This isn't a book about how to specifically answer every business problem. It is a book describing a way to go about doing business by giving examples. This book has been written to help newcomers to business become aware of problems they face and to help create a business atmosphere where everyone wins. The "bottom line" isn't the only reason to be in business. The employees, vendors, investors and customers all deserve equal rights.

CHAPTER LINKS

(Click on any chapter name to jump directly to that chapter.)

Introduction	3
I Wish I Had Known this When I Started	4
The Big Decision	5
Deciding on a Product or Service	7
Employees	12
Marketing	14
Purchasing	20
Manufacturing	22
Accounting	25
Managing	28
In General	34

Introduction

The difficult part of writing this book wasn't putting words together; it was the thirty-five years of learning what to write about. I didn't do research on the subject, I lived it.

—Joe Martin

I was a model aircraft builder for many years and usually flew my own designs. As a group we didn't use the exact standards of aeronautical engineers to design our aircraft, but we sort of knew what worked and what didn't. Every now and then a design would be superb and the designer would get to write an article for an associated magazine about it. Now the designer would have to come up with three pages of BS as to why their model aircraft flew so well. They just couldn't tell the truth and write about the law of averages and luck, so in most cases, you would end up with three pages of BS. I've found that most of the information published about starting a business has also been developed in the same manner. All BS. Hopefully, I have learned from their mistakes.

This book is specifically written for the workers of the world who want to or have already started out on their own. It contains the logic it takes to go from a one-person shop to a company that requires several departments; with each department having an individual manager. Once this plateau is reached a different set of rules come into play that will be closer to standard business practices. No longer is the company in a true survival mode. The next set of rules for these companies will be so dependent on the personnel and profit available that these new rules must be developed internally by that individual organization; therefore, I would never be so bold to suggest I could advise companies that have reached this level. However, I do believe the logic I offer may be the very useful to the department managers of these companies when dealing with their employees. If you think about it, a department in a large corporation is very similar to a small, specialized company.

New and growing companies with more problems than solutions have a tendency to attempt to solve simple problems with complex answers. Perhaps my writings may help these managers get back to reality and review what it really takes to build a business — **“The Old Fashioned Way.”**

The Reason I Wrote this Book

When I first decided to go into business, I thought it would be wise to do a little reading on the subject; however, after just a few pages I would give up. Why? The authors were attempting to teach me how to run a large corporation, when all I wanted was to have my own 1000-sq. ft. (93-sq. meter) shop. Hell, I didn't have any money to worry about, and I believed keeping track of it would be the least of my problems. My problem would be making it. This turned out to be so very true; therefore, I decided to pass on some of the things that were so difficult for me to learn to accomplish this. After reading this book it may surprise you to know I also know quite a bit about tax

laws and accounting. I learned this as a result of being in business. It isn't necessary to know accounting and tax laws to start a business. Again, your problem is to make and keep enough money to have it be worth keeping track of. This isn't a book about how to con anyone out of money for a bad idea. It's a book for that group of disgruntled workers who are willing to work hard, who believe their way is better and want to start a business of their own to prove it.

Writing in a Brief Style

In this book I used the same style of writing I use when sending my viewpoints to my local newspaper in the “letters” section where we are limited to 200 words. I wanted the reader to understand my point with the fewest words. This is far more challenging than one would imagine, and I spent a great deal of time writing and rewriting it. I would also like to state that I personally wrote and typed in every word in this book.

If you have the time and enjoy short stories, you might also enjoy reading [*Making a Business out of a Hobby*](#). It is the last chapter of my first book, *Tabletop Machining*. It tells more specifically some of the details of the path I took in starting Sherline Products. Although there is some duplication between the two, they were written separately, and there are some additional lessons there that might be of value to you in starting a business of your own.

What It Takes

A person starting into business needs information that can't be found in graphs or endless columns of numbers. They need to develop the skill to make educated guesses about their chosen field, their customers and employees. They need to know that these are the skills you need to become successful. The skills needed according to business schools are the skills that are easiest to hire. Look in the Yellow Pages for people with these skills and you have your choice of thousands if you are located in a big city. Advertise in the help wanted for a bookkeeper or manager and you'll get a lot more applications than you will from a truly skilled toolmaker. Ask a Harvard business graduate which product your company should manufacture and they'll have so many consultants working on the problem you'll be in the poorhouse before you start. In other words, they can't.

The Skills You Need

The skills you need are what to do next without anyone telling you. Sometimes this is easy because the demands of your customers eliminate the problem; however, if you really want to run your company you can't have customers deciding your future. You have to be at the helm. You have to be able to watch a customer flinch when you tell them the price that's too high or watch their eyes light up when discovering they need it and can easily afford it. You have to develop a gut feeling to know good employees and good ideas. These are the things that can't be entered in the books but they are the things determining your destiny if you chose to go it alone. The accounting books

only keep score.

Read a Little, Think a Little

What I write about are problems that affect all businesses, not just machine shops. I write in my own style and you'll find it easy reading. I try to write without using complex or excess words, somewhat like a good design that doesn't use complex solutions. I want to impress you with my logic in solving problems, not the obscure words found in large dictionaries. Read this book one paragraph at a time. Think about what I wrote and how it might be applied to your particular circumstance. There are many subtle things to think about. I don't believe the overall book would be very good if I attempted to write how my logic could be applied to every particular circumstance; it also would have been an impossible task. This could be interesting reading while traveling or lunch. Read a little, think a little, or, better yet, think a lot.

A Collection of Random Thoughts

This book is a collection of random thoughts that came into my mind as I thought, "I wish I had known that when I started." I took these thoughts and sorted them into logical groups, but I didn't sort them in an exact order or order of importance. Hopefully you'll find the book more interesting with this random approach. Some of my observations may seem stupid or obvious, but each one cost me more money and time than I care to remember. This book could have easily saved me a million dollars when I needed it most if I had paid attention to these details. These are things that you will usually learn the hard way. As an example, I state, "Don't hire employees who start talking about their careers." Well I didn't hire just one to come up with this conclusion; I hired many and they have all moved on after I paid for them to go to school or spent thousands of dollars having the most expensive people in my shop train them. They didn't leave because wages were better at their next job. They left to continue endlessly searching for jobs that don't exist.

Information for the 21st Century

Consider the fact that I'm writing these statements and book in the context of the year 2000. Things are changing so fast today that in the year 2010 I may have different points of view, but I doubt it. What I write about is so basic that human nature would have to change more than technology to influence my viewpoints.

My Qualifications

I have a unique perspective on business because I've been actively involved in every phase of business. I had to learn these different phases because I didn't have the finances or the temperament to pay employees and consultants for things I could do or teach myself to do. It has been an experience that I wouldn't have wanted to miss and knowing about all these different phases is what has made it so interesting. I've taken the time to understand the interactions of these different phases. They are:

1. Creating a new design or invention

2. Designing the components so they can be manufactured economically
3. Creating a complete set of production drawings with the aid of a CAD program
4. Deciding on the amount of inventory to build or purchase
5. Engineering what equipment will be used to manufacture the product
6. Writing instructions for these products
7. Coming up with an advertising and marketing strategy
8. Deciding on where and how large the business establishment should be
9. Deciding on what equipment to purchase
10. Deciding how many employees to hire and how much to pay them
11. Understanding the tax and accounting rules that affect your business

I Wish I Had Known this When I Started

The Definition

Entrepreneur—A person who manages a business and assumes the risk for the sake of profit. (Dictionary)

Entrepreneur—A person who is self motivated and approaches profit making as an art form, and can craft these two traits into a talent for making money in the business world. (A better definition offered by Mark Rogo of Morton Machinery)

A New Word

Did you know the first time someone called me an entrepreneur I had been in business for ten years and I didn't know what it meant? I was always too busy trying to survive to learn fancy terms like that. Looking back, I find the dictionary doesn't accurately define it. "Assumes the risk for the sake of profit." Now that's a joke. It's like I had a choice. Who in the hell would invest in Joe Martin?

The True Entrepreneur

To me, the true entrepreneur starts with a vision of a new and better method, product or method of marketing and then goes on to accomplish that vision. They don't ask for help or screw anyone to get ahead. The bottom line means little as long as they survive. Their trophies are their buildings and establishments. They enjoy their work, for it is their life. They'll impress you with what they have done, not with how they look or what they say. This is a different group of people than you would normally associate as being businesspeople.

If you want to get along with this group, skip the BS.

Confidence Building

My own family thought I was going off the deep end when they found out I was quitting a good job at Kraft Systems and starting out on my own again. I can remember my mother saying, "You think you're too big to work for someone." My brother explained how I didn't know enough about business to succeed. Carl, my best friend

who later became my partner, spent a couple of hours trying to talk me out of it. Dad bought me a micrometer. With encouragement like that, how could I fail?

Ace in the Hole

Actually, I had an ace in the hole. I was a hell of a lot smarter than they thought I was, and I was willing to put forth the effort it would take to survive. I never was very good at sports so this was going to be my “big game”, and I didn’t intend to lose. Profits never entered the picture. Survival was the only success I was looking for. One day at a time. One week at a time. Finally, 30 years later, I’m at the goal post, and I don’t know how to stop.

Surfing

I’ve always felt like a surfer who is riding a big-ass wave over a coral reef and doesn’t have time to stop and plan the next move. I had to make my own rules on the spot and move on. There wasn’t time to discuss my next move in an academic setting. These rules have served me well over the years for I have more satisfied customers and employees than I deserve. The decisions I had to make were always compromises but I believe they were fair. Of course, of the many decisions I made I wish I had a chance to make a few again, but who’s perfect? I’m not ashamed how I got to the “goal post.” In fact, I’m damn proud of it.

CNC Machines

Before starting on my book I want you to fully understand that the CNC machines (computer controlled robots) of today are the future. They will be used to manufacture products in every country and for every industry. I don’t over emphasize these machines. Even third world countries, where wages are ridiculously low, use CNC machines because it’s simply a better way to get a job done. CNC machines aren’t only used in machine shops. They will be used to print your books and weave the fabrics of the clothes on your back. These marvelous machines are a part of our life and they are unavoidable. You have to know about CNC whatever your endeavor in business.

Your Word

The most valuable thing you own when you start a new business is your word. You have the choice to make it even more valuable or worthless. You should treat it as if it were made of gold and never allow it to be devalued. Once it has lost its value there is little you can do to restore it.

The Big Decision

What is the Worst that can Happen?

You don’t necessarily need a lot of money to get started. You may find it interesting that I believe it is easier to start a business with little money as long as you have a skill that can be sold. You have little to lose and much to gain. The worst thing that can happen is that you will end up where you are right now; working for someone else. Start with more money than brains, and consultants, advertising agencies, attorneys and accountants will soon relieve you of the excess money supply. Lee Trevino, a professional

golfer, told a story that best represents getting a business started. When questioned about the pressures of playing a game of golf where a hundred thousand dollars could be riding on one putt, he told the reporter that it was fun to be playing for such high stakes. Then he added, “I’ll tell you what pressure is. It’s playing for \$20 when you only have \$10 in your pocket.”

You Have More to Invest than You Think

Your most valuable asset is time and if you don’t spend it wisely you’ll go broke. In today’s U.S. labor market you have to figure at least \$20/hr for employees and \$75/hr and up for consultants; therefore, it’ll take more money than most people have to pay other people to do your thinking. I’m sure that you believe all your problems could be easily solved if you just had a few thousand dollars more, but the truth is it would only put off the inevitable if you don’t have the intelligence and self discipline to be your own boss. You have to be a person that is driven to succeed by not accepting failure, and remember failure should also be defined as not completing projects.

Here’s a quick test to see if you’ve got what it takes. Pick out a skill that you believe would be helpful if you decided to start a business that you don’t have now and don’t want to learn. A computer program like MS Word or Excel might be a good choice because it’s inexpensive, available and useful. Now give yourself a two-week crash course on the subject without any help. Don’t call your friends who could help you or take a course at school. You have to do this on your own using only the help screen built into the program and pure logic. This is far more help than you’ll ever get in the business world when it comes time to make an important decision. Using all the spare time available, work day and night for two weeks. No weekend breaks or time out for family functions, sports or TV. Just work! If you can’t control the computer program to do something useful and relatively complex at the end of two weeks, it might be wise to keep your day job. In business, you’ll find you’ll work the hardest when you’re not getting paid; and if your business is successful, you’ll make the most when you’re doing the least.

Positive Thinking

A total waste of time can be standing in front of a mirror saying, “I can, I will.” This isn’t the secret of success. Positive thinking is taking the time to understand what you’re trying to accomplish and learning what is necessary to accomplish this. Your everyday actions should reflect your positive thinking. You have to focus on your goal and not be “sidetracked” by nonbelievers. When you start a business, success is dependent on what other people think of you and your products, not what you think of yourself. The two things you have to sell are a good product or skill and integrity. Integrity is something you have to show people you have by your actions; it is not something you can tell them you have.

Leave Room for Failure

When I start on a new project I always estimate my chances of success. You have to be realistic and know

there is always a chance of failing. I found that by mentally arriving at the percentage of success I have before I start, a failure is simply a loss. It isn't devastating because I knew the odds at the beginning and it didn't work out. This method keeps you from mentally putting all your "eggs in one basket." Positive thinking isn't the answer. You have already thought positive to start the project and being realistic about the project is what it will take to get it to succeed. You also have to be realistic enough to know when to give it up and plan your next move.

Who Starts a Business?

Have you ever noticed how few engineers, scientists, and business college degreed graduates start businesses? They may acquire businesses, but they very seldom start them. The reason is they can't work alone or not willing to take the personal, financial and ego-related risks to accomplish their ideas. It may also take millions of dollars of investment to experiment with their ideas. What you find are craftsmen and hobbyists starting manufacturing business because they know how to make and design the parts and the tooling they need in a cost-effective way. Investors are finding that hi-tech companies can't be run without a CEO who has a complete knowledge of the technology in which the company is involved. Things are happening too fast today to make decisions by committee.

The New Investors

The venture capitalists have discovered this fact and are willing to put their money into ventures where they believe the leaders can stay abreast of current technology and lead at the same time. This is a marvelous trend. The engineers and scientists of the world were getting screwed because the products this group wants to build or sell needed a capital investment that few individuals had. They also can't work weekends on used equipment, as I have, to build a business.

Taking a Chance

I remember an employee who quit. He told me what was wrong with me was that I was unwilling to "take a chance." Can you imagine that? I've spent the better part of my life investing my own money in my own ideas and this guy tells me I'm unwilling to take a chance. Taking a chance and not liking someone's idea are two different things. What is a legitimate risk in the mind of one man is a measurable failure in the mind of the next. This is what makes the world of business so fascinating. I've been called a pessimist. I call myself a "realist", and I look at all new ventures pessimistically; this also includes using my own ideas. Optimistic people are always getting into trouble because they resort to hoping things will turn out. By being a realist I'm convinced things will turn out. You have to "nit-pick" every aspect of a new endeavor to eliminate the chance of failure. Think like a critical customer and fix the problem you may find through "their eyes" before it is an actual problem.

The Difference Between Sales and Engineering

When a sales person sells a product; their satisfaction is that they closed a deal. When an engineer or designer

sells their product; their satisfaction is that they designed something that another person would purchase. This fact is more of a difference than you might believe at first glance. My lack of sales skills have screwed up too many "deals" by me not knowing when to shut up; but, on the other hand, a sales person could never know the satisfaction I have when I see my products being used by satisfied customers. This is something I have never been able to put a cash value on, because in the cold world of business it is the bottom line that counts. Or does it? There is a need for both types in this world, but there is more to making business than "closing deals." Fortunately, there are still a few salesmen out there who work with potential customers to solve problems and create deals where everyone wins. It is the satisfied customers using products or a service they like that can keep a business going for the long haul, not a few quick deals where you win and the customer loses.

How to Lose Your Ass

If you really want to lose your ass in your own business, get involved in something you know little about. If you don't have the desire to learn and think about every aspect of the needs of the customers that would use the service or products you plan to manufacture or sell, quit while you're ahead. To be successful you have to be extremely good at knowing your potential customers and their needs. This is the most important thing. This is the information you can't get from outsiders or employees. You have to know your customers well enough to know how much they will pay for the service or products you plan to manufacture and sell. You could pay thousands of dollars for market research that was done by people more interested in their golf game than your success. Excuse me for being redundant but this point is so important.

When to Walk

Did you ever notice that people tend to judge others by themselves? What I'm trying to say is that if someone doesn't trust you, you shouldn't trust him or her. I'm not interested in any deal that involves a partner who needs an attorney to do his thinking. The only chance you have to break even on a deal like that is to have a better attorney. It isn't worth the effort. Of course, there are times where agreements have to be properly documented, but if the deal can't start with a simple handshake and a feeling of trust, forget it.

Partnerships

When two or more persons get together and form a partnership where they plan to work together for an undefined period of time, it is as close as it can get to a sexless marriage. The way you can make it work is by keeping it sexless and not start screwing one another. Both sides must bring something to the table, and both sides must believe the other side is bringing something to the table for the partnership to work. Lawyers will advise you to clearly define ownership at the beginning. The problem with this is at the beginning there is very little to divide that has value. It is more important to arrive at a method of determining ownership at a future date. Consider the

hours worked vs. investment. One partner puts \$5000 into a venture and a second partner puts their skill and work into the partnership. It could be quite possible for the working partner to put a couple of thousand extra hours into the venture in just one year by working nights and weekends, as I did. If their time was charged to the partnership at only \$10 an hour this could bring their investment to \$20,000 in just one year, while the second partner went about their life at their regular job. This is why I believe partners should accurately keep track of the time invested by each partner at a reasonable rate, as well as money they may invest. Would it be fair for the investor of only \$5000 to own half if the company (that in just a year now had a value of \$40,000 because of the other partner's hard work) while making income from a regular job and spending weekends with their family? These problems usually don't come to light until a spouse of one of the partners wants a divorce.

From my experience working around the small start-up businesses located in industrial parks, I consider the above to be the most important paragraph in this book. It might be wise to read it again.

Partnerships Can Have Advantages

The good part of a partnership is when two people with different skills team up and appreciate the skills of the other partner or partners. Together they solve problems that would be impossible to solve alone. They have a common interest and enjoy working together. Partners with the same skills have to learn that they can't always have their way and that they cannot be competitive with one another and remain partners. Partners with the same skills should rejoice in the fact that they can discuss their most technical problems with someone who may help them find the answer to technical problems. Partnerships can be great. Mine was.

Investors

A decision that will have to be made by most business owners is "how much you are willing to give up to own and control the company you started." Notice I stated, "give up." Many times the amount of money you could make would be higher if you sold a portion of your business. If an offer like this comes along you should take the time to review your past and decide if you started your business only to make money. I started my business to do it my way and I find "moneymakers" very boring people. I wouldn't want to be associated with an investor where I had to explain my actions in terms of profit only. A good investor is someone who brings more than just money. They can bring contacts, experience and the constructive criticism that could build your company to the point that your "smaller" piece of the pie worth more money overall.

Get in a Business You Enjoy

I believe that selling to a recreational or hobby market in which you are involved in is your best bet. You know your customers because you're one of them. You like your customers because they are just like you. This is the type of market you can deal with because it is possible

for an individual to develop a new product, manufacture it, advertise it, and sell it to this specialized market. I have and I've enjoyed every moment of it. You have to work too many hours to be working at a business that you don't enjoy.

"Nerds" Can Be Heroes Too

The "nerds" that took over the computer market succeeded when old, well established companies with "snobby" managers failed. Why? These nerds weren't nerds to their customers; they were heroes. They were doing the impossible, sitting behind their computers developing products that customers loved. Customers thought of them as quarterbacks of their favorite team. Every time you see what Bill Gates accomplished think about this. To be successful it isn't necessary to look good to everyone, just to your customers.

An Interesting Analogy

One of the joys I have is purchasing and owning the buildings and equipment it takes to produce my product line. I feel the same way when I look at my manufacturing facility as a farmer may feel when he looks over a field of crops growing on a good day. Profit allows me to purchase new and faster equipment, and I love it. Farmers may purchase more land and love it. You can never get the same satisfaction by adding zeros to your investment account.

A Wonderful Adventure

For me, business is a wonderful adventure. I'm never so sure where I'm going that it gets boring. One day I may have to go with the flow to survive and a week later I'll feel like a fish swimming upstream. You have to know when to take the helm and when to go along for the ride. These are difficult choices because you'll be dealing with employees' personalities and financial survival at the same time.

Deciding on a Product or Service

The Product

Nothing that I'm writing will be of much good to you unless you can come up with a good product or service that will keep you in business. It has to be wanted by consumers who are willing to buy at the price you are asking. This is where it all starts. I will try to make you aware of many of the problems that I had to solve and some of the logic and things to consider about new products, but -

You have to decide what a customer will find satisfactory when the complex equation of cost vs. quality is calculated.

Customers all want perfect products, but wanting perfect products and paying for perfect products are two different subjects. A customer will usually start with the "low end" product if they have a choice between two items that are somewhat similar but have a major difference in price.

Consider the previous paragraph the second most important fact in this book.

Where to Start

First, you have to know more about your chosen field than

your average customers do. If you think about this for a moment, your work or your hobby will be your choices. Pick either and again you have a choice of two: eliminate an irritant or add a pleasure to a task. The irritant could be cost, size, appearance and complexity. The pleasure that could be added is lower cost, simplicity, appearance and pride of ownership. Next, ask yourself if you have built a gadget or have performed a service that makes a particular task easier? If you haven't a better choice for a business might be related to sales or service. In this case, team up with someone who can come up with products or services but who doesn't have the skill or desire to package, advertise and sell their ideas. In every case, the road to success is a long one and you need a skill that can be marketed or lots of money to keep the doors open until your products or services can provide an income.

Ideas

I consider myself an original thinker. I don't copy other products or methods; in fact, once I make my mind up to start a project I will go out of my way to avoid looking at what other people or companies are doing. When I start on a project I have an uncompleted design in the back of my mind and looking too closely at something someone else has done narrows my thinking. I believe I would lose more than I could gain. There is nothing wrong with checking out the competition after you have developed your original idea, but don't do it until after you have gone through the process of developing your own idea past the concept stage. When I hear teachers expounding their theory that their duty is to teach students where to find information rather than making students learn the information I would like to ask them how many good ideas have ever come by putting several books next to one another on a shelf. Good ideas are the result of knowing a great deal about many things and putting together many seemingly insignificant facts from millions of combinations to come up with a new idea. Of course, the solution found with a good idea would have been the "obvious solution" to a group who couldn't figure out how to tie their shoelaces on their own.

Listen to your Customers for New Ideas

Customers or potential customers can be a gold mine for new ideas, but you have to listen to them. Usually they can't tell you what to make or how to make it; however, they may tell you about associated problem they are having. Putting some thought into ways to solve their problem can be a source of some great ideas. My customers are unusual because many can tell me not only what to make, but also how to make it. Few will be so lucky to have customers like this.

Turning Ideas into Products or Services

Think about how the product answers a particular problem that could be useful to others. Decide how much a potential customer would pay to easily solve a problem of this type. Now consider how many customers you would have at different price levels of quality. Pick out the group with the most potential. Don't be too optimistic! Subtract the discounts you'll have to use to have dealers sell your product. Now you have the amount you have to be able

to beat in order to manufacture, advertise and sell this product at a profit. Working with the quantities you believe you could sell, you can begin to accurately predict manufacturing cost. Now you have the basic information that you can use to decide whether you want to go on with the project. Most of what I have written about in this book will give you more insight to accomplish what is in this paragraph.

Selling Imported Products

Sometimes products can come to you by way of an overseas manufacturer. They can be found in import trade magazines. The good part is you may be able to become an exclusive importer for them for a surprisingly small order. The bad part is the agreement isn't much good if you can't buy all of what they can manufacture. I've personally seen Asian products sold direct to the consumer at a lower price than an importer with an exclusive agreement paid. This happened within months of giving the exclusive agreement and after that company spent thousands on advertising the same goods. Try suing a company in Asia and you'll see what I mean. Again, if you want to lose your ass, buy a large quantity of merchandise used for something you know little about. You have to know how products are discounted and sold in the area you plan to sell before you sign a purchase order.

Selling Ideas

We have a customer who is a professional inventor. He comes up with an idea and does all the design work to put the product into production. He then goes out and sells the package to the appropriate manufacturing companies. He doesn't get up front money and when he shows them the product there is a prototype complete with packaging, tooling designs, tooling cost and instructions; a very complete package. He is very knowledgeable about his trade and doesn't require agreements before he allows potential customers to see his idea. He told me he has never been taken advantage of to date. Most companies are ethical and don't steal ideas; however, the ease that products can be copied in Asian countries today makes me more leery. Problems arise when suggestions are given that are not well thought out. For example, a suggestion could be made to an oil company to produce a fuel that didn't pollute and had twice the energy at 25% of the cost. Any fool would find this idea worthwhile, but the idea is worthless without the solution. Ten years later after the Oil Company has spent billions of dollars improving their product by 5%, they get accused of stealing an idea.

Plastic Products, a Good Way to Success

To start a manufacturing business on your own you need products that are difficult to duplicate. Injection molded plastic parts may be the answer. The tooling is expensive but the part price is low. If you want to "test the water" you can save money by building prototype tooling out of 7075 aluminum and do a little second operation machining to eliminate expensive slides. A plastic injection mold toolmaker will explain what I'm referring to. Once the tooling has been built and tested the product is very easy to manufacture. This is one type of manufacturing that

can be successfully contracted out. The toolmakers that build plastic molds are a very talented group of people and usually can improve the designs they work on if given the chance. Not all plastic parts are cheap throwaway items. Profit can be higher selling to a specialized market that you understand and gives you a realistic chance of success.

Build a Crude Prototype ASAP

Very few new designs will stand the test of a prototype. The design will usually change before the prototype is built. In the past I would start by building a simple prototype using a simple drawing or sketch. Now, as my skills with computer drawing programs improved, I find myself adding more and more detail to these first drawings. However, it could be thirty years of designing products that allows me to do this. It is important to realize that the original idea always starts inside your head, not inside a computer or on a sketchpad. You don't have to put in all the details to start on the first drawing, but the new idea should be there. You should develop a thorough understanding of the interaction of the parts involved. I'm sure you have seen computer designs being manipulated in 3-D as they turn and rotate on a video screen. When I can do this with a mechanical design in my mind I feel I truly understand the design. The longer you take before building a prototype, the more difficult it will be to change your design. You should always assume that your design can be improved and have a method to change it. Many times the new design is the process involved to make standard parts. Again the final design should be put off as long as possible to allow the changes to be made easily.

This paragraph I would consider third in importance. From this point on it is up to you to decide what's important.
— Joe

Using the Tools You Have or Not?

A true craftsman may get by with the tools they are familiar working with but a company cannot. Labor costs in modern countries will not allow craftsmen to work "the old fashioned way" and remain competitive, however, when building your own tooling for your own products you should build it with the familiar tools you may already own. Put your money into items that will make you money with an employee operating the equipment. In this case, the tooling for a new product can be spread out over the run of this product. If you are bidding on work of this type you may find you are not competitive without modern tools. In many cases, just to view the work you are bidding on requires a computer and a working knowledge of the associated programs because drawings are no longer available. Computer aided designs (CAD) along with computer aided manufacturing (CAM) have simplified these processes and at the same time made designing more difficult. A different type of skill is needed to operate these programs and machines. Only the manufacturing companies that develop the skills of CAD-CAM will survive in the 21st century.

Craft Type Products

There is a fine line between a produced product and artist

or craft type product. A craftsman or artist may come up with an item that has a demand that is higher than they can produce. This fact causes the price to rise. The moment the item is manufactured and the process is automated the item has little value. The value in products such as these is the value added because the customer believes that the craftsman or artist personally crafted the item and that these items have a very limited availability. Ask yourself how much value an autograph has that was printed in a book?

Things to Consider about Mass Marketed Products

Products that everyone can use have problems of their own. It takes so much money and organization to sell even a simple product of this nature to an entire nation or world that an individual has little chance of marketing something like this on their own. In this case, you are better off trying to sell the design; however, the companies that sell to this type of market usually can't find the time to sell and market the products they may have on the drawing board and usually aren't looking for new ideas. This leaves you between the old rock and a hard place. You see attempts for this type of products having their last gasp for life on late night television commercials. A big part of making that final decision about what to develop should be considering the odds you have for success. Choose something that has reasonable odds. Mass marketing doesn't.

A Major Blunder

I remember a joystick my partner and I designed for radio control transmitters. We were never paid for this project and we were left with the plastic injection mold tooling. This was a complete design and build job and we had thousands of dollars in it. One year before computer games became popular I sold the design and tooling to a company in England for \$1500. The next year the computer game "Pong" came out and the computer industry was looking for these input devices. I missed my chance because I didn't have the six months it took and the money to build another joystick. If I had been paying attention to what was going on around me I would have seen the potential for the tooling I owned in the corner of my own shop. The joystick market went on to become a 100 million-dollar a year business and I didn't even get a little piece of the action. Excuse me while I take the time to give myself another well-deserved kick in the ass. To survive you have to be an opportunist and you can't always take the easy path. I believe we all have opportunities pass by in life. You have to stretch to get the prize. Did you ever notice that most people complain about things that they didn't do as they review their lives?

Products Ahead of Their Time

A new product that requires a lot of explaining as to what it is used for can be the hardest to market even if there is a definite need for it. The lower the selling price, the bigger the problem. You can't expect a sales person to spend five minutes trying to sell a five-dollar item. Something in the packaging or advertising will have to do that for you. The question now becomes whether you can sell enough products to pay for the ad because the ad also has to be large enough to explain what the product is used for.

Complexity

A clever simple product is impossible to keep control of unless you can come up with a method of manufacturing it in such a way that you can't be undersold. If the product were so simple that any home handyman could manufacture it, it would be impossible to protect your right to sell and produce it even with a patent. Products that are difficult to manufacture or produce at a very reasonable cost have the best chance of surviving because they are difficult to copy. In my case I chose to manufacture a very complete complex product line. I thought I could protect myself with the fact that to copy my complete product line would involve too much time and money for such a small market. So far, I've been correct when it comes to the miniature tool line.

Perfection

After customers find out about the finer points of a particular product line, they may be willing to spend the extra money for perfection. Perfection is expensive and to improve a product just a few percentage points may triple its manufacturing cost. Perfection isn't a good choice of words when it comes to consumer goods. They are manufactured to tolerances that are limited by the state of art. The tighter the tolerances, the higher the cost. At some point, the additional manufacturing costs forces the retail price above consumer acceptance, and true perfection can never be reached. It's the true entrepreneur that knows when he's reached the point of no return and the inventor or tinkerer that doesn't. It is foolish to work to tighter tolerances than necessary, but as a designer I know how difficult it is to design with liberal tolerances.

Shipping is an Important Consideration

Suppose you came up with an item that would be useful to people who do their own landscaping and you could sell it for \$20 a bag. With a product like this the packaging and shipping can become more important than the product if the bag weighed 100 lbs. It could cost you more than \$20 to ship one bag to the next city, and the only way to get the cost down is to own your own shipping network and produce the product regionally. Companies who sell bricks or other heavy items do this. To do something like this could require millions of dollars just to establish a distribution and delivery network at a reasonable cost. If standard shipping rates were applied to some of these items, the selling price would skyrocket. What I'm saying is that shipping is a very real cost that has to be passed on to the consumer, and that the product you consider economically sound may not be when the actual shipping costs are added. The Internet now has services available to the small manufacturer that allow him to piggyback with other small manufacturers and thus get the same volume price breaks that larger manufacturers do.

Electronic Designs are Easier to Change

Electronic designs have had an advantage that few products have had. Customers judge them by how they perform and cost. Suppose I designed a truck with an engine that only weighed thirty pounds, but still developed the

same power as existing truck engines have. How many potential customers would I have after they looked under the hood and saw a cute little box in place of a massive engine? You would have a "tough-sell" with that group. The same group would buy a TV without ever "looking under the hood." Too often good ideas fail because of an unsophisticated market. Plan for these problems in advance and they will not be as much of a problem. Again, the Internet offers a method of test marketing using email to potential customers, friends and business associates.

Good Designs

When I was building model aircraft, my friends and I had an interesting way of judging the quality of a model. We would set the model on the ground and start backing away from it until it looked good. A three-foot (1-meter) model would be considered superb and a fifty-foot (15-meter) model was one that was pretty crude. There were also models that wouldn't look good no matter what angle or distance they were viewed at. This was the perfect example of a poor design. The best craftsmen in the world can't make a bad design look good. A well-designed product is deceiving. The solution to a problem solved with a good design will look so obvious that no one would consider doing it any other way once they have seen it. These are the designs you'll get the least credit for even though they are your best. The solution looked obvious, and because it was obvious it was assumed the problem was easy to solve. Any designer that has spent hours looking at a blank sheet of paper as I have can explain why it was so difficult to come up with such a simple solution, but who will believe this when the solution turned out to be so simple?

Should You Patent Your Ideas?

I have my name on a couple of patents that took a lot of time and effort to get and didn't pay off. I have the basic patent for computerized timekeeping but after getting it I realized I didn't stand a chance in hell of defending it. What am I going to do, sue IBM? Patent attorneys make a living getting you patents, and what you do with it after that is your problem. Ask your patent attorney if they would defend your patent on a contingency and you'll get a lot of mumbling with the end results being "no." If the patent they documented for you were so good you'd think they would want a piece of the action. You should realize that if the idea you want to patent has been written about anyplace in the world before you applied that it can make your patent worthless. One thing a patent can usually do is to prevent someone with a similar patent from going after you. A patent search shouldn't cost more than a few hundred dollars to do and should be done to protect yourself. Patents can now be checked using the Internet. You can't put "patent pending" on a product unless it is actually being decided on by the patent office. Applying for a patent will protect you and the longer it takes for the patent department to get to it can turn into an advantage. You get 17 years of protection once the patent is awarded, but you will be protected upon application. If it took five years for the patent office to get to it, you could be covered 22 years. Please remember I'm not an

attorney and I'm just referring to my own experiences that I learned from being involved with our own patents. Patent law is changing, especially in the area of the Internet. The U.S. Supreme Court is reviewing soft patents, and the U.S. Patent Office is also taking a second look at how they approve soft patents in light of the Internet. In the age of the Internet, these patent walls are coming down fast and furious and are becoming difficult and costly to protect. Looking closely at old patents can be a humbling experience when you discover how smart people were one hundred years ago. (Reference: <http://www.uspto.gov>)

Give Your Idea a Quick Reality Check

I always start on a new design by estimating how much a potential customer will pay, subtracting the discounts I'll have to give dealers to sell it, and then work with the amount I have left to manufacture, advertise, and ship the product. This is a realistic way to look at it and gives you a way to accurately evaluate the market. You have to know the discounts used for similar products in the market that you plan to enter to do this. You may find your good idea can be forgotten about when this simple test is preformed. When I did contract machining I had customers that were about to spend thousands of dollars for a run of parts, yet, have never given a thought about the discounts of the market they were about to enter. You can find examples of this logic in salvage yards throughout the world. Again, the Internet may be the ideal vehicle in which to avoid middleman mark-ups and established distribution networks.

Don't Make Special Accessories for Other People's Specialized Products

A risky venture is to design and build products that can only be used with another specialized product. You would be at their mercy. A design change and your product will only fit their old models. The type of product I'm thinking of is not an accessory that would go with many motorcycle models but an accessory that would be used with another accessory; that is, a specialized accessory for a specialized accessory. You have little chance of being sure dealers will buy yours. Being better or cheaper doesn't guarantee results. Dealers are inundated with more products than they care to sell and having to setup a new account to sell a \$10 item may not seem worth the effort to a dealer who has a thousand items on the shelf, with many not selling well. Your best chance is trying to sell it as an exclusive to the basic marketer of the product and let the people who already control the market distribute it. Manufacturers will not be interested because they usually sell only products they have complete control over. It can be too risky to have to rely on someone without a track record. They also can usually manufacture the product themselves. The old "Build a better mousetrap and the world will beat a path to your door" rule doesn't always work well anymore. Again, remember that the established lines are creating more products than dealers care to carry, and it can be very difficult to sell one a product that is only a "little bit" better. I'm not saying it can't be done I'm only trying

to make you aware of the problems you will be facing.

Don't Use Your First Idea Until You Prove It's the Best

Before I commit to an idea I think of every possible way to accomplish the same thing. I don't put a time limit on this thinking unless there are outside pressure. Before I even mention the project I've already considered many methods to accomplish the same thing; therefore, I may seem negative to an employee's suggestion when I can immediately choose to use this method rather than the suggestion of the employee's. Sometimes I'll see a design and make the statement "It looks like they used the first idea that popped into their head." There is something about designs that have this look. A good analogy would be of food that has been prepared properly and then placed on a plate in an unappetizing way. Well-designed products have a look that you don't have to justify.

You Can Get Screwed

I really got had with a line of products I developed to be used with full size machine tools. The 5C collet (a clamping device) is the most popular collet used in machine shops today. On a standard lathe it could take 30 minutes to switch from a collet set up to a 3- or 4-jaw chuck. I designed a 3-jaw chuck that could be mounted in a lathe in place of a collet. This could save machine shops considerable time. To make it a complete product line I produced at the same time adapters to fit the not so popular lines. I sent samples to the major suppliers and sales were going great. Soon after sales for our most popular item dropped to non-existent. I couldn't understand it. I happened to notice a mail-order sale in tool supplier's flyer that had what I thought was the product I manufactured at a very low price. We contacted them and found out that they no longer purchased this item from us. The bastards had my product "knocked-off." That wouldn't have bothered me as much as they were using the pictures I sent them in their catalog and probably used the "free" samples I sent them to copy. They were also using the thousands of dollars I spent on advertising to get sales. I was pissed, to say the least. Fortunately, that was the only time that it happened to me so blatantly.

Should You Make Components Yourself

This is a question that can have so many variables that it becomes very complex to answer. I don't believe a product can be produced and remain competitive over a long period of time by contracting out your main component parts. Everyone will end up making a profit on your sale except you. The only way you can get reasonable prices is to buy in quantities that are so high that the inventory for that component could cost as much the equipment to build them. I found I could buy a used machine and make my own parts, but I also had the skill to do it. If you don't have these skills, you don't have the choice at the start as I did; therefore you have to contract the work out. Remember that these are skills that can be acquired by a company by hiring a skilled employee, but skilled employees are expensive and it takes profit or an investor with a deep pocket to do so.

Pricing a New Product

When I price a new product, I may have to run a piece of equipment at a lower rate than I want to keep from outpricing the product in the market place. Doing this allows me to make a profit on the other operations involved and as long as the overall product line remains profitable, it can be a wise decision. Think about the times when brand new factories costing millions of dollars are shut down because they were not profitable. In many of these cases, if the basic overhead rate is calculated on what they could recover from the investment, rather than what they invested, it could be very profitable to leave it open. Maybe the return on their investment might be lower than they originally planned, but it could be a return rather than a loss. Automobile manufactures do this all the time.

New and Better Designs Because of CNC Machines

Designers are no longer limited to simple shapes. They can design a part exactly like they want it. CNC machines can cut a complex shape as easily as a straight section. No longer are expensive cutting tools needed to produce complex shapes. The machine is capable of cutting the complex shape with the same tool used to produce a straight section. If the program has been properly written all the shapes developed can be checked with a couple of dimensions. CNC machines allow a small producer to make economical production runs in lower quantities than ever. In many cases, a machinist with the skill to operate these machines could produce more parts than a purchasing agent could buy and keep track of in a month when dealing with small quantities. These machines can make you money if you learn to use them. They are the robots that make our lives better by building better products at a cost all can afford. These robots will not be sweeping the floor in your living room, but they will be used to build the tooling and assemble the vacuum cleaner that you can purchase at very reasonable prices. They are fantastic!

Employees

The Joe Martin Employee Intelligence Theory

After 35 years of dealing with people on a business level I've come to this conclusion: Put any ten people together of any occupation and you will find one incredibly smart and one incredibly stupid compared to their position in life. The rest will be spread evenly throughout the group. Just because people have found their way to the upper brackets in wages in this world, it doesn't mean that they are any smarter than the rest of society. I've always been more amazed by the intelligence of some low-wage employees than the superior intelligence of high-wage workers. Sometimes these intelligent low-wage workers get caught in a trap by accepting a low-wage entry job. You should be on the lookout for this skilled group and give them new opportunities rather leaving them in their present jobs just because they do it well.

Employee Relationships for a Small Business Owner

Maintain a close personal connection to your employees

on a "Business level." There is a difference. You should always have time to listen and advise employees with problems, who are valuable to your company. Most small business owners will find themselves playing "father" to more than one employee and making a personal loan or helping buy a first car or advising on a personal situation. Never let them feel you're above that. Always listen to them. I would recommend not lending money to employees that "beg." People who pay their bills never resort to "begging." It's against their nature. Make the small loan with no interest in mind only as a tool to make sure they stay employed. Of course the agreement should be that the loan has to be paid in full if they decide to leave the company for any reason. This is an important method in a management style that breeds employee loyalty and is the right thing to do.

Who's Available

You're dreaming if you think you are going to have the same choices available as the big corporation you may be presently working for when it comes to hiring employees. You will have to take chances and give people a chance for a new start. The employees with the credentials get jobs with the larger employers that offer benefits that are impossible to offer by your new company. This is the time to consider the benefits of a partnership with a friend with the same long-term interest. If your new business requires a full time office employee you need an all around office person. They are sometimes called a "girl Friday." This group likes the varied duties of a small business and they don't like the pecking order associated with large businesses. They can have much to do with your company's success. In any case, your first employee should be capable of doing and willing to perform the tasks that you shouldn't be wasting your valuable time doing. Legible handwriting and the ability to talk clearly is a must because they will be answering the phone and taking messages. Banks can take care of payroll for you and it isn't a big deal to do it yourself using the payroll programs available. Don't get involved with paying anyone working in your shop straight wages and calling it contract work. You could end up paying their taxes even though you didn't deduct them. You could also be sued out of existence if they were injured at your business. Workmen's compensation insurance can be very expensive; for example, a roofing contractor may pay over 40% of a worker's wages on that insurance alone. Labor laws are quite clear about contract work, and agreements between employee and employer aren't considered unless they are legal according to state and federal law. Labor laws and OSHA rules are not as bad as you are led to believe.

Pay a Little More and Expect a Lot More

If employers looked at their employees as their customers, we would all be a lot better off. The days of slavery are gone and you have to work with employees towards a common goal. Each employee deserves respect and recognition no matter how low on the totem pole they are. Wages are the way employers have to express employees worth to the organization. Some employees' worth can

be dependent because of what they know, but others can be worth the same amount because of what they do. How many roofers could you get to spread tar on a roof in the middle of a hot summer day if the basis for their wages was the intelligence to do the immediate job? A roofer's job can be so miserable that it takes exceptional wages to get workers for that trade. A brilliant person with absolutely no interest in the job they were hired to do will not have any value to the company. A janitor could be very valuable by keeping the business exceptionally clean and being helpful, creating a great working environment for everyone. The employees take their cues from you as the owner as well. Make a point of appearing on the shop floor as often as possible and be sure to ask employees how he/she is doing, what improvements can be made, etc even when they may be "low man on the totem pole." It's the right thing to do and right message to send.

Wages and How Much Does an Employee Really Cost

For a quick mental calculation, the number I presently use to figure the direct cost of an employee is their wage plus 30%. However, the real cost can be quite a bit more when you start considering what it costs to hire and train each employee.

Below is what it cost a year for a \$10 (not reflective of true wages, just an easy number to work with) an hour employee that has been employed over two years working in the machine shop in the year 2000.

Employee #1 @ \$10 x 40 = \$400 wk x 52 wks = \$20,800

Benefits & Employer Expenses

State & Federal Unemployment Insurance = 2.9% of first \$7000 = \$203

Fed Social Security & Medicare = 8.65% of gross wages

Workers Compensation = 3.42% of gross wages

Employers share of Medical, Dental, Vision, and Life insurance = \$1230/yr.

Vacation benefit 2 wks pay = \$800

7 Paid holidays = \$560

Employee Earned Wages = \$19,440.00

Vacation – 2weeks 800.00

Paid Holidays - 7 days 560.00

Insurance Benefits 1,230.00

Workers Compensation 711.36

Unemployment Ins. 203.00

SS & Medicare 1,799.00

3% Profit Sharing 624.00

Adjusted Wages \$25,637.00 which equals earned wages (\$19,440) plus 30.5% (\$5927)

Negotiating Wages

I have found it is best to give an employee a wage increase before the employee has to ask for one. This way you control the situation. If you allow an employee to get so unsatisfied with their wages that they already have an offer

from another company, you have lost. Competing with a company making an offer for your employee puts you at a disadvantage. If the employee doesn't perform as expected at another company, that company could easily replace them. In your case, if you give in to their demands, "you own them", and I'll guarantee you that employee will be knocking on the door for another wage increase within six months. Now you have an overpaid employee that is bragging to their fellow employees about how much more they make. I have given up on negotiating wages with employees that have another offer; however, if an employee brings a good point to the table I'll consider it.

Pay Skilled Employees What They Ask

After being in business for a while, you learn or should know what the going rates for different jobs are. For skilled shop people we usually start employees at the rate they are asking, however, there is always a clear understanding that the more they make the more we expect. If they can't do what they promised we then offer them the opportunity to work for wages we think they are worth or lay them off. You can usually determine the value of a new employee in a very short period of time. I don't like the way workers are treated today. To take American workers and force them to take major pay-cuts by threatening a move to another third world country is disgusting. Who do they think can afford to buy these products if only a select few make decent wages in this country?

Toolmakers...They Just Don't Get Enough Respect

Toolmakers come up with more good ideas in their lifetime than most engineers could in two lifetimes. The problems they solve building the fixtures to produce a part at a reasonable cost are usually far more complex than the part they are producing. They get used by both management and engineering. What usually happens is management will have a meeting with engineering to discuss a new process that must be developed. After the meeting the engineers of this company head for the shop and talk to a toolmaker that has worked there for more years than anyone can remember to see if they can do it. After sleeping on it the toolmaker comes up with an idea and the project goes ahead. It works out everyone gets credit and a bonus for a job well done. The toolmaker that made it all possible? Oh, they had to get rid of him because he was old and his area of the shop was always dirty.

Employees and their "Careers"

If a potential employee starts talking about his or her "career" during a job interview they are saying to you that they will work for you until they find something they believe is more interesting or better. Consider your company as another stepping stone. This will be a short-term employee, and you have to decide if you can come out ahead. They may have a skill that could be transferred to your company in a short period of time. This would be the only condition I would hire this employee. You have to use these employees just like they plan to use you. If you have a job opening that will involve a lot of training for a new employee, consider moving a presently reliable employee up to fill this new position. This is a good thing

to do, and all your employees will think better of you for it. All our good employees have worked their way up through the ranks. Many times an employee can get trapped in a low-paying job because they do it well. If you want to help employees with their careers, start with the reliable employees you already have, not with a new employee that, in a sense, has told you up front that he or she will be short-term help.

Alcoholics

I had the unfortunate experience of hiring several employees with a severe drinking problem. Twice I tried to be a “hero” and work with their problem. These people have a problem that an employer can’t solve. The time I wasted with alcoholics was very frustrating because they were talented employees. What I found was that they would go along just great and then, when you really needed them, they would disappear for a week or so. I believe the added pressure of knowing that they had to “come through” would create an atmosphere they couldn’t handle. The choice you have is to put employees with this type of problem in a job where they can’t affect the overall operation, or let them go. Getting involved with their personal life isn’t a good idea.

The New Managers

CNC machines allow a smart worker to produce more work than ever. Rather than eliminating the need for intelligent workers, these machines require organizational skills that few managers have. The machines they control are very complex and the employees who can control these machines are equally as valuable to a company as that of standard managers. In the past managers were considered people managers. The managers who control these machines are robot managers. When you consider how important these machines have become to the quality and efficiency of manufacturing a product, the group of workers that controls these machines will soon be equal to the managing staff of any company in prestige and wages. Today’s management still hasn’t grasped the concept of this point, but soon they will be forced to accept this condition when they find their million dollar machines operating at half speed.

A few years ago before purchasing a new CNC machine, I went to another business to see the same model in operation. There was only one employee there who could operate that CNC machine. A few years later I received a brochure for an auction at the same company. I found out the employee left and they never found a replacement for him. The machine he ran cost over \$200,000 and the employee quit because they wouldn’t pay him a fair wage. The high-dollar payments on a machine that wasn’t operating bankrupted the company. This should make my point.

Hiring Unskilled Employees

The term “unskilled” is used too often these days. I’ve never hired a person that I would consider totally unskilled. I hired several that had personality problems that were so severe they had to be replaced, but they still had a

skill. The skills that this group has can’t be found on an employment application. I’ve found that when you try to hire using employment applications as your guide, you’ll end up hiring employees that are good at filling out employment applications. The educational system in this country has made the high school diploma worthless and it can no longer be used for a standard. However, a potential employee that has enough interest in their chosen craft to go to a trade school may be more valuable to a manufacturing business than an engineer. For machine operators I like to hire employees that can fix their own cars or have hobbies that take skill. In today’s world the skill to operate a computer is always a plus. A potential employee who has taken the time to teach themselves a skill on their own and purchase the tools used is a major plus. Taking the time to find what this group is capable of doing will give any company a surplus of skilled workers. By giving them the opportunity to advance, you’ll find a group of loyal skilled employees that all companies need.

Sarcastic Employees

A major error can be having a sarcastic employee talk to customers. A receptionist with a problem of this nature can cost you more business than a good salesperson can get. If questioned about their actions they can usually recite exactly what they said and it will not sound so bad. The problem wasn’t what they said but how they said it. Listen carefully to how employees talk to customers. I personally find sarcastic people quite humorous even when it is directed at me, but having employees piss a potential customer off while giving them directions of how to get to your business establishment is inexcusable.

Marketing

Post Office Box Addresses

Unless you have a company that is known nationwide don’t use a Post Office Box number for an address. You are better off using home address such as Fairway Lane than a P.O. box. Potential customers have been trained not trust such an address. Too many swindlers have used P.O. boxes in the past and you’ll have a strike against you before you start. There are very few businesses that can be successful working out of a home. You need a place of business to build on; you need a place where it all comes together.

Logos and Company Names

If you personally have a name that is used by a large company, you can’t necessarily use it. Your name may have already been registered and they own it. Some companies will go to extraordinary efforts to protect it. In any case, make sure you can legally use the one you choose before spending money on printing or advertising. The US Patent and Trademark Office (<http://www.uspto.gov>) is a good source of information on trademarks. The first thing you have to realize about logotypes (the symbol representing a company’s name) is they are not as important as advertising people think. On the other hand, since they are so easy to produce with a computer graphic program, it would be foolish to have an ugly one. The company makes the

logo famous; it isn't the other way around. If logos were important, General Electric wouldn't be one of the largest companies in the world. Don't try to tie your logo directly to the products or services that you are presently planning to market. In time you and your company may head off in an entirely different direction making the logo obsolete.

A Totally New Product Requires a Lot of Salesmanship

It is also difficult to try and sell a new product unless it can be compared with a product now on the market. If the reason for the product has to be explained you'll need a very dedicated sales force. Customers will not read or listen to long sales pitches. Before starting on a new venture, play with the financial numbers and convince yourself it is worth the effort. To make \$50,000 on a product that has a potential profit of \$0.10 each requires sales of 500,000 parts. This is fine if you get orders in the 100,000 range, but you will not survive if you are going to sell twenty-five at a time. The numbers just aren't there. If you are just starting out, you will need to have some big-ticket items to sell to pay the bills.

Pricing Your Product

A real problem in designing and manufacturing products is the value a customer may give a part compared to the cost of manufacturing. A plastic part has little value to most customers because they are used to trashing complex disposable plastic products every day. Parts that have been manufactured by the millions have the tooling cost cut by a proportional amount, and the cost for each part becomes negligible. When a plastic part is used in a low volume product, however, the tooling cost for each part produced will normally exceed the material cost. Material cost can also be higher than one would imagine. In 1997, the steel used to produce Sherline tools cost from \$.45 to \$4.00 a pound, aluminum costs were about \$2.00 a pound, and the plastic used for the speed control case cost around \$2.00 a pound. These are prices paid for materials purchased in production quantities.

I'm sure you have seen the same 40-piece socket wrench sets that sells as low as \$4.00 that I've seen on the shelves of auto parts stores. I couldn't get the chrome plating put on that set for \$4.00 in high quantities in California, never mind manufacturing and discounting it. I really don't understand how or why they do it, but the fact that they do affects how a potential customer will evaluate the value of other tools. A customer will see a value in large parts, but little value in a small part. This small part may require machining operations from each side and can cost many dollars to produce, but a customer often doesn't have the expertise to see this. Small parts may take longer to load in a machine than a large part because they are delicate and can be difficult to line up. A cutoff saw takes the same time to cut a one-inch long piece off as it does a ten-inch long piece. Customers perceive value from their everyday experiences, and that is something you must deal with if you ever plan to produce a product.

An American Company's Place in the World Market

American manufacturers are at a disadvantage when it

comes to selling throughout the rest of the world. The U.S. market is the largest market in the world, and we now have a great distribution method to get products to the consumer with very little markup. Take the \$4.00 socket set for example. It probably is sold directly to a discount chain of stores who only mark it up 25% and sell it directly to the consumer. The discount chain stores have such a large buying power it allows them to deal directly with manufacturers throughout the world. Products are shipped directly to their warehouses with no middleman markups. This is a great deal for consumers, but it makes for tough competition for an American manufacturer.

The biggest difficulty in establishing a market outside of U.S. is the discount structure. Everyone wants to make 40%. For example, in this country, large chain stores will order direct from a manufacturer in Asia, mark the product up around 30% and sell it direct to the consumer. In Asia an importer will import a U.S. product, mark it up 40% and sell it to a distributor who then marks up their cost 40% to a retailer, who also wants to make 40% on a sale to the consumer. I've had the discounted price of my products increased over four times on products sold overseas. Needless to say, these attempts failed. The different method of marketing in foreign countries makes it very difficult for U.S. companies to compete. This will change rapidly because these countries are beginning to develop marketing methods similar to our own. I no longer waste my time working with foreign distributors who use this method of selling. Competitive consumer pricing no longer allows this multi-tier system of distribution. To make matters worse, U.S. manufacturers must compete with companies that sell products here that don't have to deal with the higher safety and environmental standards set by OSHA and the EPA. I'm not suggesting we should do away with these agencies, for I believe they are needed to protect our workers and citizens. I'm only reminding you of some of the problems that face U.S. manufacturers.

Taking Advantage of the Internet

Our website has been a very good investment for both the customers and Sherline dealers. What inspired me to put the effort into having Craig make a very complete site was I believe it is the way of the future and I didn't want to be left behind. What I really like about it is you don't have to live with mistakes because you just had 25,000 copies of something printed. Information is easily corrected or updated—instantly. I felt that if we did a really good job we wouldn't have to change it and it could be useful for years, just like the good tooling I keep referring to. I believe we have created a useful site by including plenty of good information such as instructions for our machines and accessories for our customers and potential customers to examine. We also reach a readership that is worldwide. This can be impossible with standard advertising methods. We have picked up a number of new distributors in other countries because of our Web page. We have also made an increased number of direct sales overseas because fax and email communications make it easy for anyone looking at a web page to order. Time of day, long distance phone calls and the language barrier are much less of a problem.

The website was put together over a period of about four months and has been constantly expanded and improved. The most interesting thing is how inexpensive it is. It costs only \$500 to \$700 a year for a very large site. Compare that with a two by three inch ad that costs \$1,000 and is history once the next issue comes out. I believe only the surface of the Internet has been scratched and it will keep growing for many years. It represents the leading edge of the “information revolution” that is to our era what the industrial revolution was to our grandparents and great grandparents.

You Can't Beat Word-of-Mouth

The best advertising comes from simply treating your existing customers fairly. When you start thinking you are much smarter than your customers are you are headed for failure. Remember that customers wouldn't be calling with complaints if the product and instructions were working like they should. Take the time to listen to their complaints and try to solve their problems. It isn't hard to be a hero in today's business world where BS is king. Just treat customers the way you want a business to treat you and many problems will disappear. A recommendation from a satisfied customer carries far more weight to a potential buyer than what could be said in an advertisement. By the same token, a bad word from an unhappy customer can cost you sales. They say a happy customer tells ten other people, but an unhappy customer tells a hundred. Some of our most devoted and loyal customers are not the ones who have never had a problem, but rather ones who have had a problem and had it taken care of promptly and politely. Unfortunately, in today's business climate good service is becoming more of a rarity, and it is a relatively easy place to stand out from the rest.

Make a Prototype and Try to Sell It

A quick check to find out if you have a winner is to take your expensive prototype to an appropriate market place and try to sell it. If you can't afford to give up your prototype put a price on it too high to sell. See if you can get anyone interested in it. A local swap meet would even work. When you are coming up with a new product everyone you're working with may be saying what a good idea you have. If you take the time to think about it you'll probably find that most of these people have something to gain by you going ahead with the project. They might be employees, contractors, advertising agents, engineers or maybe just a friend that thinks they should get one for free. They may all want something from you but would they really buy one? To find this out see if you can get a total stranger interested enough to at least haggle about the price.

Advertising May Help Your Competitor

If you are coming out with a new product line to compete with existing well-established products, you may have a tough row to hoe. Just because your product is better doesn't mean dealers are going to stock it. Dealers and distributors are more interested in selling what they already have on the shelves than selling a new product line. In a way, I don't really blame them for this trait. They are trying to survive just like you and don't have time to tell potential

customers the fine points of five similar products that only sell for \$10. The next obvious plan is to advertise in such a way that the potential customer knows why your product is better. Suppose your ad convinces a customer to buy your product and they go to a store to purchase one. If the dealer doesn't stock your product, the dealer will then ask the customer why they would want to buy a new and untested product instead of the better established product line they already have on their shelves. The customer agrees and purchases your competitors' product.

Knowing Your Competitor

This is advice that I can't honestly say I'm practicing what I'm preaching. I just don't have the urge to “spy” on my competitors when I'm so busy expanding my own product line. Common sense tells me I should spend more time and create comparison charts, but I haven't. If I was more of a salesman I would have done it years ago for I realize that any product you about to produce should already have a spreadsheet comparing and contrasting the benefits and drawbacks of your product compared to the competition. If you haven't done that, then you're moving ahead on very slippery ground. Part of process is to understand completely and distinctly all of your competition and what they have to offer. The ideal situation is to produce a product or have a service that is unique. The problem with this type of product is you may have to explain what these products and services are used for.

Advertising...Do You Need an Agency or Should You Do Your Own Ads?

I may have spent more time than I should have on manufacturing our products because it is the part of a business that is the most interesting to me. However, there is a lot more to being successful than just manufacturing a product. You have to sell it. This becomes a major problem as soon as you can build more than you can sell. Small ads in popular magazines may cost thousands of dollars. Magazines give a 15% discount to advertising agencies. Remember that advertising agencies are in business to make money doing your ads and their advice will usually reflect this. They make their money by placing as many ads as possible and pocketing the 15% discount as well as charging you for production time and costs. Most likely you already know your own product and your market better than they do. A graphic artist can produce advertisements to your specifications and costs less than an agency. If you or your hired artist produce your own ad, don't hesitate to ask the magazine for the 15% discount as an “in-house agency” when you supply your ad “camera ready.” They almost always agree. Don't get involved with a long advertising contract until it has been proven to be the best way for your particular product.

Getting the Most for your Advertising Dollar

I have found that the first time you advertise in a new magazine you get the most results, and repeated ads in the same magazine begin to lose their value. Once all the subscribers have seen your ad, they have pretty much decided to buy or not to buy. Repeated ads are only reaching new subscribers or onetime readers. Keeping a visual

presence in an important magazine, however, will assure your present and future customers that you are for real. Tricky ads for new products are usually losers. A good picture and an honest description are what people want and need to make a buying decision. You can probably recall a lot of really “great” ads about which you can remember every detail except what they were actually selling. People look at the pictures first, and then they read the headline next, the photo captions and finally the body copy last if they have time. Paragraph sub-headlines breaking up the blocks of copy make an ad easier to read... kind of like Craig has done in this book. If your product is colorful, a color ad may help, but you might consider buying more and larger black and white ads for the same amount of money to reach more people. Don’t pay for the color unless it is buying you something.

Some Advertising Buys are Better than Others

Don’t start thinking that because a magazine has a circulation of 200,000 readers you will get 2,000 inquiries if only 1% of the readers respond. Unless your ad is tremendously effective, your product is unique and desirable or you are giving something away, a response rate of .1% or less can be the result on a new product. Also, a request for information doesn’t always lead to a sale. There are many new companies that didn’t make it because they squandered their money up front on expensive ads. We have spent thousands of dollars on an ad in an R/C car magazine that only brought us a few responses. On the other hand, a small 4" by 5" ad that costs us about \$170 a month in a tabloid called Shotgun News consistently returns good response and is probably the best return for the money we have. Neither result is what we anticipated. The problem our company has with advertising is that only a few people are interested in our product in any particular group. There isn’t any single place to advertise that will go to more than 5% of our potential customers. We have to spread our advertising around and let present and future customers know we are still “alive.” I always envied products that can be sold by advertising in just one magazine. Take scuba diving for instance. I’m sure there is one magazine that goes to 60% of this market. Selling a product like that can make your life a lot easier.

Free Advertising

Most trade magazines have a new product section. You don’t have to pay to get in this section and magazines are quite ethical about submissions. The main criteria to get a product listed is to have a product that the editors believe their readers will be interested in; therefore don’t waste editors’ time by sending items that don’t apply to their magazine. When you find a magazine that you believe would be interested look closely at the format. Don’t forget it is worth it to make sure you have a really good press release photo. If you can’t take a good photo yourself, get a professional to do it. Most magazines are put together electronically now. Find out if they would prefer a scanned version of the photo and send it to them on diskette in the file format they request. The easier you make it, the better the chance they will use it. Send an 8 x

10 commercial grade photo or a scanned picture and text on a disk or sent by email. Soon the only method accepted will be the latter. The description should contain the same amount of words they are using to describe other similar products in that section. Don’t expect an editor to pick out 100 words out of a 2000-word description. They don’t have the same interest as you do. Your own website can give these additional details, so try to have the address listed with your description. Invest in a toll-free phone number for people to call. People still like to pick up the phone and call, and phone costs are so low that a toll free number is a wise investment. We should all be so lucky that a free advertisement would result in hundreds of 800 calls about a new product! If a new product release gets good results from a magazine that printed the press release, respond with a paid ad. Be loyal to the ones who have helped you.

Magazine Articles Are Even Better than Free Advertising

Another source that is often overlooked is the magazine article. Magazines make their money by selling ads and subscriptions. The amount of money they can ask for their ad space is based on how many magazines they sell, and people buy magazines for the articles, not the ads. Every month they have to keep coming up with good articles and this isn’t easy. If you can write an article about how your product solves a problem their readers might have, chances are pretty good you can get it published. They may even pay you for the privilege! You can’t be too blatantly commercial, but you can show your product in use in the photos, and in most cases knowing the name of your product is valuable information to the reader so the magazine won’t object to it. When we submit an article, we do as much of their work as possible to maximize our chances of getting it published. We write the body copy, the headlines, the subheads, provide the photos and write the photo captions. Most of the articles we have had published have gone into the magazine almost exactly as we sent them in. Other than the work, they cost us nothing, and we end up getting out a lot of good information about our product to the readers that we could never have afforded any other way.

Getting Others to Write Articles on Your Product

Sometimes you will hear from people who ask to get your product free or at a very good price so that they can write an article on it. Sometimes these are just scams to get free product, but not always. Check out the person’s credentials and ask to see some of the other articles they have had published. If they can do a good job of it and have a decent shot at getting it published, it will accomplish three things for you. One, you don’t have to write the article yourself. Two, the magazine might feel better about publishing an article that wasn’t supplied by the manufacturer of the product, and three, the credibility of a “third party” endorsement is more believable than your own horn-tooting. The only down side is that you have little or no editorial control, although you can ask to read the article for correctness before it is published just to make sure no wrong information gets out there. Be

wary, but don't slam any doors before you know what's behind them.

The Customer is King

To be successful you have to get rid of any stupid idea that since you now have a business, your accountant and attorney are more important to you than your customers. This kind of thinking is the beginning of the end. Nothing is more important than a satisfied customer. It takes a good product to satisfy customers and it takes satisfied employees to keep these customers satisfied. Customers like to build a relationship with the people they do business with; however, they will only be interested in you or your employees if you have products or service they want. Customers must remain satisfied even if they are wrong. Proving the unsatisfied customers are wrong will only make the situation worst. Protect your product's image in the marketplace by servicing the hell out of any customer. A bad experience with a customer may cost you ten to twenty other potential sales.

Loyal Customers

If you plan to be in business for the long haul you can't do it on your own. You need loyal customers as well as loyal employees. Loyal customers can't be bought. Loyal customers don't ask for special treatment unless it's very important. This will be your chance to be a "hero." You have to earn loyalty from this group by going out of your way. It's important to offer service on a business level, rather than an ass-kissing contest with no business value to it. A stable of loyal customers is worth their weight in gold. They carry their own momentum. They will start trusting you and your company because you have put in the extra effort in the past to keep them satisfied. They stop shopping strictly for price and trust you and your company. They know you'll work a weekend, if necessary, to solve their problem. You'll never gain a customer's loyalty by taking a month to send out the literature they asked for, lying, not returning phone calls, using a technicality to worm your way out of mistakes, not living with agreements, using answering machines to divert calls, having dirty business establishments with filthy restrooms, cheaping out, allowing crappy workmanship, having employees that look like "dirt bags," having employees that don't treat one another with respect, selling poor designs, overcharging, and blaming customers or employees. If you don't get the idea of what I'm referring to by now, do us all a favor and don't go into business. On the other hand, I've purchased many bargains at these people's going-out-of-business auctions.

Paid Advertising

Paid advertising comes in a variety of designs today. It can include the purchase of email addresses, fax numbers, simple direct-mail postcards to fancy packages, institutional advertising, line-item advertising, and so forth. This is a field all by itself, but a simple one that can be understood by anyone willing to take the time. Figure out the best way to utilize advertising dollars and reach the largest potential customer base. You'll never make a profit if the cost of sales exceeds the profit made on the

same sales; however, getting your first sales along with product or service recognition shouldn't enter into this equation.

Think about times when you have seen full-page color ads in very expensive advertising media never to see the product again. Advertising can be the quickest way to the poorhouse when you're starting out. You can't start a business with an expensive \$75,000 ad. Yes, when a magazine puts out 200,000 copies, you'd sell 2000 if only one person out of a 100 buys your product, but doesn't work that way. Although fifty inquiries would probably be a more realistic number, the reason you can't sell 2000 units is that you don't have a method to distribute the product to the consumer yet. On one hand you can't sell your product because the consumer doesn't know about it, and on the other you can't sell it because it isn't available. It is sort of the "chicken and egg" problem. Remember that you have to survive to be successful and few will be lucky enough to find success the result of a single action. If you're short on cash, run small ads that will both make a potential customer aware of what you do and be able to refer them to your website for details about your products. This is one of the reasons I'm such a fan of the Internet. You can put a new product in front of the world for only a few dollars a day. Learn how to use it.

Do Not Hide the Price

I believe the price of a product should be prominently placed in advertisements. Be proud of the selling price. The first thing a customer has to know is whether they can afford it. The logic used by not giving the selling price is that when a customer calls to find out the price sales will have a better chance of selling the item by personally talking to the potential customer. I personally believe that you lose more than you gain with this logic. Customers are busy today and they will not take the time to find out the price of an item they can get along without. The pricing will also allow a company to avoid phone calls from numerous people who waste time on the phone when all they're really interested in is the price to begin with. The price can be called a "Qualifier." Having to call around or be put on hold by an answering machine to find out the price of a twenty-dollar item is more than customers can bear. The truth is many potential customers shy away from a product because they may think it costs more than it really does.

Trade Shows

The first thing you have to realize about trade shows is they are put together by the organizers to make the organizers of the show money, not you. You have to be very careful about picking a show out to attend. It would be worth your while to talk to other people in the same "arena," but not a competitor, as to which trade show to attend. Be sure to mention that you're starting out and can't afford to waste money when asking for advice like this. You'll never believe you could feel so low until you are flying back home after spending several thousand dollars going to a show 2000 miles away without a sale because the organizers didn't spend any money advertising the show.

Most booths start at 100 sq. ft. and cost \$10 to \$20 a sq. ft. for a large show and \$2.50 for a regional show; however, the cost of traveling, hotels, shipping and just plain getting ready shouldn't be overlooked. You have to develop a "line of BS" to show and sell your products or services and this can be learned at a regional show. By not having this line of BS and a sales plan you could lose more than you can gain at the national shows. You should be prepared to look your best at national trade shows. Put your effort into selling to potential customers, not into people who attend shows as a form of entertainment. If there aren't any potential customers there, you're at the wrong show. Don't participate in trade shows that limit attendees to dealers only when starting out. You need to be talking to the end users to perfect advertising and selling strategies at the start. Trade shows will bring to you the reality of selling your goods. You need every opportunity you can find to show your products or services to the public who will eventually do the purchasing. You can always team up with a friend to share a booth as a way of cutting costs.

Giving Away Your Product to Pros

One thing I learned about the pros a long time ago is that if they think they will be better off by using your product, they will buy it. Few consumer products will stand up to the requirements needed by pros. When you consider that a Grand Prix motorcycle, as an example, costs over \$250,000 to build; it is safe to assume that they will not be interested in saving \$25 on a handlebar. It would also be safe to assume that a consumer would not be willing to spend \$750 for a titanium handlebar for a \$6000 bike. Following pros around like a camp follower is not time well spent unless you take the time to learn from this group. Look closely at their problems and how they have solved them. This can be a source of good ideas for consumer products or services. Giving exceptional service to the customers who have bought your product will produce the best results in the long run. On the other hand I've seen products become successful overnight because of an endorsement by a "star."

Making a Positive Out of a Negative

Some of our most loyal customers came to us the hard way. We screwed up their order or shipped them a defective product. Why then would they have such good things to say about us? The answer is simple. We admitted our mistakes and took care of the problem as fast as possible. Unfortunately, it seems this is an unusual occurrence today. Customers don't start calling and complaining about things that work properly. I will not go as far as saying the customer is always right; but I'll let the customers think they are right. Good service isn't expensive to offer when you consider how much poor service can cost. It is easy to be a "hero" in today's world.

Wasting Time

A complete waste of time is to ask potential customers if they would buy a product without a prototype, delivery date or selling price. A successful company can do what I'm saying a newcomer can't because they have a track record and existing customers to discuss new products

with. There is a big difference between a customer and a potential customer. You have to believe in what you are doing enough to complete your "homework" before offering it to potential customers and this usually requires much time and money. I have found it is harder to arrive at the selling price than to design a prototype. To arrive at the selling price you need a complete understanding of how the components will be manufactured and how much these manufactured components will cost. Ideas are a "dime a dozen" when you are starting out and you have to focus on a particular plan. Don't become a salesperson that can't focus because they only remember what the last person said. People like this never arrive at a plan because the customers constantly change their mind. It is your job to convince the customer to do it your way, not to have the customer convince you to do it their way. If you're not sure why you are right, you shouldn't be doing it.

Don't Show a Prototype to Customers

An error I've made several times was to show an "unfinished" product to a potential customer. People who have the insight to come up with new products have a tendency to believe a potential customer can see past the flaws of a prototype and understand what is trying to be accomplished. When you hear through the "grapevine" that your new product isn't any good because of the flaws you explained were going to be eliminated in the production model, you'll understand what I'm saying. Never show new products to anyone that you wouldn't be proud to display in a Trade Show Booth or ship directly to a customer.

Selling with the Internet

A few years ago I believed that a company couldn't grow to any size without outside help from dealers or representatives. The Internet is rapidly changing my opinion, but advertising is still needed to make potential customers aware of your website. The Internet has become the most marvelous tool ever invented for new companies that sell specialized products. It is a way for manufacturers of unusual products and specialized services to find customers worldwide and for customers to find these goods and services. The cost for this type of advertising is so inexpensive when compared to normal advertising you could almost consider it free. Don't pay other companies money to list your site. The search engines of the Internet will find your products. Money would be better spent with small ads in appropriate magazines referring potential customers to your sites. The Internet can sell your products, take the order and write the invoice 24 hours a day from all over the world. We have over 600 pages of information in our website for only a few thousand dollars a year. Of course, putting it all together had a high cost but we did it in house. The way I looked at it, if we did it right it could last for years. The results have been so positive we keep improving it. We have had several customers claim we have the most useful and best website they have come across. One thing worth noting is that you're not printing thousands of pages where errors or a price change can result in trash; you can correct or

change a web page in minutes. Linking your site to other similar sites in exchange for allowing them to do likewise could be your secret to success.

Purchasing

Purchasing Agents

A company has to be pretty large before they need a full time purchasing agent and they don't come cheap. By nature they are "empire builders." They have an amazing amount of power over suppliers and some use this power in very unethical ways. They can spend you into the poorhouse by buying items in quantities that are too high to get a good price, however, at the same time they'll be convincing you that you'll save thousands of dollars by doing so. You have to be very careful when you allow your name to be put on orders that may cost thousands of dollars. It can be as dangerous as giving them a credit card to use as they see fit. I wouldn't want to put a "wheeler-dealer" in purchasing because you need good vendors just like you need good employees. A purchasing agent that goes beyond just getting the best price can hurt more than they can help.

The Three-Martini Lunch

You should always be on the lookout for employees who are taking advantage of their position by having their "hand out" looking for payoffs from vendors. Relationships between vendor and purchaser should always be businesslike. Don't allow vendor-paid free lunches and especially lunches that involve any alcohol. I've had sales people try to get me to go to lunch so they could have a couple of drinks. They were alcoholics trying to find someone to drink with on their company's credit card. You can only be friends with suppliers to a point. Vendors should never be allowed to believe they get your business in any other way than by being competitive in price or service.

The Good Old Yellow Pages

One of the best ways I've found to find sources for goods and services is the Yellow Pages, which is part of the local phone book. They are free and you need one for the closest large city in your area. Start with the index of what you're looking for and then look at the individual advertisements. I start by calling around and give a brief description of what I'm looking for. If the company doesn't offer what I'm looking for, I ask if they have any suggestions who to contact. In most cases, you'll get a very thoughtful answer. On the other hand, purchasing from local suppliers can also be very expensive for a company. You may find "shopping" nationwide can save thousands of dollars using the Internet. We recently found a 40% difference on an expensive electronic component. When you're purchasing items that can be purchased or produced from many different sources you should take advantage of your position. Another good use for the Yellow Pages is to find out how much local competition you have for service-related businesses before you start. You have to find competition from similar manufacturing businesses through the Internet.

Check Their Prices

Never trust a sales person so much that you do not to check their prices. The moment they believe they have the upper hand you'll pay far more than you should. It's their nature so don't hold it against them. It was your fault for allowing it to happen. For example, we buy aluminum in five thousand-pound quantities. A ten-cent per pound difference is \$500.00. This is the easiest money you can make. A couple of phone calls and "bingo," you save a thousand bucks. I've seen more than \$.50 a pound difference between companies that we normally do business with which amounts to over \$2500 between high and low. Again, this can be the easiest money you will ever make. My partner saved our company thousands of dollars simply by asking if that was the best price that they had to offer. You don't have to be rude, just ask. The many factors that affect pricing include how bad the seller needs to make a sale, how much they have on hand, how busy they are, and the mood the sales person is in. Selling is a personal business. Don't expect a good price if the seller had a big argument with their boss that day. Sellers have to know that you, the buyer, will shop to get the best price.

Live With Your Agreements

On the other hand, if you want good prices you have to work with the terms you have agreed to. In other words, pay your bills on time and if you can't you should keep the suppliers aware of your problem. You'll find most suppliers will understand your plight for they too have been there.

Don't Always Use the Low Bidder

Not all items can be shopped for in such a simplistic manner. Quality and information have a value that is difficult to evaluate. An advertising agency that produces very economical ads that do not sell your product isn't a very good deal; however, paying a big buck agency doesn't guarantee results either. You have to be the best judge of where and how your money should be spent.

Getting Bids

You have to know enough about the process to produce the special parts your company may need to get the correct company to bid. Each company is usually better for a particular size range or quantity than another. Be up front and ask a potential shop if this size part and this quantity would be a good job for them to do and if they believe they could be competitive before they bid. They don't want to waste their time bidding on jobs that don't stand a chance of getting. For example: Small diameter screw machine parts would be best ordered from a company with Brown & Sharp single spindle screw machines if parts are ordered in less than 5000 parts. However, it may be possible to get 20,000 of the same parts by ordering from a company that runs Davenport's at less than half the part price. Very small diameter accurate parts should come from a company that runs Swiss machines. Complex accurate parts in low quantities should go to a CNC shop. Of course, these companies need clear accurate drawings

with tolerances for every dimension. You want vendors that can easily deal with the quality and quantity you need.

Abusing the Bidding Process

It takes more time than you think for companies to give you an accurate price and you shouldn't abuse this privilege. Having ten companies bid on a \$400 job is abusing this privilege. It could cost each company over \$40 to bid your job which results in over \$400 spent by this industry to get \$400 worth of work. You shouldn't have a part bid that you don't intend to order. Many times engineers think nothing of sending parts out for bid to check to see if their design is economically sound. Can you imagine asking an engineering company to see if your design is structurally sound for free? The reality of the situation is there isn't any difference. I've always felt companies should be paid to bid because it is an engineering process. With email and faxes it is too easy to send out more bid packages than the project deserves. Obviously this is one of my pet peeves for I've been one of the poor bastards who worked late into the night, bidding jobs for a company, who I later found out, had no intention of purchasing what I was bidding on. In one case a potential customer came in with a crude drawing without any tolerances. I made a new drawing for him with the appropriate tolerances and gave him a new drawing for approval. A week later I visited a friend who had a shop similar to mine and saw my drawing on his desk. He got the job and I got the shaft; however, I realized my friend had nothing to do with it. Another lesson learned the hard way.

Insurance

If you thought the government works in strange ways you'll really wonder about insurance companies. These people change their minds faster than a kid in a candy store. One day they are begging for your business and the next day they quote a rate with a 200% increase over the last year without ever having had to pay a claim. Three years later they are begging for your business again and quoting the lowest rate ever. What it boils down to is you have to make them quote a price each year, and you have to come up with a bid package so the insurance companies involved are all bidding for the same basic package. I've had to pay thousands of dollars for product liability insurance since it came to be a problem over twenty years ago. In all this time, I have never even received a nasty letter; yet, in 1999 we had a problem finding an insurance company because they felt "we were due" for a big claim because we had never had one. How can anyone deal with logic like that?

A Costly Error Caused by Not Checking a Price

I became involved in the manufacturing a model radio controlled helicopter that had already been on the market but was no longer being produced. The company was located near an airport. We had been making a few of the parts for their model when an aircraft crashed through their roof and burned out the manufacturer. A few years later the owner of this company offered us the opportunity to put this product back on the market. I was told, "The phone would ring off the hook" when his customers found that the helicopter was being reintroduced. I've always

loved model aircraft so I have a soft spot in my heart for projects like this, however, this time I believe it gave me a soft spot in my head. For outside purchases I used the original manufacturing cost and started to redesign and manufacture parts to reintroduce this product to the hobby market. We had many parts manufactured when Carl, my partner, started to check prices for ball bearings. The cost sheet had them listed at \$50. The best quote I could come up with was around \$120. The \$70 difference was the profit we had planned on. When I talked to the original owner about this difference I was told I had to order a higher quantity to get to an affordable price and suggested that I just "go for it." He wanted me to put my name on a purchase order for over \$300,000 worth of bearings without having one order in house. This is the order he had previously put his name on. The big difference was I never order things I don't intend to purchase and I had a million dollars of equipment, money and inventory to go after if I canceled. The project ended with me losing thousands of dollars and many hundreds of hours of effort.

New or Used Equipment

I could write a book on this subject alone. Used machines can be bought for as little as ten cents on the dollar so why would a person purchase a new one? The two main reasons would be, speed and accuracy, but not all new machines are faster. New machines can be bought for as little as 10% down and the increased production rates may be enough to offset the monthly payments. The answer isn't this simple when you find it would take \$1,000,000 of new equipment to produce the product and you only have \$50,000. All is not lost when you find you don't have an investor who is willing to foot the bill if you are willing to purchase used equipment and get it working as I have. If a single CNC machine could be purchased that could fill your manufacturing needs I would suggest getting a new machine from a reputable local dealer that had the ability to service the CNC control. For the specialized machines I would purchase used machines that are good enough to get the job done. You can usually find a craftsman who would be willing to help you get a specialized piece of equipment operating by paying them a reasonable rate, which would be around twice what their regular pay is or their shop-time rate. I don't want to take off on a tangent on this subject because it is a subject that defies rules but I came up with one. "If you don't like to get your hands dirty buy new equipment, or better yet, buy an existing business where you can sit in an office and play boss."

Choosing Between Mechanical and CNC Machines

If you are trying to build a product and you need to produce a particular part, you may have a choice between a computer control and a mechanical machine. CNC machines have been more reliable than mechanical machines for me. There are more employees available today who are trained to operate these machines. If you bought an old CNC machine without documentation you may have bought a piece of junk unless there is someone in your area that can fix it. You must know if you can get it fixed before you buy it. A technician a thousand miles away will not

be of much help if it is going to cost you \$2000 in travel expenses to fix a \$100 problem.

I look at CNC machines differently than mechanical machines. They are more like automobiles and have a limited life. If you can afford it, buy a new CNC machine. Often they will be able to make a better part in half the time it takes a machine that is seven years old, and time is money.

Purchasing Used Equipment

Purchasing used equipment is quite a bit different than a buying new. Very seldom is a similar one available at the same price or quality. If it is a good buy, you have less time to make your decision because a good buy will sell fast. One thing worth noting is that used machinery dealers will usually offer a money back guarantee which you will not get on new equipment without a lawyer. There is a great deal of time and expense associated with moving, installing, and getting specialized machinery operating. To make these purchases without a lot of thought is an error for all parties. Again, this is a decision that shouldn't be made casually. The best buys are usually found when the seller is attempting to sell an item that doesn't fit in with their normal market and they want to be rid of it.

Buying Used Machines at an Auction

I have purchased machinery from every source available, but I like the auctions that I also consider a sport. It is a game that is played for high stakes, and high dollar machines are often sold in less time than a fifty-dollar vise. It takes two people that really want a particular machine to get the price it is actually worth. If you have many bidders, the price may go way beyond what would be considered a good buy. At that time the auction may turn into a bidding contest that leaves common sense behind. Know your limit before you start bidding and know what the machine is really worth. A good buy can be had when they auction a special piece of equipment that doesn't go with the main theme of the auction. Bidders don't want to waste a day only bidding on one piece so you may not be bidding against anyone who really wants it. The best buys are usually found on very specialized items that have very little value to a small shop. Items that are primarily used by large corporations don't have a good market used because these large corporations usually buy new equipment. Of course, there can be a large degree of risk associated with purchases of this type, but the money that can be saved may make this risk acceptable.

Of course, I didn't always follow these rules and ended up buying a few "turkeys", but that was part of the fun. Buying used machines from a dealer has some advantages, and many times it can be more economical than an auction. In addition, you can usually get a money back guarantee. You can't even get that on a new machine. Putting large machines in place is costly for both parties, so you have to be sure of your decisions.

Purchasing New Equipment

Equipment manufacturers often have some marvelous financing plans available with low interest rates and

only 10% down. You can quickly spend your way to the poorhouse taking advantage these plans. You have to have a definite need for equipment you plan to finance and experiment only with cash purchases. To tie yourself down to high monthly payments you have to have a plan that is long as the term of the loan. Equipment is usually financed over a period of 60 months, however tax depreciation rates are usually 7 years. There isn't any tax advantage purchasing equipment and you can only depreciate it at a rate it depreciates at, which is one of my pet peeves with the current (2000) tax laws. If you purchase or lease a piece of equipment and it isn't working out, take a loss and get rid of it while it's new. The longer you wait, the bigger the loss. The company that you purchased the equipment from usually will help you sell it when it is new.

Manufacturing

Corporate "Logic" is Sometimes Hard to Explain

I can never understand the logic large corporations use today where they avoid making their own parts. They come up with "just in time" suppliers that must anticipate that corporation's future needs. Instead of having craftsmen, they have purchasing agents. Instead of machines, they have computers to control the flow of these products from outside vendors. Without considering costs, I believe we would have more people working for us if we contracted out the parts we use. If we run out of a part, we can put it into production that day if needed. A purchasing agent may spend three days trying to find a new supplier who could deliver the part in three weeks. Many times I can produce this part with less labor than the agent would spend finding a new supplier. I believe the corporations have chosen this path because it gives managers a method of shifting the blame when ideas fail. Of course, when quantities get into the hundreds of thousands it could be more economical to farm the work out. The type of person I'm trying to advise isn't the large corporation who buys in these quantities, but an individual starting out without enough money. My product couldn't be competitive if parts were purchased from outside suppliers. The costs involved would eliminate our product line because there is a limit to what customers will pay.

Manufacturing Drawings

I became painfully aware how important the mechanical drawings were when my partner of 30 years died suddenly from a heart attack. Carl had done all the detail drawings for all our products. At the time, this amounted to 450 detailed drawings. I decided to teach myself a computer-drafting program rather hiring someone to do the drawings. To teach a new employee our product line who may walk out the door out before the job is done seemed more difficult than teaching myself a drafting program. I chose to use AutoCAD®. At the time I needed something to focus on for I lost far more than my partner, Carl was also my best friend and one with whom I shared thousands of lunches and all my plans with. The problems I had with Carl's drawings were that they weren't to any standard. The floppy disks that the drawings were stored on were also unorganized;

however, Carl had the uncanny ability to reach into this giant pile on his drafting table and find exactly what you were looking for. There were multiple copies of the same drawing and I couldn't easily tell which version was correct. This was a job that I had to do for I was the only one in the company that truly understood the interaction of our product line. Much to my employees' surprise, I worked around sixty hours a week for two years to correct this problem. This fact alone should convince you how important I believe drawings are. The drawings are the heart and soul of a company that produces a product and they must be accurate and up to date. Years ago I came to realize that these drawings would keep my company going long after I'm gone. They will be my monuments. When you think about it, I'll still be telling employees what to do with these drawings long after I'm gone, indirectly of course. They can't get rid of me.

Part Numbers

Assume you will need a thousand times more part numbers than you need at the start. Look at the methods used for part numbers by the companies doing similar business in the same market. Part numbers become very difficult to change after they are released to the general public. Allow each product a range of numbers. This will allow you to have the individual components associated by part number. You may also find the company will need a surprising amount of numbers to contend with different processes as individual components are produced. Group "off the shelf fasteners" together because they might end up being used in several assemblies (products). Describe components that can be purchased locally (screws, bearings, etc.) in your spare parts list so the customer may get what they need at a local store. You can't make money selling two-cent screws for \$.25 each, one at a time, but you do have to have them available. Many industries require bar codes to be printed. This method is controlled by the UPC, which stands for Uniform Product Code. For a fee you'll be given a range of numbers to accommodate your entire product line. Further information can be obtained from:

Uniform Code Consul Inc.

8163 Old Yankee St.

Dayton, Ohio 45458

A Set of Books for the Shop

Always have a backup plan to keep expensive equipment operating. This is why documentation is so important. You can't have all your eggs in one basket with a single employee or yourself. If your key employee or yourself was hurt or fell ill could the business continue operating? This could happen to your best employee. To protect your company, which is also protecting yourself along with the employees and customers, take the time to document shop projects in such a way that another person skilled at the trade could get the job operating. The job folders should contain where the tooling and programs are stored and how they are used. Information has to be accurate. Remember, data that contains 5% errors isn't 95% accurate. This is information that pertains to your

business only. A new skilled employee needs to know where these things are stored even if they already know how to get the equipment operating. The digital cameras that recently came on the market are an excellent way to document setup information. I'll never understand why companies will go to such effort to keep track of every penny they make and spend, and then leave thousands of dollars worth of information laying around in an unreliable employee's head.

Tolerances

One of the first things you have to learn about in manufacturing is tolerances. Even if you make parts for your own use the limits of what will work has to be known. A production drawing should have the limits of every dimension. These limits cannot be arrived at casually or there may be a terrible price to pay. A part that doesn't "work" has no value. Having to put \$5,000 worth of parts in the scrap-bin because the tolerance allowed a part to be manufactured that was too small for its mating part can make you painfully aware of what I'm writing about. There are few parts that can be reworked if they are undersized. Computer drawing programs can help you sort out tolerances but it takes quite a bit of time and skill. The need for a thorough review of tolerances will come about right after you have just produced or purchased a \$1000 dollars worth of parts that will not work. The problem will be considered seriously when you discover the same error just occurred with \$5,000 worth of parts. You could take a few moments and reread this section and save yourself thousands of dollars and much grief.

More on Tolerances

Tolerances should be considered as a percentage of the total dimension. Consider a dimension 3^2 (75mm) long. If a tolerance of $\pm 0.001^2$ (0.025mm) were held, the error would have a total of .03%, which is a very small amount. A diameter of 0.050^2 (1.27mm) would have an error of 2% if the same tolerance were held. In most cases, this would be totally unacceptable. I found that by manufacturing my own products I have better control over the quality and cost of the products I sell. We attempt to manufacture components as close to the nominal dimension listed on the drawings as possible. We use the tolerance listed when we inspect the parts for acceptance. If components are manufactured just to pass inspection, the tolerances will have to be tightened because you will have to assume that all the components are at the extreme end of the tolerances. You'll be amazed how fast you can end up with unusable parts by being "sloppy." You'll also be amazed how difficult it is to determine these limits beforehand. I don't want to bore you with these facts, but these are mistakes that a novice will always make and experts will occasionally make. The biggest problem for a novice is that they usually don't have the finances to throw thousands of dollars of parts away and they may be forced to use them. This in turn could result in products that are unsatisfactory in the beginning when the product has to be perfect.

Good Tooling is the Road to Success

The specialized tooling that it takes to produce products

can be the difference between success and failure. Good toolmakers can often take an average idea and turn it into a great idea. A high volume, low cost product is usually the result of extremely good tool making. I'm a diabetic and have to inject myself several times a day. Good tool making has allowed these syringes to be manufactured perfectly for pennies. They are so inexpensive they are disposable. This has eliminated problems with contaminated needles, a major problem of the past. I believe the good ideas that made these disposable medical devices available are more the results of good toolmakers rather than good engineering. To come up with the idea to manufacture a sterilized needle .015² in diameter, cut it off so it is perfectly sharp and without any burrs for pennies a thousand is something that can't be developed at a computer or drawing board. Just because you can draw something doesn't mean you can manufacture it.

Don't Order Batches

Unless the product you're introducing has a very limited market and you know how many you can sell don't order components in equal batches. I believed this was one of my better decisions and was important to get a very complex product line on the market with very little money. The fact that I made most of the components myself must be considered. My plan was to be in business for the long haul; therefore, if I made a batch of 200 machines I would run out of every component on the same day. What I did was to run inexpensive parts in quantities that would lower production cost which allowed me to inventory them. Expensive parts would be manufactured in lower quantities closer to the rate they were used. This was the start of an assembly line method of manufacturing and we started to build components in economical quantities for inventory.

Making Your Own Components

I believe that the reason that I'm able to compete on a world market is by making the components in house. The cost to purchase non-standard parts can be much more expensive than one would think. When you have parts manufactured for you by a vendor that you don't control, delivery problems are inevitable. This usually results in higher than necessary inventory levels. Added cost must be added for the expensive purchasing agents that must be employed to keep track of these orders, shipping to your company from the vendor, and incoming inspection. Of course the profit of the vendor has been added to the price quote. If I had all the special machined components of my product line manufactured by contract machine shops I believe my payroll wouldn't drop because of the large purchasing and inspection departments it would take. For myself, I prefer working with craftsmen to dealing with the excuses of vendors and your own purchasing agents. The right answers for a company starting out lay in the middle. Manufacturing the parts that would be expensive if contracted out and are used in sufficient quantity is always beneficial. Contract out the specialized processes that you know little about.

Modern CNC Machines

I once described the manufacturing process as first taking big-ones (raw material) and making small-ones (components) and putting the small-ones together to make big-ones (product). There are few processes involved that don't use computer-controlled machines. Even the clothing industry uses CNC machines. They are unbelievably accurate and reliable. CNC machines are today's robots and modern manufacturing couldn't exist without them. They are also very expensive. Thirty years ago you could buy an old machine and fix it up and it would be almost as fast as a new one. Today the technology is changing so fast that a machine just five years old may run at 60% of the speed of a new one. The laws of physics will soon put limits on these dramatic improvements. Their real advantage is sometime overlooked. These marvelous standard machines can be turned into specialized manufacturing tools in a matter of hours. The specialized machines of the past may have taken years to build in the past and they would only be useful to produce a single part. Change the design and you needed another specialized machine that took years to build and could cost millions. Today many of these specialized machines have the value of scrap metal.

Overlooked Ideas for CNC Machines

Computer controlled machine tools are slowly changing the way we design and manufacture products and that is a big error. We should be leaping forward to use these marvelous machines to their full potential. These are the robots of the 21st century. Each machine, in a sense, is a complete manufacturing facility that can be instructed to make many different parts. Suppose you wanted to manufacture your product in several countries. You would only need the complete engineering staff in your home facility. The machines you send to other facilities will know how to produce the parts by using the same programs that's used at the home plant. There isn't any language barrier, for all these machines speak the same language. The new plants will only need the personnel to setup and operate these machines. This fact will have a terrific impact in they way the manufacturing plants of the future are designed and located. Local suppliers could be used for raw material and heavy products could be manufactured locally, eliminating high shipping and packaging costs. Think about it. High-speed CNC machines save more than wages. These are the machines that today's workers like to operate. A machine that can make parts in half the time can also make twice as many parts with the same floor space. With floor space in industrial parks getting close to \$.75 a square foot a month, the time has come to consider the efficiency of floor space.

Manufacturing Overseas

A quick way to get screwed in this world is having your product manufactured in third world countries. The first thing you should realize about third world countries is that they have very intelligent dedicated workers and managers but what they lack is the capital to carry out their own plans. Giving them the capital to develop your

product could be an error. The moment you can't buy all they are capable of producing, you'll find yourself competing with a product that is very similar to yours. Under their name they will look for new markets for your products. Look what happened to the U.S. manufactures of outboard motors. American manufactures now have to compete with several Asian manufactures. This would have been inevitable, but I'm sure the process was accelerated when American companies had their "low-end" models built in Asia.

Packaging

Newcomers to business usually overlook the true cost of packaging and shipping by at least 100%. Packaging has to get the product to the consumer without damage. In most cases products will have to be double packed to prevent the product from looking shopworn on a dealers shelf. Surplus boxes that can be purchased at substantial savings could be used for this purpose. With the cost of medium size boxes purchased in small quantities at \$1 to \$2 dollars it is a cost that has to be dealt with and it is worth shopping for the best price. The packaging has to prevent damage if the box is dropped a couple of feet. Not doing so could result in spending an extraordinary amount of time on the phone with customers and shipping companies resolving unneeded problems. You can learn a lot about shipping by taking the time to look closely at how the goods shipped to you arrived. In looking you will find that double packaging, which can be expensive, can easily solve most of the problems that occur.

Problems with Delivering Your First Order

The first orders you ship will have as much to do with surviving as profit. This is what you are going to be judged on. When you're starting out the profit that can be made on your first shipments won't amount to a pee hole in the snow compared to your overall investment at that time. The damage that you can do by shipping a product that is "not up to specs" can do you in. This isn't the time to try and get your investment back. Your only interest should be shipping the best product that can be built for the intended selling price. A common error is not taking the time to finish the small details such as packaging and instructions. The logic being that if the product sells details such as these will be taken care of. This is a major error. It is these details that will satisfy customers and dealers.

This is a rule that I wish I could say I followed better, but the demands of delivering at a promised date and shortage of money bent my own rule. When you have a product that is made of many individual components and a \$.50 item that isn't perfect, but still works, is stopping you from shipping a \$300 item, you'll probably ship it as I did. At this time in my life I wish I hadn't. On the other hand, I wonder if this was the decision that helped me survive.

Accounting

Accountants are Scorekeepers

I never ask a bookkeeper or accountant for any more information than what the score is. That is the only

information they are capable of giving. They don't know your customers or your product line. They only know what your finances are. This isn't the only information needed to make intelligent decisions. Statistics are only numbers that haven't any bearing on your particular circumstance. Statistics are just averages. For example: Suppose your thumbing through a trade magazine and you discover that your competitor has come up with a new product that is better and priced at 60% of yours. It doesn't make a bit of difference that the industry-average for new product development is 8% per year. You better get your ass in gear and spend what it takes to stay in business or sell the business to some fool that believes because a business has been profitable in the past that it will be profitable in the future. Now don't get me wrong and believe accountants can't give you useful information. The score can be very difficult to determine as a business grows; however, when you are starting out with little money and few profits, your checkbook should control your next move.

Know Your Labor Cost

The most difficult numbers to come up with are the true cost of the labor it takes to produce a product. You have to consider both wages and overhead to arrive at the correct numbers. The true cost can't be what a highly paid technician was paid to build a couple of prototypes. It has to be calculated from what the cost it would be if the product were actually in production. These workers are usually paid considerably less and work faster. If you use the numbers calculated from the highly paid technician the price would usually be "out of the ballpark." I'm sure I've spent several hundred thousand dollars gathering this information for my own product line. You can't casually use the numbers given to you by your employees because they will only tell you what you want to hear. If you're not making a profit on a product, success can put you under in the same manner as lack of success. You have to know your true costs.

I went quite a bit beyond just keeping track of my own costs. In the early days of personal computers my partner and I automated an Apple computer (IBM hadn't marketed their personal computer yet) that would tie wages and overhead to a particular task. My partner and I were awarded the basic patent along with 19 claims for computerized timekeeping. This is a project I've spent a few hundred thousand dollars and five years of work on and never made a penny. At that time, I was too far ahead of the market to be successful because I had to explain what it was for. Back then people would also assume a personal computer was capable of doing far more than it could and wanted the program to tell them what to do.

Book Value

A thing a set of books will never disclose is the value of good ideas and good organization. Book values have little value in the real world and are used for tax purposes. How can you put a value on good ideas or the employees who produced these good ideas with a set of books? In a sense, a business is a living organism that is too complex to put a value on by putting it on a simplistic scale. The

value of a company is in its ability to produce a profit in future years and not what the profit was last year; these facts will not show up in book value, but a warehouse full of worthless inventory will. The future value of a giant corporation may be being determined as you read this; however, it isn't being decided in the boardroom of their leaders. It is happening inside the mind of some nerd playing around with junk they bought yesterday at the electronic swap meet. If you think about it, the really great ideas have come from individuals working on their own.

Taxes

Taxes aren't as complex as you are led to believe. The only taxes that you have to be familiar with are the tax laws that pertain to you and your business. CPA's have to know all the tax laws. Businesses have to use an accrual bookkeeping system. This means you have to include money owed to you as income, however, the money you owe for inventory and expenses is subtracted. Money spent for capital equipment has to be depreciated over a period of time. You have to realize that any increase in inventory and accounts receivable will be considered income when the tax man comes, but you have more control over this number than you may think. The tax system is quite logical and there aren't many tricky things you can do to avoid them, but you can pay taxes a lot sooner than you have to with bad choices. The two choices you have to eliminate taxes are to lie and risk jail or screw up and eliminate profit; both are bad choices. No one ever went broke by paying taxes; just by spending profits that should have been saved for the taxes. Bankers and business owners have conflicting interests in the financial statement of the small business; bankers want to see substantial profits and the owner wants to show little profit to avoid taxes. Most small business owners make it their quest in life to pay as little as possible in taxes. There are legitimate ways to avoid overpaying taxes, but none available to avoid paying any taxes. Taxes are the rent we pay for living in the U.S. and it's really a small price to pay for living and having a business in the world's most developed democracy. Forget about the IRS. That's only an issue if you're audited and you violated the law. More importantly, your banker should understand when you explain why your corporation's profit was low and at the same time you paid yourself a large end-of-the-year salary and then loaned the money back to the corporation, etc. But if you're at that point than you could probably write this book rather than learn from it!

A Big Tax Mistake

One of the biggest mistakes a business owner can make is trying to impress themselves or a banker with a set of books. A bottom line that looks good to a banker will also look good to the IRS. Remember that the example I'm trying to explain, will usually be in a set of books with many pieces of information in it so the mistake doesn't jump out and beg to be corrected. Usually the mistake would be a combination of the same error, however the cost could be the same. The term "last in first out" means that the value of your inventory stays at the first purchased price and the product you are selling is valued at the new

price. This doesn't have a tax advantage if the present purchase price has dropped because of quantity purchasing rather than rising because of inflation.

Suppose you had a product that is injection molded and the retail selling price is \$5, but the cost per part is only \$.20. You have spent thousands for the tooling to produce and advertise this part so the price isn't as outrageous as it first sounds. The way you got the low price per part was that the company that did your molding had some excess material and machine time and they quoted you this attractive price if you would order 100,000 pieces instead of your normal order of 20,000 pieces. The book value of the part had been set a long time ago when you only purchased parts 1000 pieces at a time and with a wholesale selling price of \$2.50 you entered an inventory value of \$2.00 and forgot about it. Now look what can happen in a situation like this. The inventory value has now become \$200,000 even though it only cost you \$20,000. This will show up on your books as a \$180,000 profit without selling one. The accountant won't see this error because accountants use the numbers you give them. Don't ever have the inventory value determined by the selling price.

Many plastic parts are manufactured in what is called family molds; that is, the mold will produce a complete set of parts in one shot. One company I dealt with kept track of the each part individually; however, only one of these parts was subject to failure. Each time this part was purchased the rest of the parts molded at the same time became worthless but they were kept in inventory. The parts didn't have any value because they didn't fail and wouldn't be used as spare parts. They couldn't be used to produce the product without being a complete set. The value of the material used was so little that it wasn't worth modifying the mold to run the replacement part separately. The end result was these worthless parts would be carried on the books as good inventory, which resulted in higher taxes. This is something you should look for if your purchasing an existing business with an inventory. Again, these are very simple examples to make the problem easy to understand.

The Cost

With state and federal taxes it is very easy to be in 50% tax bracket and that means the \$180,000 over valuation of the plastic parts could cost you \$90,000, which becomes due and payable at the end of your tax year. The same could be said for carrying money owed by customers that will never be paid. It will be considered income as long as it's there. There are specific accounting rules for getting bad debt off your books but the moment you are sure you have been had, write it off.

End of the Year Taxes

After your tax year ends you don't have any control over the amount you owe. A clever CPA isn't going to come along and save you thousands in taxes unless you have a big mistake in your bookkeeping. Bookkeeping mistakes could also result in owing thousands. Like it or not, the tax man will get his due. One simple thing you can do legally is to delay a shipment so it falls into next year sales. By

doing this you can have these items listed as inventory, which has or should have a much lower value than the sales value would be. Consider \$50,000 worth of goods that have an inventory value of \$20,000. If you were in the 50% bracket (state and federal taxes), a one-week delay in shipping could turn into a savings of \$15,000 on taxes for that year. Accounting considerations like this don't cheat the government out of any taxes. They only change the time you have to pay them.

Why You Shouldn't Form a "C" Type Corporation

Unless you're going to have a lot of investors, stay away from this type of a corporation. They are very easy to put money into and very difficult to get money out of. I don't want to get into all the technicalities, but following your accountant's advice can really screw you. If you feel you need a corporation, set up an "S" type. The major difference between a "C" and an "S" type corporation is that a C corporation is treated like an individual while an S corporation is treated like a partnership tax-wise. If your only reason is the legal protection you may think corporations offer, get additional insurance.

The Accrual Bookkeeping System, the Enemy of New Businesses

One of the biggest problems a new successful company can have is being cash starved. Success results in more money being owed to you and higher inventories. This takes all the profit your company can make just to stay abreast of your finances. The accrual bookkeeping method is the downfall of growing companies. You can be "done in" by having to pay taxes on income that is owed to you; use any clever method you can to delay the payment of taxes. Read the letter I sent to my Senators and follow it up with a letter of your own if you believe as I do. A well-written letter to your representatives is like a thousand votes.

Letter About the Cash Method Instead of the Accrual Method of Bookkeeping

May 20, 1999

Dear Senator *****,

I'm probably one of the government's best examples of an entrepreneur. I've enclosed a catalog of the products I manufacture to give you a general idea of what I do. You may also find it interesting to look at some of the marvelous projects my customers have built using our tools. You could also look at our website at www.sherline.com. I manufacture and sell products that I have designed. I started in my garage and now have over 50,000 square feet of manufacturing space. I sell these products throughout the world and have around forty-five employees. I'm far too busy to start a crusade about taxes, and, at age sixty-four, any change in legislation will be of little help to me, but I'm sure there are many more entrepreneurs out there who could use this help. I'm not some nut who believes the government is wasting my money and wants to do away with the IRS; in fact, I don't find the tax rates objectionable. I understand the current tax laws that pertain to my business and the logic behind these laws. My problem with the current tax laws isn't the amount of taxes paid; it is when these taxes have to be paid. Please

take the time to consider the following problem.

My company is a corporation, and it is also a sole proprietorship. I have a fiscal year that ends June 30th to eliminate having to do personal and corporate taxes at the same time. This last year has been the best ever for my company, and I'm finally realizing my dream. Instead of rejoicing, I have the usual sinking feeling because I'll have to take all the working capital out of my company and pay it in taxes. I'm talking several hundred thousand dollars this year. Accountants pat me on the back and tell me I'm doing great, but no one seems to understand my plight. I hope you can.

The amount of profit in a company is based on several items, and the two that create a problem for my company are "accounts receivable" and "inventory." The IRS considers my account's receivable to be money I'll receive, but I look at it as money I'll never see. By the time I receive this money, another equal or larger amount is owed to me. The only way I can get it is to "close the doors." I should get an investment tax credit for it. The same could be said for my inventory.

Here is my problem. At the end of this fiscal year, my accounts receivable will be around \$500,000, which is an increase of \$150,000 over last year. To do this extra business it obviously takes more inventory, which increases my inventory value, and both these increases are exactly the same as income when tax time comes. I have had to increase my investment in my company by approximately \$300,000 to do this extra business, and I haven't yet figured in the new \$2,200,000 building I bought or the \$400,000 I spent for manufacturing additional equipment. By the way, the depreciation for the building is now at 39 years, which is probably longer than its useful life in a manufacturing environment, and modern computer-controlled machines can depreciate faster than allowable rates if there is a change in technology. It is not a deal I would have invested in without a sincere desire to have a home for my company that I can be proud of.

You don't have to be much of an accountant to realize I'm spending all my money to take care of the increased business. The government now comes along with the "straw that is about to break the camel's back." Taxes are now due on the money that is owed to me as well as the money I invested in increased inventory. Being in the 50% bracket with the state tax included means I have to come up with \$150,000 just to cover these increases, but I already had to spend all my money to cover the growth of my company. I'm enough of a businessman to know that if I start to borrow money to pay taxes I'll be heading in a very dangerous direction, so each year I take all my money, send it to IRS and start over.

This is the way it has been for twenty-five years, and I find myself asking, "when do I get mine?" I own a business worth several million dollars that I created. To sell it would be like selling my child. The tax system is designed to encourage me to "cash out." If I sold out, the money I would receive would be a long-term capital gain, and I could put several million in the bank. The government

encourages its most productive members to retire rather than to go on being productive. An accountant might suggest that I solve the problem by getting investors to put money into the company, but I would not feel comfortable making business decisions with other people's money. If I make a mistake, it is only me that is hurt. I don't need the additional worry of justifying all my decisions to a group of investors.

A gambler using Wall Street is given incentives with the use of long-term capital gains deductions, but the only tax credit that has ever helped me was the "investment tax credit." This was taken away more than a decade ago, but to stay competitive I still have to buy machines that cost more than my house. Accountants and bankers don't really understand people like me, for they consider all business dealings as investments. People like me, and there are many of us, have the need to create new products just like an artist needs to paint. I often wonder about the number of products I could have brought to market if I weren't impeded by these simple facts. Go to a small industrial park on any weekend and you'll find entrepreneurs working on new ideas or just trying to pay the rent. Our hours aren't limited to 9-to-5, and most don't have the time to understand taxes or write this letter, but we are out there creating tomorrow's businesses. We are the very core of America's financial strength, and we deserve something better.

There is a very simple way to eliminate this injustice, and that is to allow entrepreneurs to run their businesses on a "cash book" system rather than an "accrual" system. This would eliminate paying taxes on money that hasn't yet been received or inventory that hasn't been sold. It wouldn't change the amount of taxes the government received, only when the taxes were received. This could prevent the "rug being pulled out" each year at tax time.

I'm an avid fan of C-span's Washington Journal and realize how hard our elected officials work. I do hope you can find the time to take a look at this problem. If you or your staff can't find the time, could you please pass it on to someone who may have the time? If you are ever passing through the North San Diego County area and would care for a quick tour of my facilities, I would be honored to show you around.

Sincerely Yours,
Joe Martin

Managing Not Enough Hours in a Week

There comes a time when you can't solve your problems by working weekends. Even if you were capable of working nonstop you still couldn't get it all done. This is when you are going to find out if you have what it takes to run a business. You have to have the ability to get other people to do your work for you. To accomplish this, work has to be allotted to managers in such a way that it is challenging, but not impossible. Teach your new managers the logic it takes to decide the order of importance in getting work

done. The hardest working person in the organization can't help if they are working on the wrong project. For larger companies, one of the best organization tools can be the weekly production meeting or staff meeting. Keep these meetings to the point, make sure everyone comes prepared, and follow up the next week. A good secretary could keep track of what is promised and promises kept and promises broken. I'll never practice what I'm preaching with this advice. I have a strong dislike for meetings.

Which is Harder, Management or Labor?

I've been on both sides of the fence and have come to the conclusion that the side you are on is the most difficult. The fence is way too high to see the problems of the other side. Going home physically exhausted from an unrewarding job can be just as demanding as a making a decision to spend thousands of dollars on a new product that you are not quite sure will sell. There is such a difference in these tasks; one cannot see the problems of the other. The businessman living in a million-dollar house may feel just as broke as a shipping clerk that just blew the engine in his car. Wealth can't be defined as the amount of zeros in your savings. It is really how long you can keep your current standard of living. Twenty-dollars to a street person might be enough to last two days and which may seem like an eternity at their present status; while a multi-millionaire may feel broke because \$700,000 a month is going out and only \$500,000 is coming in.

What is Your Best Time to Solve Problems?

If you have to work with your own ideas it is important to set time aside to do this, but it must be done at a time when your mind is capable of working on new ideas. You can't control your mind like a light-switch, so it is very important that you know the best time to set aside. There are very few original good ideas that have come out of my head after ten in the morning. Once I get to the business my mind switches to solving immediate problems, which is a different thought process. Therefore, I do all my design work, planning, and writing before I get to work and my mind gets cluttered with the problems of the day. I've had friends that could do work like this in the late evening. Whatever it takes.

Status Quo

Not much will ever change in your company without forcing your employees to use new ideas. Employees find doing things the same way easier than switching. They already know how to do it the way they are doing it and don't want to take the time to learn a new way. In many cases, the reason they don't have the time to change is because they haven't changed. You have to be a pain in the ass in order to accomplish goals that all will gain from.

Computers

If you don't know how to use a computer and email, learn! I was in the waiting room of my dentist and I picked up an old copy of Time Magazine with Bill Gates on the cover. His #1 advice to small companies was to learn email. How right he was. The computers of today are very easy to use and learning to use a computer will keep you

from being at the mercy of your employees. The Internet, email, word-processors and spreadsheets are the new tools for today's managers. I couldn't get along without them. There are still a few managers out there who still haven't understood the difference between faxes and email. When a document is sent to you by email you can work with the information in your computer without re-entering it. When it comes by fax, you can only look at it. Consider a complex drawing of anything that comes to you by email. With the proper program, you can get this data entered directly into your design program.

I have also found the Microsoft Excel® program easy to use and worth every dollar. The only problem with these new and more powerful programs is they do so much the programs have become too complex. They should put out books to teach programs like this in two levels. The first book should be simple and give you the information to do simple spreadsheet programs. The next levels should be taught in specific groups that accomplish specific tasks. Attempting to teach students the entire program and then leaving the students to determine what is useful is the common error made in writing these books.

Dealing with Accountants and Attorneys

Don't get in BS sessions with your professional friends when the time clock is running. They'll charge you for it and at the rate they charge today you'll wish you didn't ask how their new car is running. I always try to have a plan for them to implement at the start of a meeting. If they think it is wrong they will tell you and you can start your meeting in the proper direction in a shorter time. Asking professional people for advice can be very costly if they don't know the specific area you are concerned about. Attorneys and accountants would have to review your entire company before they could ethically discuss the overall subject; however, they can easily answer specific questions. Unless you have too much money and time to wait for committees to come up with answers, you are the one whose shoulders the decisions will fall upon. Read something on the subject beforehand and you'll find the time has been well spent. The Internet is a good spot to come up with basic information of this type. It is usually easier reading than you would expect. The professional tax books that are available are very well indexed and surprisingly easy to read. Remember that professional people have to know all the laws and rules, but you only have to know the ones that apply to you. One thing worth noting is that I haven't spent \$10,000 in attorney's fees since I started in business over thirty years ago. You don't have to spend thousands of dollars a year for their service if you deal with people you trust.

Consultants

If you want to waste a lot of time and money, call in the management consultants. First you'll have to spend a lot of time explaining what your company does and the problems you are having while they are charging you a great deal of money. They will smile, frown, nod their head at the appropriate time and ask more questions. It is sort of like going to a head shrink. They will agree with your

conclusions and make you feel so good that you won't mind paying them a great deal of money. For this you will get a report about the information that you gave them. If you are starting out in business you know so little about you believe you need a consultant, you'll find there are a lot better ways to throw your money away. I feel you're better off by getting some good friends together who are intelligent, and asking their advice. It's amazing how valuable those little beer sessions can be, or as some call it today "networking sessions." The risky part of doing it this way is not using your friend's advice and losing a good friend over it. Choose your questions carefully so this isn't the outcome.

Business Decisions and Planning

When it comes time to make great business plans, I don't have much of a plan. It's good to have long-term goals, but your plans must remain flexible. I have watched the computer industry giants fail while they were pondering plans to eliminate start-up companies. These start-up companies, who these great business leaders had never even heard of, went ahead and made these business giants new computer designs obsolete before they were even introduced. I have long ago realized things never go as planned, and if you spend too much time planning the future of your new company; you may not be around long enough to carry out your plan. I'm not saying that you shouldn't have a plan. I'm saying you need to be flexible to survive. Many of the big businesses today started off doing something entirely different than where they eventually found success.

Managers with Too Much Control

I remember a friend who had about 200 employees and put a new manager in charge of an existing department. In the first week the new manager got permission from Jim to make personnel changes to "streamline the operation." Jim felt the department was in good hands and gave him the old "do what it takes." After a couple of months on the job, the new manager came into Jim's office and quit because he didn't have any employees working for him who knew what they were doing. It turned out that the new manager had fired them all in his streamlining process. This was a very specialized department and Jim was now the only one in the company who knew what and how it ran; however, he hadn't had to deal with it for years. With a lot of effort by Jim, he got his department going again and vowed an error like that would never happen again. I think this story makes my point.

Don't Tell Them, Show Them

Managers or supervisors shouldn't tell employees how to do a job unless they can show them how to do it. This is one of the big advantages of having managers that worked their way up through the ranks, because they can show them. Employees that are forced to use a bad idea will become alienated to their job. There is nothing wrong with managers telling when and how many to do, but when you start telling people how to do something you can't do yourself, you'll really piss them off. Owners of many companies spend more time on the shop floor than

most outsiders could imagine. They know that if the parts aren't produced efficiently, accurately and profitably, the rest of the company can fold up their tents and go home (sales clerks, secretaries, receptionists, accountants, etc).

Don't Ask for the Impossible

A quick way to destroy a good employee is ask them for the impossible. The impossible comes about in stages and you should ask for it in stages. Can you imagine the frustration an electronic engineer in 1960 would have if you told them to design and build a chip with ten million transistors that only was the size of a small watch? Each stage of a project needs a feeling of completion and rewards for a job well done.

Be a Benevolent Dictator

Employees can be somewhat like children. They are always testing your limits. To avoid problems of this kind, employees have to know the limits that will be imposed; however, you have to have some consideration for their personal life when imposing these rules. I remember a movie I saw and believe the name was "The Lion and the Wind." It was about a desert king who caught a couple of nomads stealing and had the head of one thief cut off; however, he let the other thief go free. His reasoning was that by letting one thief go free and cutting the head off of the other, the one he let go would tell others what a fair King he was, but would also say how you had to obey his laws. A lot could be learned from this story, but I don't recommend cutting off any heads. One of the best methods of setting limits is creating a "Company Policy Manual." Set it all down in writing, making sure that both you and your employees can live with these rules. You won't have the time to write a manual when you are hiring your first employees, but it would be wise to start a file on things that the manual should contain. A good employee manual should be unique to your business.

Honest Employees with Ethical Bosses

The best way to have honest employees is to have employees that have an ethical boss. You can't spend all your time screwing everyone and not expect to get screwed in return. This isn't the way to make money. To go through life not trusting anyone or having to remember what you said and who you said it to may result in some short term financial gain, but will also lower the quality of your life. Success is having good friends and a clear conscience. Success is unattainable unless you can be proud of the way it was attained. I'm sure everyone can point to seemingly successful businessmen who attained wealth by screwing everyone they dealt with. I hope the readers of this book can differentiate between wealth and success. A lack of money can make life miserable, but an excess amount of money doesn't guarantee happiness or satisfaction.

Sign Your Own Checks

This is a ritual that has to be done every week. It keeps you in touch with the reality of the financing of your company. Look at every invoice and see if the price is in the ballpark. If you don't have the time, at least set up

a system where the person who ordered the items OK's the invoice before it is paid. Turning this task to the girl in charge of the office can lead to disaster. A misplaced decimal place can amount to thousands of dollars. Office managers don't always know what the price should be and many will pay any invoice that comes through the mail. Many successful scams work by sending professional looking invoices for services never ordered or preformed. Unordered advertising scams have been around for years. When you don't have enough time to sign all your checks, at least sign the big ones and always have the bank mail canceled checks directly to your home so they can be reviewed.

Excess Cash in the Checking Account

One of the first things you'll notice of a slowdown in business is a buildup of cash in the checking account. What happens is the money that has been owed to you in accounts-receivable is coming in faster than you have to spend money to deliver new orders. It may look good but don't be too eager to spend it, for you may need it sooner than you think.

A Simple Way to Keep Track of Money

A problem that must be avoided is to find out you are broke after the fact. Usually these problems can be avoided with a little hard work before you are in trouble, but you have to put this effort before the fact. I decide how my company is doing by the balance in the checkbook. You can't pay employees and suppliers with accounts-receivable and inventory. Having the ability to pay your obligations on time is what it's all about. Once you lose this ability you are headed for disaster.

Every other week I have a simple report printed that tells me what I owe, what they owe me, and how much cash I have available. I take the amount of dollars we spent in the last two weeks and divide it by 80. This gives me the actual cost it keeps to keep the doors open per hour. You may find this simplistic but in a short time you have an average cost per hour. This use of averages could confuse you because earlier I stated averages aren't important. The difference is I'm not using this average to predict the future and I'm only using this average to keep abreast of my present situation. What this gives you is a quick way to appraise a potential expense. For example, if your current expenses are \$600 an hour, a \$300 piece of equipment that may improve efficiency may seem like a better deal. Somewhere down the road a good "line of credit" may change your views on my line of thinking, but my method will keep you out of bankruptcy court.

Overhead

You should always know the approximate cost of overhead and it's a number that's easy to come up with. Divide the monthly expenses by the amount of hours your production workers work in a month. Remember that all employees that don't produce work that can't be directly charged to a sellable product or service should be considered overhead. Like it or not this includes you and your entire staff of key people, unless you and your staff are doing something

that produces the product that is being sold. Customers don't pay commissions paid to sales staff; therefore they have to be considered overhead. What we're looking for is a number that we can charge for each true production worker in order to keep the doors open. Of course, the type and cost of the equipment each different employee is working with has to be figured in.

Example:

Total wages paid, all expenses paid other than cost paid for inventory or capital equipment, depreciation and anything else that could be considered an expense comes up to \$28,850.00 in a month. You have three production employees that work 40 hrs a week for a total of 480 hrs a month. This put your overhead at a little over \$60/hr; however, you have to remember that this number doesn't include the cost of the goods that the employee is adding value too.

Now let's put this overhead number to work. Your employee is assembling \$75 worth of inventory to produce a product that will retail for \$225 and it takes that employee 1.5 hrs to complete the assembly; therefore it cost \$90 overhead (1.5 hrs times \$60) plus the \$75 (cost of goods) for each item produced which equals \$165.00. Dealers handle sales and they purchase the product at a 30% discount or \$112.50. This is less than it cost to produce it. Remember that this is just a simple example and usually the loss will be far greater in a startup company.

It's costing you about the same amount to produce the product as your selling it for. Raise the retail price and sales will suffer. Now what? Your choice is to lower overhead by increasing production or lowering the overall overhead cost. In each case the cost for each produced product will be lowered; however, to increase production the advertising and sales budget has to be increased to get the sales needed. This can be very risky if you're short on money. One strike and you're out. The safe bet is to become a producer yourself until sales are sufficient to lower the overhead figure. Get in there and get the job done with your employees. They'll respect you for it and work harder themselves. A couple of weekends may be all it will take. It is a lot easier to work hard than to worry. Knowing about the problem is what makes it solvable.

Accounting Can Create Stupid Decisions

Overhead cost is created with averages and when you start believing that averages are individual facts you can get in trouble. I remember a friend with a machine shop that did aerospace work. A major customer of his purchased a new computer controlled lathe that cost around \$300,000. They planned to do most the work he was doing for them with this new piece of equipment. Obviously, he was worried but he was saved when the accounting department of this aerospace company put such a high overhead number on that machine that they decided that it was cheaper not to run it. This allowed my friend to continue doing their work and the aerospace company's machine sat there and became obsolete. Once you have made a capital investment, it has the same basic overhead rate whether it is used or not. In this case, the machine could have been run at a lower

rate than originally planned and still have been profitable.

Don't Make Employee Decisions When You Sre Upset

Try to avoid the unavoidable and make the important decisions when you are in a good frame of mind, particularly when it comes to employee dealings. You have to keep your "cool" for you'll be judged on how you act in trying situations. If you act like a jerk word will spread to all your employees like wildfire. It is all right to let people know you are pissed, but don't ever lose control because you'll end up being the big loser. Firing a skilled employee over a dumb mistake can be the biggest error. The only employees who don't make mistakes are the employees who don't do anything. Skilled employees can easily go out and get a new job but an employer can't easily hire a new skilled employee. The chances are high that a replacement employee will make the same mistakes again as the employee you fired. I always blame myself for most mistakes. I was the one that allowed a system in my company to exist that allowed a big mistake to happen. You always need a double check system in place to keep costly mistakes from happening. Any business owner is only as good as the people that work for him, so keep that in mind. Compassion and an open ear is the best policy here. It will reap huge dividends in employee loyalty. Looking back on our lives we find our accomplishments are always bigger and our errors were fewer, but you and I know the awful truth. Give them a break.

A Balancing Act

The skill in managing is to survive and surviving is to balance the inventory against the orders and cash. You need all three to stay in business. If you have a lot of cash, orders and inventory are less of a problem if you don't mind losing your cash supply. If you have so many orders that you can't deliver because of a lack of inventory, you may lose your business to a competitor. If you have more inventory than you need for the orders that are coming in, you can go broke paying for the inventory along with the associated expenses. I always think of the joke about "The way to make a small fortune in automobile racing is to start with a large one." The same could be said for starting a business. I realize this sounds so basic it isn't worth writing about but this fact is the toughest and most important decision you can make. When you have to decide how many items you should buy or build for a product that you are not sure will sell and you don't have a sleepless night doing so, you should.

Work on Problems You Can Solve

It is foolish to spend much time thinking about problems you can't control. Deal with the problems at hand and many long-term problems will go away. Don't think of problems as a group because they can't be solved as a group. They have to be solved one at a time. Solve the immediate problem first, and the first choice should always be to satisfy the customer. I've seen friends that own businesses get so depressed when the bills started to pile up that they stopped shipping orders to their customers when this was their only source of income. Many times a couple of weekends of hard work would have solved their

problems. If you really want to have your own business, you can't always get to watch your kids play soccer on weekends.

Today's Problems are More Important than Tomorrow's

Always take care of today's business first. These are problems you can solve and customers will be happy. The market place is too complex for long term planning. You should spend as much time as it takes to keep your product quality high. Profit has to be secondary for long-term success. When you are starting out, the main thing you have to sell is, hopefully, a good product that is needed and your good word. If you deliver on what you promised you are going in the right direction. I have always kept a list of things other companies have done to me that could be considered irritating. I make sure we don't make the same mistakes. For example, you won't talk to an answering machine when you telephone Sherline Products. Sometimes people seem amazed when they call us and an actual person answers the phone. Long voice mail menus are almost universally hated, yet most big companies use them anyway. This is a perfect example of a company that thinks their own time is more important than that of their customers, and that is not the message I want to send to people trying to call my company.

Don't Screen Calls

For each annoying sales call you'll get one that will help with information to run your company better. Did you ever notice how most companies start new office employees out by answering incoming calls? There is nothing wrong with this as long as they are allowed only to direct calls, not to "screen" them. If given the opportunity to decide who is going to talk to their bosses, they will always decide "no one." They believed they failed if a call gets through, even though these calls may have made the boss aware of a problem that the rest of the company is trying to cover up or doesn't think important. Customers don't ask for the "person in charge" unless they have a good reason.

Don't Hold a Grudge

I was riding in a car with a friend and I couldn't help but notice how upset she was with every other driver on the road. Everyone pissed her off. I thought this gal couldn't have much of importance going on in her head if she can take the time to consider what other drivers are doing and why they are doing it. I have so much going on I don't even think about another driver's motive unless they hit me. I also don't have the time to hold a grudge. If an employee screws up and I give them hell, it is forgotten at the end of the conversation. If they did something so bad you can't forget it; you should have fired them. You can't get much done holding stupid, petty-ass things in your mind. Record it in their employment file if you think it should be on record but not in your head.

A Rule Worth Remembering

I came up with a great rule when I first had employees working for me that I didn't hire directly. "If you hired them, you have to fire them if they don't work out." Managers can't leave this nasty task for anyone but themselves.

Managers who can do this too easily aren't any better than managers who can't make this decision at all. It is a responsibility that has to go with the territory.

Don't Give Your Business Away

I've had several friends give a portion of their business to what they thought was a promising employee. In all cases it turned out somewhere between bad and horrible. In one case the employee sold his share within a week and in the other, the employee sued him as a minority stockholder claiming that the owner was no longer mentally capable of looking after his interest. There are too many far-reaching implications in giving away something that may be of little value at the time, yet could be worth millions in the future. Partners and minority stockholders may have "rights" you don't know about. A large corporation, however, may use stock options as a method of keeping key employees. This book is intended for owners who haven't reached this level of sophistication yet.

A Simple Notebook

Much can be gained from carrying around one of those small note pads that can easily fit in a shirt pocket. If you agree to do something with another party write it in the book while they are watching and mutually arrive at a completion date. Before the due date is up, stop by and see how it's going. Offer help if needed, but try and stick with the agreed date. This will bring about better organizational skills to your future managers. This is letting them know in a very polite manner that they shouldn't forget this agreement while at the same time giving you a method of keeping your thoughts organized.

Talk Softly

If you want people to listen to you, speak softly. Ranting and raging results in employees blocking their mind to all you say. You have to be able to take a "hit" as an educated person. You also need to have employees that are stable and if you have one that throws something when they get mad, get rid of them before they get you in big trouble.

When I was working in the building trades doing heavy construction, I traveled into many different areas of the country to work. I was always amazed at the difference in the personalities of the workers in these different areas. I came to the conclusion that the way the group acts becomes the standard. In one case the workers in general would all be excellent craftsmen and nice people. Just a few hundred miles away and I could be working with a bunch of jerks that couldn't produce good work if their life depended on it. I think these traits were developed long before the present workers were working at the trade, and the present workers are just carrying on examples of their founders behavior. I believe that if you start an organization and allow your workers to behave in a manner that isn't conducive for a good working atmosphere, you have to correct the problem immediately. By not doing so you may end up with a company of jerks.

Having Employees Get Along with One Another

If you think about it, most employees spend as much

time with their fellow workers as their families and it is important that this becomes “quality time.” It is management’s job, not the employees, to sort out the employees who don’t fit in; however, it’s in the best interest of all employees to inform management if another employee is stealing from the company. In the last twenty years a major change between employer and employees has been about the importance of wages. It is no longer possible to buy loyalty. Satisfaction can’t always be found by the work that employees have to perform today, but employees that like to work with one another may find it. Recently I had a television tour of a company that made candy called See’s®. Many of the employees had worked there for years packaging boxes of chocolates and making candy. The employees got along so well that I was truly envious. Having employees that work side by side for years and still enjoy working with the other employees in their group takes a management skill that few have. We should all strive to be as good.

Problems Can be Different than Planned

Major problems sneak up on you and hit you from your blind side. Knowing about problems usually solves the problems. It is the problems that come along unexpectedly late in the project that are costly in time and money. This is why I believe the final design should be put off as long as possible. Work with prototypes as much as possible in a realistic setting before making any commitment. Don’t start a production run of special parts until you are positive the design doesn’t have flaws. These can be very costly mistakes. Been there, done that.

What is a Good Idea Worth?

Good ideas aren’t of much value until you use them. Millions of dollars worth of good ideas are forgotten hourly. Make a note of a good idea immediately. Reward employees who come up with good ideas for things other than what they are paid to do. The reward should be more than a token gesture. I’ve seen employees who are original thinkers but poor employees. In most cases they can hurt as much as they can help; jobs must be developed to make employees with this special gift totally useful to the company. They need freedom to perform and some sort of job that will cross between sales, engineering, and manufacturing is where they belong. Don’t attempt to develop too many good ideas at the same time.

You Need a Survival Plan

It will take a lot longer than you may think to get a new product on the market. Once you are in the market the time shortens because you already have a method to distribute your product, but starting out is tough. One of the best methods of getting new products to market is working with good mail order companies. These companies can do a good job for you and perform a real service to consumers by giving them a way to order specialized goods from one source. The problem is their method of marketing is with catalogs that are printed once a year. This could result in an 18-month wait when the time it takes to produce and print a catalog is considered. It should also be noted that you have to quote a price that will be in effect well into

the future. You have to survive in the mean time. I did it with contract machining, designing and building tooling. When I had open time on my machines, I would run parts for my products. It really helps if you have a second skill to fall back on. This is the big advantage of being a craftsman. Do what it takes and you can survive. This is what positive thinking is really all about.

A New Direction

Most new businesses don’t have the resources to plan very far into the future. You have to be an opportunist and do what it takes to survive. This fact will sometimes turn the direction and the future of your company. I’ve seen companies that had to make a special component for their own product find a better market for that individual component than for their own product. They went on to become successful in an entirely different field than they planned. You have to be there to play the game. Starting a business allows you to be a player and success can’t be measured only by the immediate “bottom line.” By surviving you are still a player that still has a chance for a goal. You can’t score a “goal” sitting in the grandstand.

Don’t Let People You Pay Tell You What to Do

Don’t allow an employee, accountant, attorney, or whomever to tell you what to do. Be up front that you are only asking for advice. You are at the helm and you set the course. When you allow another to take control of the helm for a short period, you have to be sure they understand that they steer only your course. If you don’t want this responsibility, perhaps you would be better off working for someone other than yourself.

Instructions

Some of the best time that can be spent is putting good instructions together. I wouldn’t want to make a guess of how many billions it costs consumers to deal with poor instructions, but I’m sure it costs the companies that put products out with insufficient instructions an equal amount. The top people in an organization can only answer complex questions. This doesn’t allow them the time to work on the projects they were hired to do. I can’t understand why some instructions are so bad when they are so easy to check. All you have to do is hire one of your potential customers for a day and see if they can understand your new instructions. An employee who isn’t associated with the project could check your instructions out too. If customers can’t understand your instructions, rewrite the instructions; don’t get mad at them. I’m a self-taught person and have found some of the real expensive things I’ve bought came with the worst instructions. I’ve purchased \$75,000 CNC machines that had 3 model changes since the instructions were printed; yet had never updated their instructions. They get away with it because these are not items that can returned to a store in a few hours. Items such as these are purchased because they are needed for specialized operations and don’t always have a great deal of competition. Long lead times eliminate the chances for a quick replacement and you are forced to work with the technical support to see the project to its end. The only satisfaction you can gain from a situation such as this is

in making sure it costs them as much as it does you to resolve the problem.

In General

A Home for Your Company

One of the best investments a business owner can make is a building for your company. I've seen companies that have been in business for 20 years sell out and find out the building they bought was worth twice than the business, however, this is a simplistic view. The real advantage of a building you can be proud of is it gives your company a stability that can't be attained in any other way. Everyone associated with you will gain confidence in the operation when they know you are there for the long haul.

Building Space

Working in small cramped quarters will cost you a lot more than you save in rent. Employees not having their own "space" become irritable and unproductive. The strange part of employees is the fact that they have the ability to turn a new building into a filthy dump and then quit because they don't want to work in such an untidy atmosphere. You have to be a general pain in the ass to keep this from happening. You don't need a country club atmosphere, but you need clean restrooms, plenty of light and reasonable temperatures. Just one year ago I moved into my new 34,000 square foot building and I have already made plans to move again. It was poor planning on my part, but I didn't foresee the increase in sales that came about after I was already committed to that building. Rather than working out of cramped quarters for years and waiting to be forced into larger quarters I decided it was better to take control of my error and fix it. Never look back.

Open Offices

I don't believe in having lots of small holes for employees to hide in called offices. This is the best way to start empire-building and eliminate working together. Office workers shouldn't be given the opportunity to talk about one another secretly. When the need to speak to another member of the staff arises, they shouldn't have to make an appointment. Putting workers together in one big room doesn't hurt and I believe it helps. Busy workers are happier and when they realize everyone is working hard and then the insignificant problems they were arguing about will disappear.

Phone Answering Systems

I believe people who got great enjoyment out of pissing off an entire nation with one bad idea have invented automated answering systems. They are universally hated but still used in almost every business today. Why? My answer would be answering systems have been put into use by managers who believe their time is more important than their customer's time. Not true.

They Never Learn

IBM had the opportunity buy Microsoft and Bill Gates for very little money before he became what he is today.

Bill Gates offered IBM his operating system called DOS many years ago at the very beginning of its inception. IBM turned him down. They also turned down the opportunity they had to help the government create the Internet. The government had to design the foundation of the Internet with government employees and government contractors. As the ideas of these new individuals were being developed, they had to do so without the help of large corporations. I find it somewhat ironic that Microsoft didn't hop on the Internet bandwagon until the Internet was well on its way. Microsoft is now so large that they have become the same as the rest of the larger corporations who believe they have the only methods capable of coming up with good ideas, yet will use every trick in the book to legally "steal" new ideas. They never learn.

German Designs

For the hell of it, I thought I'd put in my viewpoint on German designs. We have been brainwashed by clever ads proclaiming the high quality of European designs over the years. What I find is that they often take a bad idea and keep tightening the tolerances until it works. They stick with the same design so long that time improves the quality. Americans, on the other hand, will take a good design and change it for the sake of change. Americans may also ruin a good design with the use of cheap components.

Modern Day Prospecting

I've always enjoyed "poking around" industrial salvage yards. You never know what you might find. I'm always amazed what large companies are capable of "scrapping out." To find something of value that you can purchase for a few cents on the dollar makes me feel like I'm beating the system. I probably could find better ways for me to spend my time, but as I said, I enjoy it and like to see how other mechanical problems have been solved. Looking at scrapped tooling has become a source for new ideas.

Current Observations in 1999

I can't understand the amount of money that's being invested in the Internet. If you think about the reasons why the large mail order companies of the past (Sears, Montgomery Wards, JC Penny) got out of the business, you'll wonder why investors have lost their marbles. The mail order companies couldn't make any money and their customers preferred to go to stores where they could closely examine the goods before they purchased them. Selling books online is one thing, but selling clothes that may be returned, and complex products that may need technical support is another. As soon as the novelty wears off people will be buying at their favorite stores again. When customers have to deal with automated phone systems and incompetent employees to solve problems that used to be handled on the spot in good stores, the bottom will fall out. The second plan for these companies was to make money on advertising. These people are dreaming to think that we are going to look at their ad because they put an annoying little box in the middle of your monitor. How many TV commercials would you watch if you had a choice? I believe the larger Internet companies are cooking the books by trading advertising dollars with one

another. When these stupid investors lose their ass, I will take great pleasure saying I told you so.

There is a big difference in what my company has acquired when compared to these flashy Internet companies. What my company owns came from hard work and profits. It isn't a collection of very expensive buildings paid for by investors. I never had any investors or a great deal of money when I started. I'm somewhat bitter when investors feel cheated if they only make 25% a year on their investment. The stock exchange can't survive while being operated by bookmakers who sell stocks to investors betting the stock selling price will rise and survive. It's the profits the company will make in the future that should be the deciding factor. How can a legitimate company compete with this type of logic? What frightens me is that if the bottom falls out they'll take me with them.

The End

I apologize for the abrupt end of this section. The different subjects were never written or sorted in their order of importance and after sorting "Current observations" was simply at the end. I have edited out much of what I had written realizing that it was too specialized and what remains should be useful to all. Hopefully the readers that got this far have learned from my logic and may eliminate some of the pitfalls I had to learn the Hard Way and may even have fun doing it...

—Joe Martin

Please Honor this Request from the Author...

Friends, it took me two years of spare time to write this book. I wrote and rewrote until I felt it was as clear and concise. I had several of my successful friends read the initial drafts. They believed it was very worthwhile reading and helped me with suggestions. If you are starting a new business, what you learn here could end up saving you thousands or even millions of dollars over your career if you can avoid a few expensive pitfalls. I believe we are offering a fair trade. All that I'm asking is that you make a donation to the [Joe Martin Foundation for Exceptional Craftsmanship](#) if you feel what you read here was of value to you. Contributions to the Foundation are now fully tax deductible under US Tax Code section 509(a)(1).

Cash prizes and recognition are given each year to craftsmen who have contributed a lifetime of skill and knowledge to metalworking projects at the small end of the size scale. The equipment these craftsmen use isn't a consideration for these awards. Contributions of any size will be put to worthwhile use in further promoting and documenting craftsmanship with the intention of teaching the citizens of America that craftsmanship is the foundation of our great country. The end result of this effort hopefully, with your help, we'll be able to build a museum to make the general public more aware of what superb craftsmanship is all about. I've spent thousands of dollars of my own money to give these superb craftsmen the recognition they deserve. Each year the award has become more important. The reason isn't because of anything I have done. It is because they are joining such

a talented group of recipients. I need your help to expand these worthwhile programs. If you know of someone who is starting a business with hard work and little money suggest that they read this book.

You are on the "honor system" to send \$10, \$20 or whatever you think the knowledge you gained here was worth. It will be put to good use, not by me but to support the craftsmen of the world. If you place an order for Sherline tools or parts, we have assigned a part number for donations to the Joe Martin Foundation. If you quote **Part Number 5310** on your order along with the amount that you wish to contribute, the specified amount will be transferred from Sherline to the Foundation for you. (This can only be done by contacting Sherline directly with your order, it cannot be placed through our dealers or through our online ordering site at www.SherlineDirect.com.) You can also mail a check to The Joe Martin Foundation, 3235 Executive Ridge, Vista, CA 92081. We thank you for your honest participation in this new method of publishing. If it turns out after a trial period that the page counter for the book shows a lot of hits but very few donations are received, we will be forced to go to a more conventional way of marketing the book. The future success of this kind of offering is in your hands.

—Joe Martin

If you enjoyed this book and felt you received valuable business information, we ask that you make a contribution of a ten dollars or whatever you feel it is worth to the [Joe Martin Foundation for Excellence in Craftsmanship](#).

Send your check to:

Joe Martin Foundation
3235 Executive Ridge
Vista, CA 92081

©2009, Joe Martin, All rights reserved.

No portion of this book can be reproduced in any form for commercial purposes without the express written permission of the author.