Radio Service BUSINESS METHODS

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JOHN F. RIDER *and* J. VAN NEWENHIZEN

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RADIO SERVICE BUSINESS METHODS

(A Unit of the RCA 3 Point Service System)

PART I

A Discussion of the Administrative Aspects of the Radio Service Business

By JOHN F. RIDER

(Publisher of "Rider's Manual")

PART II

A Practical Text on a Simplified Record Keeping System for Radio Service Businesses

By JOHN VAN NEWENHIZEN

RCA MANUFACTURING COMPANY, Inc.
CAMDEN NEW JERSEY

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PREFACE

"With adequate technical knowledge and equipment, and with the ability to sell, any service engineer can keep as busy as a bee—and as poor as a church mouse, unless he operates his business according to proven business principles. Only then is profit possible. Service engineers must learn how much it costs to make a call or do a job, how much they should spend for advertising, how to collect for their work, whether they can afford to do some work for less than cost in order to develop other work that will return a profit."

The foregoing statement of one of the major problems faced by radio service engineers is an excerpt from an editorial in the September, 1935, issue of *RCA Radio Service News*. The response to this editorial encouraged RCA Manufacturing Co., Inc., to carry out a plan to offer service engineers a simple method of record keeping that would meet the needs of the great majority of those engaged in the radio service business. This book is the result.

John F. Rider, author of Part I, is well known to radio service engineers as the publisher of Rider's Manuals and other books on radio servicing. Realizing the need for better administrative methods applied to the radio service business, he has been studying the problem and gathering data for several years.

John Van Newenhizen, author of Part II, is an accountant and auditor with long experience in the radio field. The simplicity of the record-keeping system is due to Mr. Van Newenhizen's untiring efforts to develop methods that would provide proprietors of radio service businesses with all essential information at a minimum of cost in time and effort. All the forms were devised by Mr. Van Newenhizen.

Eleven business forms are used in the record-keeping system. At first glance it might seem that this is more forms than should be necessary in a *simple* system. Every form has a definite purpose, however, and it should be observed that

most of the forms are made up only every month or every year. The forms in daily use are few and simple. The intricacies of double-entry bookkeeping have been avoided.

Unprofitable prices common in the radio service business are mainly due to lack of knowledge of the true cost of doing business. The system described in this book, besides enabling a radio service business proprietor to prepare reliable Balance Sheets and Operating Statements, will also enable him to know his cost for every job. Knowledge of costs is the first step toward profitable prices.

It is RCA's sincere hope that this book will contribute to greater prosperity for all who engage in the radio service business.

RCA MANUFACTURING COMPANY, INC.

Camden, N. J.
May, 1936

PART I—*by* JOHN F. RIDER

Chapter I.

SERVICING IS A BUSINESS

The radio servicing industry has been in a chaotic state for many years. Financially speaking, it has been very poor. Collectively, its resources have been low and are low. From the credit angle, it justified very little—and still justifies very little. Speaking from the technical viewpoint, there was a time when the majority of service men, or service technicians, or whatever the personnel in the radio servicing industry called themselves—were up to date. Today, servicing capabilities are several years behind radio receiver design.

Association effort, during the past years, has been partially successful in the restoring of a certain amount of confidence in the men who earn their livelihood by rendering radio service, in its various forms, to Mr. and Mrs. John Public. However, financial success is still far from realization. The men engaged in radio service operations have not found it very difficult to secure business. . . . There is plenty available. A sufficient number of radio receivers are being serviced each year, so that the reputable service organizations have enough work, but the income from such work never has reached its proper proportions. Statements have been made to the effect that too many men are associated with the radio servicing field, thereby limiting the income from servicing activities, and this has been suggested as one reason why operations have been unprofitable. . . . There is some truth in this statement, but it is not the major reason for existing conditions.

A critical analysis of the many forces present in the industry, and active over a period of years, leads to but one conclusion: The men seriously engaged in radio servicing as a means of earning their livelihood have failed to recognize the true status of the industry. . . . They have neglected to realize that radio servicing is a business—a commercial enterprise, founded upon technical knowledge and ability. The resultant consequences have been far-reaching. By failing to recognize that radio servicing is a business, the men so

engaged neglected to employ the basic principles of business. It can be said that many of the undesirable conditions now existing in the radio servicing industry are directly or indirectly traceable to the act of carrying on a business in an unbusinesslike manner.

Lack of funds has retarded the solidification of radio service associations, thereby preventing the attainment of the benefits available through association effort. Associations, with very little if any financial resources, cannot display any strength or accomplish their aims. . . . The absence of proper finances has hindered the technical advancement of the individual men associated with the industry. . . . The absence of credit standing, so essential to the growth of every enterprise, hindered the financial advancement of the industry as a body. This absence of funds, with its expansive influences, is due directly to one condition: Non-profitable operation of the service station or concern. It is the purpose of the plan of operation outlined in this book to show the means of making radio servicing a profitable enterprise.

In order to present this plan of operation properly, and in order that it be correctly applied, it is necessary to correct certain misleading conceptions entertained by the members of the servicing industry. We are referring specifically to the erroneous impression held by many service technicians, that radio servicing is strictly a professional activity instead of a business. *Radio servicing is a business which can attain a moral standing equivalent to that of any profession—but, nevertheless, radio servicing is a business. . . . It is a commercial enterprise in every sense of the word.*

We are not trying to split hairs. . . . We are trying to correct an evil—an evil created as a result of erroneous thought. Frankly, it is not important what you call yourself —what titles you add to your name, providing that you run your service establishment properly. . . . A hundred million people in these United States can, if they wish, call the service technician a professional man. . . . Every service technician in the United States can ask the public or his fellow-men to call him a professional man—*providing that each service man, in his own mind, realizes that he is engaged in a commercial enterprise, and that in order to prosper he must conduct his business in accordance with sound business principles.* . . . That

is the paramount issue. . . . Therein lies the road to profitable service operations—solidification of the industry—technical advancement of the individual men. Prestige is a good thing to have, but if it results in so much ego that it is blinding to the realities—it is dangerous. The most renowned service establishment cannot survive on reputation alone. . . . Reputation for technical proficiency will attract business—but, for the concern to stay in business, operations must be profitable.

Service technicians have operated for years along professional lines, as we interpret the term in connection with the arts and sciences. This in itself is not so bad, because it has a good moral influence—that is, upon many—but beyond this moral influence, it has been highly unprofitable. The crossroads have been reached! The time has come for the servicing industry to pattern its activities after successful commercial enterprises, instead of after the professions. . . . Unless this is done, the servicing industry will never be profitable, because there is but one way to run a commercial enterprise—and that is in the proper business manner.

The medical profession has been set up as a criterion. . . . Drive all thoughts of the medical profession out of your heads. . . . Medicine is one of the most honored, respected and humane professions—but it is not a lucrative profession and should not be the criterion for the radio servicing industry. Facts and figures available from any number of sources will substantiate the statement that the average total income of the medical man, by and large, in small towns and large cities, during the last ten years never rose above $4,000 per year. . . . Please remember that by making these statements we are not disparaging the medical profession. . . . We are simply stating facts.

You, as a service technician or service engineer, if you wish to call yourself that, or a plain service man, if you do not care for frills—are not a doctor in the radio field. You are a technical man in business, selling time, knowledge and radio equipment. . . . There are a number of parallels to the servicing industry, perhaps not completely so, but sufficiently so to prove a point. One of these is the electrical field wherein the electrical contractor, or the electrician with his own shop, is like the service man. . . . These men, like yourself, may have studied electricity, in its various branches, for several years.

It is possible they gained their knowledge through an apprenticeship or by practical experience, like many thousands of service men. . . . After a time they opened a shop where they sold maintenance by servicing motors, electric fans, vacuum cleaners—made installations of light and power circuits—sold fans, motors, lamps, and other accessories.

These men are in business and know it. . . . Maybe some of them are not operating upon a profitable basis, but they are not fooling themselves about their status in the electrical industry. . . . The automobile mechanic, who maintains a small shop, is another suitable and proper comparison. . . . The electric refrigerator repair organization is another comparison. . . . Is it glory that the servicing industry seeks by calling itself a profession? . . . Is it satisfying the ego? If, during the years to come, service men are going to satisfy their vanity instead of becoming real business men, they will miss every opportunity to improve their finances—to enhance their position in the radio servicing industry.

Because of illusions of grandeur, cultivated by all of this professional talk, service men have been too prone to make mountains out of mole hills. Their attention has been focused upon the more trivial of their problems. Our reason for stressing the importance of realizing the true status of the servicing industry, is that we wish to dispel those thoughts which actually place obstacles in the path of progress of the servicing industry. Because of this professional talk, the servicing industry, as a body, has built up the belief that an industry cannot be commercial without sacrificing technical proficiency. Such an attitude is very, very far from the truth. Major attention to professional ethics and minor attention to the problems relating to commercial operations upon a professional basis have actually retarded the technical advancement of the service industry, because the men have neither the time nor money required to augment technical knowledge by home study or school attendance.

Because of the "professional" attitude, all the attention is focused upon technical matters. Subjects relating to the commercial side of servicing are viewed askance, because the men feel that commercialism in the servicing industry casts a stigma upon the profession, as it is called. Many years have passed since the servicing industry first bloomed. Hundreds

of speakers have spoken on technical subjects. . . . On the other hand, the number of different speakers who have, at any time during these years, spoken about the actual business administration of the service establishment, can be counted upon the two hands and have some fingers left. All this talk about being professional men has contributed greatly to the obstinate refusal to consider the importance of the commercial side of radio servicing.

Service men have never realized that in one breath they talk about being professional men, and in the next establish themselves as being business men. Publications sponsored by service associations, local and national, offer their roster of membership, a list of the readers of the publication, as representing buying power. This is quite in order, because service men do buy merchandise in various forms. Some of this merchandise is purchased for personal use—but far more is purchased for resale to the customer—who is the ultimate consumer, thus placing the service men as middle men—that is, between the original supplier and the ultimate consumer or purchaser. Such sales certainly constitute a commercial transaction and are beyond the realm of the strictly professional men. The service industry, as a group, has been considered a sales organization to sell merchandise in the form of tubes, speakers, amplifiers and receivers to the buying public. . . . Such activity is commercial activity in every sense of the word. . . . Such activity is business activity.

Service men, individually and collectively, have bewailed competition from the mail-order houses via the net price catalogs which are mailed through the land. They say that net prices in such catalogs interfere with their sales—reduce the profits of their business. . . . There is no denying the fact that some of these complaints are justified, but above all it should be remembered that such complaints are the complaints of men who are running a business and not of men who are engaged in a professional activity.

Reductions in tube list prices have been received with great horror among the men in the servicing industry, because they meant a reduction in the profit made possible by the sale of tubes. Such may be true, but whatever it may be, it still remains out-and-out commercialism and nothing else.

It might be mentioned that while the general attitude toward reductions in list prices on tubes is an evidence of commercialism, it is not an evidence of sound business judgment or far-sighted reasoning. List-prices that are unnecessarily high rather than being based on cost of production inevitably lead to excessively long discounts. Such discounts are eagerly sought and encouraged by most service men and dealers, who seldom realize that long discounts bring about the cut prices and demoralized market conditions about which the service industry so bitterly complains. In a highly competitive business, the longest discount seldom produces the most profits.

Is it possible that radio service men are ashamed of being known as being engaged in the radio repair business? . . . Awaken—you service men! Make your business profitable and you will command as much respect as any professional man. . . . You will be able to enjoy the same comforts of life as any other successful business man. . . . The world revolves around commerce. . . . Nations battle for territory to protect their commerce. . . . Centuries ago, one country conquered and even enslaved another in order to insure its commerce—in order to supply outlets for its products. . . . The rehabilitation of the United States, subsequent to the recent economic crisis, depended upon the healthy reconstruction of business—upon the development of profitable business. . . . Being a business man and being commercial-minded is nothing to be ashamed of.

In our opinion, all this professional talk is not going to solve the problems of the servicing industry. . . . Becoming commercial-minded is, in our estimation, going to accomplish just that. The servicing industry at large claims that there are too many service men. . . . Maybe so. . . . What is the solution? If enough service men become commercial-minded, so that they learn to run their establishments at a profit, they will be able to spend more money to become more proficient, render better service, carry on more extensive advertising and take business away from the incompetent. . . . The successful servicing company, by having greater resources, will be able to secure more business. Hard and cruel as it may sound, this world still believes in the survival of the fittest. A man who is not fitted for the servicing industry—who cannot do good

work—who cannot run his business properly, and thereby hurts others—should be out of the servicing business.

Examinations, legislation, codes of ethics—all have their place. If examinations remove 50% of the radio servicing men now active—is that going to make servicing more profitable? No, not unless each of the remaining concerns is going to operate at a profit. Volume alone is not the solution in the radio servicing business. Reduction of competition is not the solution in the radio servicing business, because at no time can competition be reduced to the point where there are so few men remaining in business that service work is at a terrifically high premium. Radio servicing involves the sale of skill, knowledge and time. The time which is being sold is not machine time. It is the time of business men. Thousands of service men have operated at maximum capacity—have worked ten, twelve and fourteen hours per day, and have nothing to show for it. . . . More work would mean nothing, because that which was being done at full operating capacity was unprofitable—unprofitable because the business was not being run as it should.

Examinations and legislation relate to technical ability. The fact that examinations must be passed will not limit competition. This is proved by the over-abundance of men in the medical field, the legal field, the electrical engineering field, the civil engineering field, et cetera. The limitation of men in any one field in order to make that field profitable—by legislation of any kind or by association effort—has time and again been proved ineffective. The creation of technical proficiency is not the major problem of the day. Service has been rendered to the public. . . . Perhaps it was not the finest possible—and is not the finest possible—but a certain amount of satisfaction to the public ensued just the same. It is true that greater technical ability is much desired in the servicing industry. There is but one way to secure such technical ability, and that is by making servicing profitable, so that the funds will be available for the furtherance of technical education. Examinations and legislation may weed out the good from the bad, technically speaking, but that is its limit. Establishing the good and removing the bad will not make for profitable operation, unless each of the good men becomes commercial-minded and operates his business in the proper manner.

Concerning a code of ethics, let us fully understand the significance of such a thing. The code expresses the proper relations between fellow-craftsmen and these craftsmen and the public. Its fulfillment is something else. There is nothing on this earth, inclusive of laws, which will make a person act ethically if that person refuses to do so of his own free will. Penalties simply force men to exert brain power in the effort to circumvent the code, regulation or law. Regulations and penalties do not prevent crime—they simply counter-balance temptation. . . . Those who are tempted think about the penalty and if fear of the consequences is not overcome by personal desire, the codes are followed and laws are observed. . . . Let us be sensible and view the truth. No one denies that the promise to live up to the dictates of a code of ethics has excellent moral influence—but, at the same time, let it also be understood that such codes are adhered to until such time as financial necessity forces repudiation.

Whether or not a code will be lived up to depends upon the individual—his honesty—his degree of moral integrity. It is ridiculous to state that a business man cannot live up to a moral code—that only a professional man, as we understand and interpret the word in the radio industry, can live up to such a code. Let it be known that "chiseling" has been going on among our so-called professionals and this applies to every art and science, as well as the servicing industry. Let it be further understood that those influences which will make a business-minded service station operator depart from the code will make the so-called professional service station operator depart from the code. If there is such a distinction between the two types of men—which we cannot see—the problems of both are the same. As a matter of fact, we are very much tempted to say that the business-minded service station operator, who is running a profitable business, is less apt to be confronted with that economic pressure which will cause him to violate the code than the professional man who is seeking unprofitable dollars.

There is not a single phrase listed in any code of ethics that applies to the relations between the service man and the public, which cannot be adhered to by a sensible service station operator who realizes that servicing is a business. If these codes are intended to establish honest dealing between cus-

tomer and service man, the same degree of honesty will prevail if the service station operator is business-minded. . . . Honest dealing with customers has been an axiom for successful business operation. If the codes are established to develop cordial relations between service station operators, those relations need not be strained because men become business-minded. . . . There are in existence today innumerable associations of men in similar lines of business. . . . The men meet upon a friendly basis, exchange viewpoints, develop ideas for the general welfare of the industry, but remain in competition all the time—friendly competition. It is common-sense business tactics not to knock the other man's product or ability. . . . The man who is business-minded realizes this fact even more strongly than any other individual.

Do not for one moment believe that we are setting up a business Utopia. . . . Unfair, miserable competition often takes place between individuals engaged in similar lines of business. . . . Such tactics are due to personal dislikes, financial stress, greed, et cetera, but they are not native only to service station operators who have become commercial-minded. The one-man service station with the professional viewpoint can just as readily develop a personal dislike, can experience financial strain or become hungry for business and commit the same offenses as any small or large commercial concern. . . . Considering all of the factors, a service station operator can become commercial-minded without fear that it would place him in a position which would cause him to do things which he had never thought about during the time that the glorified professional viewpoint occupied his mind.

So much for the subject of professionalism and commercialism in the service field.

Chapter II.

COMMERCIAL VIEWPOINT AND TECHNICAL ABILITY

The statement has been made time and again by service station operators that development of the commercial viewpoint interferes with technical ability—that the former is developed at a sacrifice of the latter. It has been further said that the commercial viewpoint interferes with technical proficiency during service operations. Let us see if such is the case.

It is taken for granted that a man who embarks upon radio servicing as the means of earning his livelihood is possessed of the proper amount of technical knowledge to justify his going into that business. It is perfectly conceivable, although very rare, that a man without the proper amount of technical knowledge starts a service business and hires the technical brains. There can be no objection to such a practice. It can be found in every branch of commerce—in every field of activity.

While it is true that in years gone by the amount of technical knowledge required for service work was not very extensive, modern receiver design and servicing requirements call for far greater knowledge. Assuming that this knowledge is possessed to start with and is the foundation for the business, we cannot see how the cultivation and formulation of commercial ideas will retard technical advancement. The commercial-minded man, capable of properly interpreting his resources, realizes the value and limitations of the technical ability of the establishment and is more prone to discover the presence of limiting factors than the man who considers his time entirely his own and does not realize the various vital requirements of his business.

As to retarding technical advancement let it be said that such is not the intent of this plan of operation. It is utter foolishness to think even remotely that any sane-minded business man can suggest that a commercial enterprise, founded upon technical ability, can thrive and prosper by focusing all of its attention upon the monetary considerations and neglect

its foundation—technical knowledge. As a matter of fact, the technical advancement of the service industry has actually been retarded, because the industry is not commercial-minded. Many service station operators have voiced the statement that they cannot keep up with radio developments—no matter how they try. In order to earn bare sustenance, they must work twelve, fourteen and sixteen hours a day with no leisure time to study and read up on the recent developments. They made the statement that they cannot afford to purchase text books and other sources of information—that they cannot afford post-graduate courses in schools.

The suggestion to become commercial-minded and to run a service establishment like a business is intended to relieve this situation. It is intended to remove the necessity for working more than a reasonable number of hours a day and to make those hours produce the required revenue. It is intended to supply the leisure and the funds necessary for further education and technical advancement. It is intended to supply the funds required to purchase modern testing equipment as required by changes in radio receiver and allied unit design.

As to interfering with technical proficiency during the completion of a service job, that can mean but one thing. Some men feel that by elevating the commercial side of the business so much thought is given to the monetary angle that sufficient time will not be spent in making a proper check upon the receiver, amplifier or speaker, and that inferior parts may be used to make replacement. Such an argument indicates a definite misconception of what constitutes being commercial-minded. Being a business man does not mean being dishonest—accepting money under false pretenses—selling inferior merchandise. . . . That is not sound business. The first principle of successful business operation is giving the customer his money's worth—fair and honest treatment. Charge for what you sell, but deliver! We do not suggest overcharges, but we do suggest a charge which will show a profit and still be wholly satisfactory to the customer. People do not expect more than they pay for. But when they pay for a job—they expect that it be well done!

Running a service station like a business does not mean that if a resistor is being replaced no further time can be spent

in checking that receiver. Proper business administration can develop a certain program of operation which will be profitable and, at the same time, will represent a thorough check upon that receiver. Such a program would call for the employment of the most modern forms of testing equipment, made possible by profits accrued from proper administration. The ownership of such modern equipment would enable sufficient saving of time in certain operations, so that all the operations required for thorough testing would be possible without involving more time than is required for a casual, routine test with inferior equipment.

Running a service station like a business does mean that if a specific unit has been replaced and the supplementary check shows correct operation of the receiver and amplifier, the operator will not waste additional time in elaborate and unnecessary tests—unless he is being paid for such a thorough test. Certain routine tests are a part of general service operations and defects discovered are properly remedied, but it is not common sense to bend backward to please—particularly when such action changes what would be a profitable call into an unprofitable call.

What we describe here is routine in all maintenance practice. If a carbon and valve job is to be done on a car, there is a general tuning of the motor, but unless specifically requested and paid for, the auto service man does not check the differential and transmission gears or the brakes. If after the car has been tuned and tried on the road it is discovered that the brakes are bad, the customer is notified before brake lining is changed or the brakes adjusted. If the trouble is minor, it is usually remedied and nothing is said, but as a rule, the customer expects to get what he pays for and does not expect to get something for nothing.

As to the use of inferior replacement parts, because it means greater immediate profit, that is more apt to be native to the irresponsible individual than to the man who is of sound business mind and is trying to establish himself solidly. The latter classification of man knows the error of such ways. . . . He knows the financial loss entailed in making a free repeat call. He realizes the financial loss for time — traveling expenses and all incidental expenses. . . . It is not strange

that the sensible business man avoids free repeat calls. . . . He knows what they mean. . . . The work is guaranteed and the guarantee must be lived up to fully. . . . This guarantee covers the replacement parts as well as the actual repair, hence it does not pay to use inferior parts. . . . It means a loss rather than a profit. . . .

Chapter III.

WHAT IS MEANT BY BEING BUSINESS-MINDED

We have spoken a great deal about being business-minded. Maybe it would be a good idea to define this state of mind.

It is perfectly possible for a man to be in business and not realize what is going on about him. It is also true that certain types of people were never cut out to guide a commercial organization. If the latter is the case, then, as has been stated before, it is time to quit while the quitting is good, before debts of various kinds accumulate and eat up all the available money.

The first requirement for a man who is to guide a commercial establishment is to realize the responsibility of the financial end of the business. Whatever funds come into the concern, belong to the concern. This is far more important in a small company with limited finances than in a large company where plenty of money is available. The fact that the operator or the man doing the work owns the concern is of no consequence. The time will come at the end of the year to withdraw whatever profits are available or the proper portion of the surplus—if there are any profits or surplus funds. During the year *all* of the funds in the business belong to the business.

One of the major failings of small business—and the average service organization is typical of small business—particularly of the owner-worker type of one-man establishment—is that the owner feels that he is responsible to no one but himself. This is entirely the wrong attitude. It is the attitude of an individual who does not appreciate why he is operating his own business. A business first started is like a child—it must be nursed along. The man who starts a business and secures credit owes a responsibility to each of his creditors. They are silent partners in his business, but do not share in the profits. The confidence they have displayed by extending credit must be justified. This is a responsibility.

The individual who cannot see any further than drawing his pay check each week does not belong in business. The man who is business-minded realizes that since the success of his business is his success, consideration of the financial requirements of the business comes first. The salary drawn by the owner is as much as the business will permit—within reason—not what the owner-operator needs for his personal use. More than one business, running profitably despite mismanagement, was eventually ruined because the owner did not realize the financial capabilities of the enterprise and drew more money for his own use than the business could afford. The time will come when a paying business will provide all of the luxuries within reason, but during the nursing period before it has reached its maturity—the needs of the business come first.

These thoughts, coupled with ambition, represent the difference between the men who work for others during their entire lifetime and the men who without abundant capital establish businesses of their own. . . . Ambition to succeed and prosper is a part of being business-minded. Ambition is the driving force which counter-balances the sufferings of self-denial. A goal is set and gone after.

Some men are born with the commercial instinct, others must cultivate it. Cultivation is possible, as is evidenced by the numerous schools which teach various branches of commercial activity. Experience is, of course, a marvelous teacher. . . . The majority of radio men who operate service organizations have migrated into the field from many other forms of activity—very few with business experience. Where this is true, the commercial instinct must be cultivated.

The individual, who is operating his own business, must understand the various forces which function in the commercial field. Courage—common sense—imagination—honesty—the ability to weigh the pros and cons of a situation—all are important in commercial life. As far as the operations of the individual company are concerned, the man who is to guide the destiny of the establishment must fully understand the importance of every branch of activity relating to the operation of the establishment. . . . He must be able to correlate and combine these various factors so as to produce a smoothly running organization. He must realize that everything associated with the business is significant and must receive attention—the

amount of attention it deserves. It matters not whether this relates to expenditures, income or sales, competition or advertising. . . .

Eyes and ears must be open to recognize ways of reducing expenses—increasing sales—operating more efficiently. The mind must be working to create new ideas which will prove advantageous to the operations of the company. . . . Common sense must be practiced when arriving at decisions. . . . The sensible man running a business does not rush pell-mell into a plan he dreamed of the night before—or one which appears marvelous at first thought. Weeks and months need not elapse in deliberation, but deliberation is required in business. . . . Analyze every plan—seek out its weak points—and strengthen them. . . . Establish the strong points and make them stronger.

The sensible man in business cannot be gullible. . . . He cultivates the ability of saying "no." He does not fall for every idea or scheme suggested and offered as a remarkable money maker. . . . Maybe it is, but—maybe it is not. Experience is an excellent teacher, but it is too costly to experiment with everything. Certain decisions must be arrived at by mentally weighing the plus and minus sides of the matter. We admire snap judgments. We say that the man is a fast thinker, with all the facts at his finger tips. . . . That is all very well. . . . Snap judgment will come later. . . . We creep before we walk. . . .

The man who guides a business acquaints himself with the necessities of that business. This does not mean that the men who head large concerns handle the minute details, but it does mean that the men who run small business establishments must keep their fingers upon the pulse of their own business and upon what is happening in their field. Being self-sufficient is the privilege of a select few—the very big—certainly not the privilege of the very small.

The man who intends running a business successfully must plan ahead. . . . He must plan business activities ahead of the individual working day. He must have some idea of what he intends doing—as well as what he is doing. By this we do not mean that you must know what jobs you will service or install two weeks from next Tuesday, but you must have a fair idea of what efforts you will make towards sales promo-

tion—what amount you will need for expenses—what equipment you will find necessary to buy—what type of stock you will have to replenish—what expansion, if any, you will make, et cetera. Being business-minded is not the actual carrying out of these ideas, which, of course, is the ultimate act, but the realization that such items are important and must be done. . . . Time and again you have noted comments in newspapers made by large executives, concerning the financial program relating to expansion, which will be carried out during the coming year or over a period of five years hence.

To run a business properly it is necessary that the man guiding the concern have the courage of his convictions. This does not mean that the individual must be stubborn. It applies more to the courage not to vacillate each time someone makes a negative comment concerning a plan. . . . You will find that if you carry out a program which you think is right, you will profit much more than if you change your ideas as fast as the weather changes, just because someone else does not concur with what you think is right. At the same time the opinions of others should be heard. . . . There will be times when modifications of a plan are essential. . . . If such is the case—make them, but do not forget the original basic idea.

The man who is business-minded does things with a definite idea in mind. What is accomplished as a result of what is done may not be complete fulfillment of the original idea; nevertheless, it will be something concrete, which will indicate the feasibility or correctness of the plan or idea. . . . To attempt something without a concrete idea in mind—to wait and see what will develop—does not belong in business. It belongs in the laboratory where the final outcome may be an explosion.

The business-minded man realizes the importance of accurate statistics as they pertain to the activities of his business. . . . He does not feel that the keeping of such records is wasted effort. . . . He realizes that such records are of definite aid in the formation of decisions concerning the future operations of the business, as based upon past activities. He realizes that records *tell him the condition of his business;* that only by keeping proper records can he *discover and plug the financial leaks*—gauge the value of various phases—establish the merits of an idea which is being tried out.

The business-minded man believes in systematic routine. This does not mean regimentation of every act during each day, but it does mean that if a plan of operation is established governing the order in which a service call is handled from the time that the request from the customer is received and the receiver or amplifier is returned, that plan is followed. Although more important when extra men are employed, it also applies to the owner-worker type of establishment. Deviation from such routine invariably results in loss of time, money, et cetera.

The business-minded man pays attention to his own business. He recognizes the existence of competition, but devotes most of his thinking time and all of his physical effort to his own business. Whatever mental effort he expends and whatever money he spends, he devotes to increasing his own sales and not to decreasing his competitors' sales.

It is very possible that, having read a description of what is meant by being business-minded, that you cannot picture yourself as possessing all of these qualities or of being capable of carrying out the job of guiding the destiny of a business. Do not be alarmed by what has been said. No one individual, who starts a busines of his own, is an example of perfection;—that comes in time. If you have attentively read these pages, you no doubt have realized that being business-minded is in reality a display of mental faculties. In real life a person does not say that he or she is business-minded and consequently will open a shop of one kind or another. The individual feels that he or she is capable . . . . also that it is possible to capitalize upon ability. . . . Technical experience or commercial experience is an aid. Be that as it may, the business is started and as a matter of self-preservation whatever can be done to improve the finances of the establishment is done.

One individual may be more familiar with business routine than the other. One man will make more mistakes than the other, but, if the attention of the owner is focused upon the business and established principles of business operation are applied, the owner eventually fulfills the requirements set forth as being necessary for the proper guidance of a business.

Every service man, who has an adequate technical background, possesses the foundation required for the establish-

ment of a service business. . . . Since the majority of service men in business have had no business experience, our plan of operation is presented so as to guide the owner in the administration of his service business affairs. Daily contact with the requirements of sound business administration—familiarization with the forces active in the commercial world will bring to life those mental agencies which have been lying dormant because their need was not appreciated. If the members of the service industry, who are operating their own shops, will give themselves half a chance, chaos will be replaced by order and poor incomes will be replaced by good incomes.

Chapter IV.

THE EFFECT OF COST UPON INCOME

Why is service income low? . . . How can it be increased? . . . Let us analyze the income of a service station. . . . There are two general sources of income. One is that secured from the sale of service time and knowledge. This is the money received for the time spent and the knowledge applied in rendering service. The other source of income is that secured from the sale of parts and accessories sold individually or in connection with a service job.

Let us now segregate these two forms of income and consider the sale of service time first. The money received represents the service charge. An analysis of service charges made by service men located in different parts of the United States shows that the price ranges from $1.00 per hour to approximately $3.50 per hour, with the greatest number being within the range below $2.00 per hour. . . . More than likely, you, too, are within this range! . . . Are you one of the few men in the United States who knows that the price he charges per hour is sufficient to cover the cost of the hour sold? If you are one of these men—consider yourself a rarity, because there are comparatively few radio service station operators who realize that knowing costs is one of the most important functions of the man who controls the destiny of a business.

Analyzing Three Blind Reasons. We have spoken to thousands of service men during the past year. In but very few cases did we find a man who said that he charged a certain amount for the sale of his time and labor because he knew that that amount was sufficient to earn him a profit over his total costs. The majority of men advanced a number of different reasons for charging what they did. It might be interesting to analyze these reasons—because they are everything but sound.

One of these reasons was that the competitor around the corner charged that amount. Is that a good basis upon which to establish your own service charge? . . . Suppose, for just a moment, that your competitor is not aware of his costs and that each hour thus sold represents a loss. Assuming that you

do not know your costs, are you justified in taking a similar loss simply because the other man takes a loss upon each hour sold? . . . If we assume that your competitor is not a business man, should you place yourself in exactly the same category? . . . Let us further suppose that your competitor does not possess your ability and, in order to attract business, is offering low prices—realizing fully well that he will never hold his customers. Should you follow suit? . . . No!

You must realize that a servicing business cannot be run in exactly the same manner as a store, where daily sales are made to the same customer. A man who sells commodities can take a loss during one day's sales and know that the same customers who have been attracted to his store will call again tomorrow and the day after and make additional purchases. . . . But when you take a loss on a certain sale in the servicing field, you may have to carry that loss for a long time before you will have the opportunity of again selling that customer—assuming, of course, that you have satisfied the customer.

It is, of course, possible that your competitor is a business man and, having sufficient capital, is taking a loss each day in order to drive you out of business. . . . You, on the other hand, not being as well fixed financially, cannot afford to take similar losses. This fact you must realize, and the only possible recourse you have is to move. If you do not wish to move, then you cannot afford to fight, but must develop some other means of attracting business at a price higher than that of your competitor. At no time are you justified in asking a price—which entails a loss—simply because the man next door is charging a certain price and taking a certain loss. If, on the other hand, you are familiar with your costs and know that it is not profitable financially for a competitor to sell service at a certain price—it is up to you, as a business man, to dismiss such competition from your mind and let it eliminate itself. Most certainly, you will not be helping matters by competing on a similar plane and thereby reducing your own price levels. Of course, if you do have sufficient funds, and you know that you can carry on such a cut-price war without endangering the welfare of your business, then, if you wish, you can continue the fight. We make this last statement with the full realization that at best such a fight is not worth while. The amount of money you would lose competing in this man-

ner could be put to much better advantage by selling your customers on the idea of paying you a higher price. If you serve your public better than your competitor does—you will get the business.

The second reason advanced was that the charge was consistent with the financial status of the customers. We admit that the question of economics is present in the establishing of a sales price of any commodity or service being sold. At the same time, we must also recognize that the person selling also is confronted with his problems which force him to establish a certain sales price. Consequently, the question of economics influences both the seller and the buyer. A selling organization is confronted with the problem of selling something at a price which will be acceptable to the customer. At the same time, it is also confronted with the problem of selling at a definite price, which will enable the said concern to remain in business.

You say that the customer cannot afford to pay more! . . . Can you afford to sell at the price which the customer can afford to pay and still remain in business? . . . You must answer that one! . . . You recognize the limited finances of the public. At the same time, you should also recognize your own finances. . . . You must pay your rent. Your landlord demands a certain amount of money for the space which he sells you—and he wants it each month. You buy testing equipment at a specified price. If you do not have the funds required by the jobber, you cannot purchase the equipment. The fact that you can buy on the installment plan is of no consequence. You still must pay a certain price. . . . Gasoline you need—and you pay the price asked. . . . You buy parts from a jobber. The fact that your customer refuses to pay you more than a certain amount does not change the price you pay for a certain replacement part. If you analyze your own problems, you will find that you, too, are beset by certain definite price factors which you cannot overcome. These factors introduce a certain definite expense and cost into the operation of your business. In order that you survive, you must charge a certain amount. If you do not charge this certain amount, you cannot survive. Consequently, you can recognize the customer's ability to pay only up to a certain point, and that point is associated with the amount of profit which you can make on

a job. If the customer's ability to pay is so limited that the price, which is satisfactory to him, does not allow you a reasonable profit—*you cannot afford to do business with that customer.* The third reason was that the station operator thought that the charge was high enough to return him a profit—although he was not certain that he was earning a profit. Such reasoning is entirely without foundation. Proper business administration demands that you know whether you are taking a loss, breaking even, or earning a profit. This is not intended as an arbitrary statement. It is simply a matter of fact. To establish a price simply because you think it is enough, is definitely wrong from every business angle, no matter how you view it.

So much for these three reasons. As you can see, each and every reason presented herein is fallacious.

The Hourly Charge. Getting back to the charge per hour, how do you know that $1.00 per hour is enough—or that $2.00 per hour is enough—or that $3.50 per hour is enough to return a profit? . . . How do you know that you can afford to do free inspection? How do you know that you can afford to do free inspection, even if six out of every ten calls result in completed service calls? It is perfectly conceivable, and, for that matter, a reality in altogether too many cases—that having made the free inspection call, and having succeeded in convincing the customer that the receiver should be serviced, your charge for your time is not sufficient to cover your basic costs.

Speaking about losses on the sale of service time, it is natural that a loss may be entailed upon several jobs. Of course, every effort will be made to avoid such a loss, but there are times when a profit is impossible. . . . The important thing in connection with the proper administration of a business, is to know the extent of the loss and just how many such losses the business can afford. . . . This means knowing the cost of the time which is sold. . . . You are selling time. . . . Without knowing what the costs are, how can you establish a resale price which will be profitable? Attempting to sell something without knowing what it costs is tantamount to servicing a receiver blind-folded, with the additional hazard of endangering the very existence of yourself as a service station operator.

The Sale of Parts. Let us now consider the sale of parts. How can you decide which is the most profitable manner in

which to charge for the replacement parts you use in a radio receiver? Should you sell at cost—cost plus—list price, or at a definite sacrifice? Do you know if the profit you earn on the sale of the labor, in connection with any service job, is sufficiently great to absorb a loss on the sale of a replacement part, if such a loss does occur? You do not always make a profit on the sale of your parts. . . . That you might just as well realize right now. Certain parts, when sold to the customer at list price—will entail a loss on your part—even with the 40% discount you receive from your supplier. This is so because your organization entertains certain definite sales expenses which relate to parts. It is your duty, as the man in control of your business, to know just what these sales expenses are, so that you can definitely establish the best method of selling these parts. You may feel that the most attractive offer you can make to the customer is a flat rate charge for time and parts. You may be right as far as the customer is concerned, but how about your pocket-book? . . . We are not disputing the attractiveness of a flat rate charge. What we are concerned with is whether or not that flat rate charge, covering time and parts, is the proper one, so that you will earn a profit on the complete job. You may say that you are earning a profit! Can you prove it by definitely establishing your costs for the time sold and for the replacement parts which are used in the job?

If you do not know your expenses relating to the sale of parts, how can you tell just what your total costs are? These total costs include the price which you pay for the merchandise and the selling and handling expenses relating thereto. The important item in all sales is profit. However, in order to establish the profit, you must determine the actual cost, including the related expenses, and then obtain a price for your merchandise which is in excess of the cost plus the related expenses.

A large number of men, who are running service stations, have been operating with the belief that the cost of a replacement part was the price which they paid. That is wrong—entirely wrong, and shows very definitely the absence of knowledge concerning proper business administration and the factors which enter into the establishment of proper profits.

It has become common practice among service station operators throughout the United States to juggle the charge for service time sold and the charge for replacement parts, in order to arrive at a figure which appears most attractive to the customer. Almost invariably, it means sacrificing a certain portion of the profit on either the sale of the time or the sale of the parts. . . . But how can you juggle such figures unless you know your profit on the sale of your time and your profit on the sale of the parts? . . . How can you establish your profit if you do not know your costs? . . . How can you decide the exact amount of profit, which you are going to relinquish, unless you know the amount remaining? Without full and complete knowledge of costs and expenses, it is impossible to establish profitable service charges and profitable sale of replacement parts.

"Leaders." Radio service stations, like other commercial enterprises, offer "leaders" to attract business. The sale of such "leaders" is carried on at a definite loss and it is hoped that the other business resulting will be profitable to the extent where it will offset the loss entailed by the sale of the "leader." . . . Once again, we are confronted by the same problem. Without full knowledge of cost and overhead expense figures, it is impossible to establish the loss entailed by the sale of this "leader"—and the amount of profit which must be earned on the sale of the other items in order to offset the "leader" loss. The solution is not the elimination of "leader" sales. Such sales represent sensible business. . . . The solution is the establishment and proper application of cost and expense figures.

Absence of Cost Figures. The absence of cost figures, as they relate to service time and labor sold to the public, is a deplorable condition and must be remedied. It is, in our opinion, one of the prime factors contributing to the low earning power of radio service station operators. . . . It is one of the basic reasons for the poor financial standing of the entire radio servicing industry. . . . The absence of cost figures has contributed greatly to the fact that servicing capabilities are several years behind radio receiver design—by limiting incomes of service station operators to such low figures that

the men did not, and still do not have the funds required to keep abreast of technical advancement in the field. It is one of the prime reasons why service station operators are forced to work long hours and earn but a bare existence. . . . Since the financial condition of associations reflects the financial standing of their members—the lack of funds in association treasuries mirrors the bank accounts of the members of the servicing industry, who have been establishing service charges without knowing their costs.

Innumerable service men have lost courage. . . . Why? . . . Simply because financial strain, accompanied by excessive hours of work, will sap the courage of any human being. . . . Thousands of service men feel that servicing is not a paying business, and that it never will be a paying business. . . . If you, too, think along these lines, you are wrong! . . . Change your mind today—because radio servicing—properly administered and rendering good service—can be made a financially successful enterprise.

The lack of suitable finances, attributable directly to the unprofitable sale of service time, has forced the service station operator to accept every job offered to him. . . . Every job is needed in order to survive! . . . Every job is accepted, because the men cannot distinguish between what is profitable and what is unprofitable. Knowledge of operating expenses, in order to establish a profitable price for the time which you sell, is an imperative commercial consideration. It is just as important in the radio servicing field as in every other field of commercial endeavor. Millions of dollars are spent each year by the large, successful commercial enterprises in the maintenance of their cost records—because such records constitute the foundation of the sales structure.

So much for general discussion about why knowledge of costs is essential. We trust that you have not been frightened away from the subject. Really, the administration of a business is not a very difficult matter—although it does require your concentrated attention. If you have built up any ideas concerning the magnitude of the job—dispel them. . . . You will find, as you go through the pages which follow, that comprehension of the business terms is easy and that the means of establishing what your costs are is the simplest possible arithmetic. If you can add, subtract, multiply and divide—

you will be able to make all of the computations you need to acquire the information you must have in order to place your business upon a sound basis. After that is done, and if you exercise good judgment and courage, you will find that the combination will lead to profits.

Chapter V.

PROFITS FROM PARTS SALES AND SERVICE TIME SALES

To start with, your prime reason for going into business is to make a profit upon your transactions. That does not mean that you are going to make a profit upon every transaction. Some sales will result in a loss. The loss may be little or substantial, but whenever possible, you should know this beforehand and make an effort to limit your loss to a predetermined figure. Knowledge of costs, expenses, proper analysis of the job to be done, and the time required makes such calculations possible.

A loss may occur in two ways, bearing in mind the function of the service station. . . . You may take a loss on a job as a result of the time spent; that is, the time you spend on a job costs you more than you charge the customer. Then again, you may take a loss because of an incorrect estimate, which results in an actual outlay of money for parts or accessories in excess of that which you receive from the customer for the sale of those parts. Sometimes a loss is incurred on both time and parts sales. . . . Whether or not you should take jobs which entail a loss in the form of time or outlay of money, depends upon a number of conditions or circumstances. These conditions or circumstances include the extent of daily activity, that is, the amount of business you are doing; whether or not your shop is successful; the possibility of making up that loss; your financial ability to stand a loss; whether or not you are pressed for money; the competitive situation; the possibility of establishing a successful business and, finally, if you have sufficient funds to enable operation until such time as you do establish a successful business.

When we speak of a loss, we are referring to the final financial outcome of a completed transaction. A repair job, which entails the sale of time and parts, is classed as a single transaction. A job, which entails the sale of service time only, likewise is classed as a single transaction, and a transaction, which involves the sale of parts or accessories only, is also classed as a single transaction. If a dual sale of parts and

time is such that it means a loss on parts, but a sufficient profit on the sale of the time, so that the loss on parts is absorbed and a satisfactory profit remains—that complete transaction is profitable. . . . The same is true if the required profit is made on parts sales and a loss is experienced on the sale of time. . . . However, if such a dual sale means that the loss on either parts or time is greater than the profit on time or parts, so that the final reckoning shows a loss—that complete transaction represents a loss. A profit or loss on individual transactions on time or parts requires no discussion.

Let us now analyze the various conditions relating to losing transactions. If your shop is not busy or is not operating at normal capacity, because you cannot attract business at your prevailing prices—it would be natural to conclude that it is foolish to turn down the sale of labor—even if it means a loss. . . . Yet, such a conclusion is not always right. . . . We admit that you are idle. We further admit that your natural conclusion is that the sale of an hour of labor at a loss of 50c is preferable to no income at all—particularly in view of the fact that the expenses run on like the babbling brook, and an hour not sold may be the loss of a dollar or more. . . . But is such an analysis correct? . . . Let us see. . . . If the number of families you can draw on for service work in your community is not sufficient to enable operation of your store—and you know this to be a fact—you are not justified in taking that loss. . . . You should close your shop, because you do not belong in that neighborhood! If you continue taking such losses, you are simply prolonging a sickness and exhausting your capital. . . . The end is inevitable. Perhaps it will be delayed as a result of the amount of income which you receive—but the day when you will have to close that shop is going to arrive. The best thing you can do is to close shop immediately and conserve whatever capital you may have left for a fresh start somewhere else.

Suppose that such a shop is operating at normal capacity. . . . Are you justified in taking a loss if you sell an hour of extra time? Inasmuch as operation at normal capacity means that your expenses are covered and you are also earning a profit, it would be only natural for you to feel that the additional money you receive is just so much more profit—even though you sell the time at a rate below your regular rate. To

do so is wrong, because it is establishing a precedent and you are lowering your own standard of prices. The fact that you are operating at normal capacity is evidence that you can receive your price—so why lower it? Since you are operating profitably, you are not in need of the extra funds. Of course, you can use such funds, but if you are going to build a reputation for your business, it is necessary that you maintain the price you have established.

Let us now consider another case where you need every dollar which you can secure, because your finances are very low. In cases of this type, you most certainly are not doing much business. No doubt, you have exhausted your capital. You are justified in taking the job because it provides a certain income, but you might just as well understand that you cannot continue in business on such a basis and you will eventually have to close shop.

The opportunity is ripe at this time to refer to the low-priced midget set. This subject has been broached to us time and time again during various lectures we have given during service association meetings. What should be done with this type of receiver? Should it be serviced at a loss, particularly when someone else in the neighborhood will take the job? Frankly, it is our belief that if your financial condition is such that you do not need that job, you should turn it down and let the other man take the loss. However, before deciding that you will not take this job and incur a loss, give some thought to the possibility of future business from this customer. Also, the extent of the loss. If you feel that by doing this job and incurring a small loss, which your finances will permit—you will be making a friendly gesture to the man who owns this receiver and who has been a customer of yours and who also will have some other work in the near future—you are justified in taking this loss. The possibility of securing other business is, at all times, a factor, because a loss which you incur on one job may be made up by extra profit on another job. To take a small loss on a job and thus create good will, which you feel will result in additional business later on, is good business practice. However, if you feel that the possibility of getting further business from the owner of such a receiver is very remote, and you do not need the immediate funds resulting from this job—the best thing to do is turn the job down.

In connection with the possibility of securing future business from a customer for whom you do a job at a loss, you should always remember that you are not in the type of business where this customer will come in daily to make purchases or will again call on you in a short time after you have taken such a loss. Of course, what we say here is not laying down a law. You are the owner of the establishment and, consequently, must make these decisions for yourself.

Suppose that you have sufficient capital? . . . What now? . . . If you have sufficient capital and you feel that the neighborhood wherein you are operating has sufficient families and receivers, so that you can eventually build up a successful business, you are justified in taking the stand that you are not going to make a profit during the period that you are establishing your business. . . . Bear in mind that you must have ample capital in order to carry on in this manner, and that you will have to analyze conditions very soundly in order to make such a decision. When we say operating without a profit, we are, of course, assuming that you will cover expenses, but it is very possible that you will not be covering expenses, so that you will have to draw upon your capital to make up the difference between your expenses and your income.

As far as competition is concerned, you can compete upon a losing basis only if you have ample capital. If you do not have sufficient capital, you must seek some way of fighting competition other than price. If you do not have ample capital, you cannot afford to take the loss and meet competition. You must meet competition by offering more than your competitor in the form of better service—faster service, or some feature which your competitor does not offer, and charge a price which will return a profit or, at least, will not result in a loss.

We would like to take this opportunity of bringing to your attention one very important item in connection with losses and profits. It is a very simple matter to take a loss upon any one transaction. Perhaps the sum involved is not very great, or perhaps it is quite substantial—considering the total investment in the business. At any rate, it is imperative to understand that in order to make up that loss, an entirely separate and distinct transaction must occur. Furthermore, somewhere along the line, a greater than the usual profit should be made,

if possible, in order to offset the aforementioned loss and still not diminish the normal profit upon the subsequent transactions. This is equivalent to saying that if a loss occurs on one transaction, the profit made upon the subsequent transaction may not compensate for the loss on the previous transaction. As stated on several occasions, the ideal arrangement is to make a profit upon each transaction consummated, but where a profit is not possible, the loss must be minimized. If a business is conducted on the premise that the profit on one job is going to offset the loss on another—the net result is no profit on the two transactions. If this happens, a business is carried on with the expenditure of a great deal of effort and the risking of funds, without any financial improvement or progress at the end of a period of activity.

What can you do if your competitor is forcing your hand? Your funds are not any too great and your competitor is underselling you and he has ample funds. His prime purpose in underselling you is to drive you out of business. Frankly, there is very little you can do. Unless you can attract business by offering something more than your competitor, so as to justify your higher price, or if you cannot get together with your competitor to iron out things on a friendly basis, there is but one recourse. You must admit defeat and move. You cannot jeopardize what little capital you may have left to fight the competition. Perhaps we are recognizing something which would not be classed as being most ethical business, but it is business, nevertheless, and as such must be viewed from the most logical angle. Such things happen daily.

So much for losses. Let us now talk about profits and the manner in which profits can be established upon service time sales and parts sales. What determines profit? There are a number of factors which must be taken into consideration. What we may say during this discussion may appear to you as advocating profiteering. In reality, this is not so. There are certain times when the customers' ability to pay determines the amount of profit which a person may seek. . . . Would it not be foolish, if you know that your customer can afford to pay, not to seek greater profit than that which is possible when you are working for someone who can afford to pay only your normal charge? Perhaps this is advocating to charge what the traffic will bear. That is correct, providing

that you use a certain amount of reason. There are people in this world of ours who feel they get their money's worth only when they pay a lot. If that which is sold is offered to them at a low price, they do not want it. Consequently such people should be charged consistent with their personal likes. It is possible that your clientele is located in what would be classified as being the expensive part of town and you are called to service receivers which would be classified as expensive in comparison with the average sold to the American public. If so, you are justified in assuming that the type of work you do—that is, if you really do good work — justifies a somewhat greater charge than when you are working upon a less expensive receiver. We take this stand, because you are, in a way, increasing the life of a larger investment. We believe that if you check into the matter, you will find that the time charged for service work on a Rolls Royce automobile is certainly more than that upon a Buick or a Chevrolet. What is said here applies as well to parts and time. We, of course, assume that you are going to make the greatest amount of profit from the sale of time.

Let us now speak about the normal amount of profit on the sale of parts. Since the maximum amount of profit upon parts is definitely limited by the fact that a list price is established, and you have certain costs and expenses, your ability to earn a profit depends upon what you can charge. If you can charge the list price, you are making whatever profit is possible and permitted by existing circumstances and conditions.

As to the sale of time, it is our belief that you are justified in establishing a mark-up of at least 25% over and above your cost and "shop expenses." This, of course, is not the limit. . . . You can charge much more, if you know that you will deliver the money's worth. A high caliber service station, catering to a type of clientele with more than average income, is justified in a mark-up as great as 100%. If such a station operates at a cost of $2.00 an hour, it is justified in charging its customers $4.00 an hour—that is, if $4.00 worth is delivered and the customers are able to pay. It is, of course, possible that your locality is such that your customers cannot pay this price. If such is the case, you will usually find that your expenses do not run high enough to establish a cost to you of

$2.00 an hour. If you are operating in a locality where the income of your customers is such that your charge for time is limited to $1.75 per hour, it is imperative that you should be operating at an expense which will develop a cost to you of not more than $1.40 per hour. It is, of course, impossible for us to definitely establish what your profit should be. All we can do is make recommendations. However, we do feel that 25% mark-up on total cost, which is the equivalent of 20% profit on the selling price, is a reasonably average profit for stations selling service time and labor.

There is one other idea which we wish to inject, in connection with service charges and profits on the sale of service time. There are certain men who have a natural aptitude for radio service work. We cannot class them as geniuses, but they seem to possess the ability to do better work in a shorter time than other men who would still be classified as being good workers. If such a man with a flair for radio service work is enabled to do an excellent job in an hour, whereas someone else, who would be classified as being a good serviceman, would require two hours or longer—it is our opinion that this first man is justified in charging a sum which is the equivalent of that which the second man would have charged for the time he expended in doing the same work. We are assuming, in making this statement, that the customer would have accepted the bill rendered by the second man, who requires two or three times as much time as the first man. Such operation means added profits for the individual who has attained a greater proficiency and who, because he owns better equipment, can work more efficiently and accurately.

The statements made above, of course, assume a profit upon service time and a profit upon parts. It is possible that you are one of the service station operators who aggregates his expenses into one lump sum, in which case you must consider the possibility of making a profit upon parts and a profit upon the service time. At any rate, your basic profit should come from the sale of service time. You may feel that 25% mark-up is not sufficient. You may feel that your traffic will bear 50%, or less, or more. . . . Whichever it is, you must decide, but we feel, as stated before, that a minimum of 25% mark-up on your cost of service time, including the "shop expense," should be attained.

We have spoken about a profit upon service time and a profit upon sales. Now we are confronted with the problem of deciding in which manner the sale of parts to the customer should be handled. By that we mean sales in connection with service jobs wherein the parts are used as replacement units, or when sold to a customer without any service job. As far as the latter is concerned, you should try to sell at list. Further discussion is not required, because we have already covered the subject. When sold as a part of a service job, we have the following questions to answer: Should they be charged to the customer in connection with service jobs at the original cost, that is, the purchase price? . . . Should they be charged to the customer in connection with a service call at the basic cost price, plus the related overhead expense? . . . Or should they be charged to the customer at list price, or at some price less than list, which covers the cost, the related expense and a profit?

No doubt, it is evident to you that a number of different ways of handling this matter is possible. For example, one service station operator may feel that his earnings from service time are sufficient so that he does not have to make a profit upon parts, particularly in view of the fact that if any profit-making were attempted on the parts, it would increase the price of the entire job to the point where the customer might not view it favorably. In a way, this is a combination of generosity and common sense. However, it is applicable, as a rule, only in such cases where the basic charge for service time is quite appreciable and the cost of the parts used is also appreciable. If the full mark-up were applied to such parts, it would of necessity increase the total charge quite materially. Common sense then dictates to take one profit if it is sufficient. If a mark-up sufficient to cover related expenses is possible get it by all means.

Then, again, a similar situation may exist, but for a different reason. . . . It is conceivable that the sale of the service time involves a substantial figure, but the price of the parts used is quite low, so that the possible loss, which is entailed by including these parts at cost, is absorbed by the profit on the sale of the service time. With this viewpoint we cannot wholly agree. . . . Altruism and sentiment have their place, but without advocating profiteering, we still feel that since the

cost of the parts and the charge to the customer for the parts is so low with respect to the labor charge, the operator might just as well add at least enough to the parts item to cover his expense relating thereto and thereby eliminate a loss on the parts transaction. Never operate at a loss or give up a profit —if you can help it. In a way, it might also depend upon the figure quoted in the original estimate. . . . It is possible that the original estimate was quite high—higher than the final figure arrived at after the job was finished and costs figured. In this case it would be proper business procedure to charge the figure quoted in the estimate. . . . In our opinion, this is not taking advantage of the customer—it is making up for some other loss. It is essential for the man who runs his business to minimize any departmental loss—this may be accomplished by earning a profit on parts whenever it is good business to do so.

Quite a number of service station operators have established a policy that all parts used in connection with service work bear the full mark-up. . . . In other words, parts used are charged to the customer at list. We, of course, realize that there are times when it is necessary to deviate from this established principle of operation, particularly so when the list price of the part is quite high. . . . Sometimes it may amount to several times the proper charge for labor. Under such conditions, it is very likely that an attempt to charge the full list price for the part will result in the loss of the job. Where the basic cost of the unit is fairly high, the dollar value of the mark-up is substantial and if a profit is being earned on the labor sold, it is possible to sacrifice a portion of the profit on the sale of the part used and to charge it to the customer at some figure below that which represents full mark-up upon cost. An alternative, although not in accordance with our ideas, is to realize the maximum profit upon the part sale and absorb the service time, or make no profit upon the service time. It is six of one and half a dozen of the other. Be that as it may, we feel that if the mental attitude of maximum profit upon service time is cultivated, it will prove best in the long run.

As is evident from what has been said in this chapter, common sense must be exercised in determining the full charge to the customer for the sale of time and parts. We want to

stress that these references are not made with the idea of establishing merchandising tactics. We feel that proper consideration of the relation between profits on parts sales and service time sales is influential upon the total profit earned and is a factor in determining the value of any program, which relates to the proper administration of the business.

Chapter VI.

PROPER BUSINESS MANAGEMENT

In speaking about the proper management of a business, it is necessary to consider the scope of the enterprise. By scope, we mean the size of the business—the amount of money which is handled—the program adopted for the development of sales—the manner in which the funds of the concern are spent, etc. The larger the concern, the greater is the number of items which must be considered in formulating the plan of administration. In our case, we are concerned with establishments with incomes of from $1,000.00 to about $5,000.00 per year. Consequently, a number of the details, which would normally exist in larger organizations, can be omitted and it is possible for us to discuss things on a certain level. Essential acts of proper business administration determine the sales market, sales promotion, sales quota, buying, merchandising, inventory and expense. This applies as readily to the man who is just starting in business as to the man who has been in business for several years.

Sales Possibilities. The topic of sales possibilities is one of wide scope with a large number of ramifications. A man starts in business, or is in busines because he feels that he can supply the needs of the people located within his trading area, and because he feels that such a business will earn his livelihood. The actual territory within the afore-mentioned trading area is naturally dependent upon how extensively the man will operate. . . . Whether or not sales possibilities of the proper magnitude exist, depends upon two factors: The nature of the product being sold and the number of people located in this trading area who are interested in or will buy this product.

The number of people available to whom such service can be sold depends upon the locality of the shop. Many service stations are poorly located—many others advantageously located. There are numerous factors which contribute to the value of a location. One of these, which requires extensive consideration, is the proximity of competing establishments. Another is discussed in this chapter under the heading, "Rent."

The presence of a competing establishment does not in itself mean that the location of our shop is poor—but if an analysis shows that the number of available prospective customers, when apportioned among the existing shops, is insufficient to return the proper income required for the successful operation of our man's business, then the location selected is a poor one for the newcomer. To risk an investment on the ground that an effort will be made to take business away from already existing competitors must be supported by outstanding ability, efficiency and ample capital.

There are people who say that a business should expect to lose money at the start and gradually build up its clientele. To a certain extent that statement is correct—but the ability to stand such losses, before the point of profitable operation is reached, depends upon the resources. As a rule, the man who starts a service business does so with limited capital. If the distribution of prospective customers is such that too wide an area must be covered in order to secure sufficient business, and if competition is present, the likelihood of building up a profitable business with the limited capital is very little. The larger the area covered, the greater is the expense.

There are certain localities where the need for a radio service business exists—but the number of prospective customers is so few that it prohibits the starting of a full-time business. Under such circumstances, it is essential to recognize the existence of the limiting factor and to start a service business of such proportion as will not require an expense greater than that consistent with sales possibilities.

You may wonder why we take this negative viewpoint in connection with the location of the service shop with respect to its sales possibilities. The man who can locate his store where a service business is required—where competition is lacking—where there is a sufficient number of prospective customers, has no worries. If he conducts his business properly, his investment is not only safe, but he will prosper. On the other hand, the man who, because of one reason or another, selects a site which is not so very favorable—is starting with a handicap which can only be overcome by superior ability, greater effort and ample capital. . . . It, therefore, behooves the man to be on guard against selecting an adverse location. As to sales possibilities, the shrewd man, or at least the indi-

vidual who is planning on a sound basis, will attempt to ascertain the number of families located in his trading area.

Having established the number of families, he can approximate the number of receivers which are located in that trading area. Innumerable sources are available whereby it is possible to learn the population of communities and the number of receivers in that community with respect to a certain number of persons. For example, the estimated percentage of families having radio receivers in New York City, is quoted as being approximately 98% as of January, 1935. On the basis of four persons to a family, a population of 10,000 people within a certain trading area will mean about 2500 families. On the basis of 98% coverage, this will mean that approximately 2460 receivers are located in that community. If the sales, during the last year, totaled about 20% of all the receivers sold, approximately 80% of this number of receivers are at least a year old. This means that about 2,000 receivers represent prospective service jobs. This, of course, does not mean that each of these 2,000 receivers will come into the shop for service, but it does mean that there are 2,000 receivers to draw upon.

To say that there are 2,000 receivers as prospective service jobs assumes the non-existence of competition. If competition exists in the form of one or more stores, it is necessary to allot a number of these receivers to each of the other service stations in the community. For example, if there are four stores in all, including our own, the safest method of approximation is to divide these 2,000 receivers among the four stores, thereby allotting 500 to each establishment. We, of course, realize that such division of receivers among the service stations is theorizing and represents 100% coverage. To obtain 100% coverage is a difficult matter and the shrewd man will seldom, if ever, credit himself with such sales ability that he can secure more than 80% of a market. 80% coverage in the face of competition is excellent sales ability. When starting in business, it is difficult to approximate just how much coverage will be secured, but since a basis is necessary, we feel that perhaps 50% coverage would allow a safe margin. It is, of course, possible that as a result of conscientious sales effort and good service, so that a reputation is established, a newcomer can rapidly build up his business to a point where he

is securing more than 50, 60 or even 70% of a market, but when approximating sales possibilities, it is better to be conservative than over-optimistic.

It is possible that such an analysis may show that the number of receivers available and representative of the market is not sufficient to justify the establishment in that location. Yet the man may feel confident in the face of such analysis. If this is true, and the man is willing to gamble, he can start his business or he can continue operations, if the establishment has already been started. As stated earlier, it is possible that such an analysis will prove of value to the man who has been operating in a territory, because his records may show that he is securing a normal coverage of the market—yet the income is not sufficiently great to enable profitable operation.

Sales Quota. After having analyzed the sales possibilities of the market, it is necessary to consider the minimum sales requirements of the establishment. This is normally expressed as a sales quota and indicates the amount of business which must be done by the organization during a definite period in order to cover the expenses incurred during that period. The period may be figured on a basis of six months or a year, the latter being most common. By minimum sales requirements, we mean something of the following order: If it is found that the expenses amount to, say, $1500.00 a year, it is necessary that at least $1500.00 income be secured, exclusive of the sale of parts. If, on the other hand, the man, who is running the business, establishes his sales quota on the basis of past performance, and knows that over a period of a year the expenses amount to $1500.00, and in connection with buying and selling another $500.00 is spent for parts, making a total expenditure of $2000.00, he knows that the sales quota for that year, including parts and time, is $2000.00, assuming, of course, that all of these parts are sold.

Sales Promotion. Proper administration requires that the man, who is running the business, have a fair knowledge of what he is going to spend for sales promotion. In this connection, there seems to be a similarity in the amount of money normally appropriated for such expenditures in businesses of similar nature. By similar nature, we mean organizations

which sell maintenance. As a general rule, sales promotion expense is figured as so much percent of the anticipated sales.

Investigation has shown that the average service station normally spends between 1 and 2% of its annual sales for sales promotion. Such sale promotion efforts include advertising, circulars, posters, display, direct mail efforts, telephone, etc.

You must, of course, understand that the figures we quote here are purely for reference and illustrate average expenditures. Naturally, the expense for sales promotion is greater when a business is first started and the effort is made to secure the clientele and to establish the business. It is possible that during the first year, the sales promotion expenses may approximate as high as from 5 to 10% of the annual sales. Thus, if a business is first started and it is expected that $2000.00 sales will be made during the first year, it is perfectly possible that the man who is running this business may spend from $100.00 to $200.00 in sales promotion. Once the business has been established, it is possible to cut down the sales promotion effort during the subsequent years.

Now, it is possible that you have been spending from 1 to 2% of your total sales for sales promotion and you find that the amount of business you are doing is not sufficient. It is perfectly conceivable that the amount you are spending for sales promotion, while equal to what normally is average, is not sufficient. In other words, your location and the type of people you cater to, may require greater sales effort, so that you must spend more than the average amount. On the other hand, it is conceivable that you have been spending too much for sales promotion, so that the actual determination of what is the correct figure is really a combination of analysis of sales, expense and experiment. That is why we have at different times referred to the fact that breakdown of income and expense, as it relates to parts and service sales, is a good form of operation, because it enables the analysis of returns accruing from any one sales promotion effort.

Speaking about sales promotion, you will find that the greater the annual dollar volume, the smaller the percentage of the total sales devoted to sales promotion. This is quite natural in that one-half of 1% spent for sales promotion for a concern doing a very large volume of business, amounts to

a very substantial sum. We have surveyed the servicing industry and we find that, as a general rule, part-time shops as well as full-time shops spend between 1 and 2%.

Rent. When we speak of rent, we must, of necessity, speak about location. We have already made some reference to the matter of location in connection with sales possibilities. This time we are going to consider the matter of rent from two other angles. One is the amount of money spent for rent, with respect to the total sales, and the second is the influence locations have upon sales.

A service organization should, of course, be located in the most advantageous spot with respect to the possibilities of securing business and attracting trade from among the people who daily pass the establishment. This reference is, of course, subject to the limitation that it pertains, primarily, to the man who has a shop. The man who is operating from his home has no choice of location. As a general rule, such houses would be classified as being in the residential section. Consequently, the amount of business secured from transients who pass the location is very little, if any. Speaking about stores, it is necessary to consider also that the greater the number of people passing a certain spot, the greater is the valuation of this location—hence the greater would be the rent. It is, therefore, necessary to find the best compromise between trade and rent. An analysis of businesses selling maintenance throughout the United States, shows that the amount of money appropriated for rent or allotted to rent, seldom, if ever, runs above 5% of the total volume of sales during a year. In other words, if $5,000.00 worth of business is done during a year, the rent should not exceed $250.00 per year. We have found instances where the rent was as low as 4%, and then again cases where the rent was in excess of 5%, and at times as high as 10%. In view of the fact that rent is a part of overhead expense, it is necessary to give serious thought to the subject. An analysis of companies, which have been operating at a loss, has in very many cases brought to light the fact that the rent they were paying was too high for the amount of business which was done and which could be done. As a matter of fact, if you could examine the books of a large number of companies in many fields, who in the past years have gone into bankruptcy—you would find that a

larger percentage ceased operations primarily because of high overhead, of which rent was a substantial portion. Then again, a large number went into bankruptcy for the sole purpose of breaking leases, so that they could either move to another quarter where rent was cheaper, or force their landlords to reduce their rent.

We, of course, appreciate that the better the location, the better the business, but somehow or other, a service establishment does not, as a rule, depend upon transient trade and, consequently, does not justify a high expenditure for rent in order to secure a location on the main artery of the town. Of course, it is most advantageous to be located as close as possible to a main artery, but if the difference in rent for a space on a side street near a main artery and the space on a main artery is appreciable, we believe that a service shop located on the side street will fare equally as well in the long run. Naturally, if the service station is also selling receivers —and receivers which are on display and if the sale of receivers represents an appreciable portion of the total income, then it is necessary to secure the best location—even if the rent is appreciably higher. . . . But even in this case, it is necessary to weigh in the balance the ability to carry on profitable operations with a high rental.

Referring once more to the man who is operating from his home, he, too, has a rental problem, in that in establishing his expenses, he must include a certain amount as being the rental of the room or the basement which he is occupying. Altogether too many men, who operate from their homes, ignore the fact that the space they occupy is worth a certain amount of money. Perhaps the rent for the room occupied is a small portion of the total rental of the building—but no matter what it is, it should still be included in the expenses.

Open Accounts. A large number of service stations, operating from the home or maintaining a shop, do service work for dealers. As a general rule, much of this work is done on open account—that is, credit is extended to the dealer and collections are made weekly or monthly. The advisability of extending credit is determined by several factors. One of these is the resources of the service station. The second is the credit standing of the dealer, who is buying service on open account. We know that the amount of money outstanding on

such open accounts is not very great, but since the capital of the average service station is likewise small, and since operations must be maintained, we deem it important to mention that the distribution of risk is something which the service station operator must recognize. Based upon a normal volume of business, which is done in such manner, and where a service station does work for 8 or 10 dealers, we feel that no one dealer should have an open account for more than 15% of the total accounts outstanding.

Collection of Accounts. One of the problems of service stations has been the collection of small accounts. When we say that such an item is a problem, we do not necessarily mean that a large amount of money is involved. The problem is the collection of such items as $2.00, $3.00 or $4.00. It does not pay to engage an attorney, because the expense is too great and collection agencies charge too much when collecting such small amounts. Proper administration of a business will at least attempt to ascertain where in the town in which the service station is located, is what is known as a small claims court—such as is existent in New York City where the creditor, without recourse to a lawyer, can present his case before a judge. He proves the authenticity of the claim and the judge, or person presiding in the court, renders a decision which is final. In some towns, the municipality employs what is known as a public defender for the purpose of handling small claims. Which of these plans are in operation in your town, we do not know, but if you are going to run your business properly, you are going to make it your concern to find out what practical method exists for the collection of such sums.

Equipment. The amount of money you should spend for equipment during any one year is related to the volume of business you intend doing, or are doing. It is illogical to suppose that a man is going to maintain $1,000.00 worth of apparatus in order to do $1,000.00 worth of business, because the depreciation on this equipment, which is a portion of the fixed expense, must come out of the income in order to establish a fund for the replacement of such equipment. Investigation discloses that the amount of money set aside to compensate for depreciation, and which reflects the investment in equip-

ment, is usually between 4 and 5% of the total sales. In other words, a concern doing $2,000.00 volume per year would have a depreciation item of from $80.00 to $100.00 per year. A concern doing $5,000.00 volume could purchase sufficient equipment, so that based upon three years' life, the depreciation would approximate from $200.00 to $250.00 annually. A definite basis should be established, so that you will not run away with yourself in the buying of apparatus. We, of course, appreciate that the acquisition of equipment of the most modern type will speed up operations and enable you to render better service, but if your income is definitely limited and you still desire to purchase equipment, you must make some arrangement whereby the equipment you have on hand is disposed of and that the acquisition of the new equipment does not increase the size of the fund required for replacement to an appreciable extent.

If you analyze the expenditures of a service concern, you can very readily appreciate that each expenditure bears a certain relation to the total income. You must spend enough money so that proper sales can be carried on and proper operations can be carried on. But if you spend too much money for any one item, it cuts down the available funds for other items. If you spend too much money—you will find that your expenditures total more than your income and you are depleting rather than increasing your capital. . . . Each and every man should operate his business in such manner that a certain amount of cash is left as a result of annual operations after all costs and expenses are deducted. If at the end of the year you wish to reinvest a portion of this surplus cash in additional equipment, because you feel that the possession of such equipment will enable greater sales and proficiency during the coming year—go ahead and buy the equipment. . . . If you feel that the time has come for the replacement of your apparatus —don't delay—buy what you need. . . . Do not wait until the very last minute and find yourself embarrassed because your equipment fails just when you need it most.

Free and Paid Inspection. Perhaps this subject does not belong in this chapter. Perhaps it should have been tied in with sales promotion of service time, but we feel that it deserves special mention, because it has been the basis of a great deal of discussion. Basically, free inspection or nominal-priced

inspection is a form of sales promotion. Which of these methods is to be employed by you is entirely up to you. We are not attempting to recommend one form or the other. Free inspection will attract more requests for calls than nominal priced inspection. However, if the expense relating to such free calls is not given due consideration, it cannot help but dig into the profits.

Assuming that the man, who runs a service station, will recognize the expense of such inspection calls, it is necessary for him to weigh in the balance the following considerations: If free inspection is classified as a sales promotion item, and if the expense relating thereto is recognized and included as one of the items of expense, it will of necessity increase the basic cost of service time available for sale. This means that that charge to the customer will have to be greater and the increased sales resistance—because of this increased charge—will tend to cut down the amount of actual jobs secured, but because of the "free" offer, it will attract more leads.

Then again, we have the situation where the inspection charge is nominal and the charge is refunded to the customer in the event that the job is secured. If the service station operator takes into consideration, when establishing the final charges to the customer, that a certain expense is incurred in making the initial call, the customer is in reality paying for the call. If, however, the estimate given the customer does not include the expense of the original call—bearing in mind that the nominal charge is refunded, then the profit on the job, if there is a profit, is less by the amount of expense incurred in making that call.

If a nominal inspection charge is made and this charge is retained by the service station operator, it is possible to establish a lower charge to the customer for the service time sold. This is so because what would normally have been the expense incurred in making that call is not added to the sales promotion expense.

If the operation of the service organization is such that the inspection charges are high enough to be profitable, and the money is retained by the organization—the transaction becomes just another profitable item and the inspection operation is not classified as sales promotion.

Since it has become common practice among service station operators to refund the nominal inspection charge if the job is secured, we believe that as far as proper management is concerned, both the free inspection and the nominal priced inspection, of the type mentioned, mean one and the same thing. In both cases, it is necessary for the service station operator to consider the expense involved and to bear this fact in mind when establishing the basic cost of service time sold and the final service charge to the customer. The customer should pay. If you analyze the operations of other businesses, you will find that the customer pays. Such is our reasoning. You may or may not agree. That is entirely up to you.

Records. We mentioned, in the early part of this plan of operation, that a man, who is business-minded, recognizes the value of records and utilizes these records to the fullest advantage. Having read this much of the plan of operation, you should be familiar with the essential facts pertaining to the proper management of your business. It is now time to discuss the records you should keep in order to enable proper guidance of your business.

PART II—*by* JOHN VAN NEWENHIZEN

FOREWORD

The practice of reading the last chapter of a new book first of all is not uncommon. If the ending looks promising the reader turns to the first chapter and peruses the entire book in its logical order.

It may be profitable to first refer to the last chapter in this text, because it illustrates the results obtainable if the forms provided are used in conformity with the text. The operator having prior experience and knowledge may find that study of the illustrated forms, with reference to the text for further illumination on points not entirely clear, will obviate the necessity of reading the entire book.

This text has been written with the hope of coinciding with the reader's point of view regarding the keeping of records.

In the preparation of this book we reasoned that a complete system of scientific record-keeping and cost-finding is not suitable to the needs of service engineers, because such record-keeping and cost-finding is a complicated business and as a pre-requisite demands a thorough understanding of the theory of "debit and credit" or "double entry" bookkeeping.

Since the training of many bookkeepers frequently fails to impart to them more than a hazy idea of the basic theory of modern bookkeeping, the thought of instilling a thorough knowledge of it with a few pages of descriptive material and some printed forms would be as absurd as the notion that the reading of a volume of service notes and the study of some wiring diagrams enables one to become a service engineer.

This text has been written with the aim of providing sufficient record-keeping information to enable the service engineer to calculate his cost of service with a reasonable degree of accuracy and thereby to assure him against loss due to lack of knowledge of his real cost of doing business; to reduce his credit losses through a proper follow up of his claims against others for services rendered or goods sold; to construct a fairly accurate balance sheet whenever he wishes to have a

comprehensive view of his business; and to enable him to discover for himself whether his activity summarized in the sales he makes of services and goods results to his ultimate advantage or disadvantage as revealed by his operating statement.

Failure to "check and double check" will not plague, nor will inability to "balance the accounts" disturb the nightly slumber of the service operator who adopts the suggestions and forms presented herewith.

The internal tie-up of the theory of "record-keeping" has been sacrificed to make the suggestions practical and the forms workable. Not because the accepted theory is not sound, but because it involves knowledge not at the disposal of the majority of service engineers and creates complications with which they could not cope and would not cope.

As it is now constituted this book will serve as a "primer" in the practice of business control by the service operator.

If further refined to meet perfectly tenable objections of the theorist, it might conceivably fail to meet with the acceptance of those to whom it offers assistance.

Grateful acknowledgment is made of the assistance rendered by hundreds of service operators over the entire country who responded generously to requests for information concerning their individual establishments.

It is sincerely hoped that the forms and text will be of assistance to the radio service industry.

J. VAN NEWENHIZEN.

Camden, New Jersey
March, 1936.

Chapter I.

ADVANTAGES OF KEEPING RECORDS

It is quite possible that heretofore you have been solicited by someone in connection with the sale of a bookkeeping system, or the sale of instructions, to enable you to set up and maintain your own system of record-keeping. Anyone who has thus offered something for sale undoubtedly had a personal, monetary interest in the transaction into which he attempted to persuade you to enter. At the same time, such people have wanted to render you a service of which you were in need. We now attempt to render you that service and perhaps the idea of keeping records may seem more acceptable to you than on prior occasions, because we are not financially interested in recommending to you any administrative system.

Possibly the same objection is in your mind which you also had previously, namely, that record-keeping or bookkeeping is just an additional expense. Why should anyone advocate or urge it when the time and the money spent in keeping records is time and money spent without hope of a profitable return on the expenditure? You may well ask yourself the question. "How can I make money by keeping records of my business?"

It is true that no one has ever made any money out of keeping records except those who have taken up and are practicing bookkeeping and accounting as a profession. On the other hand, almost anybody will subscribe to the truth of the saying that "a penny saved is a penny earned." It is therefore also true that if the keeping of records results in increasing the income by controlling the money spent to earn the income, or in decreasing losses heretofore unknown, money will be made thru the keeping of records.

Administration, if done properly and if the aim to be accomplished by it is a proper one and clearly defined in the mind of the person who keeps the records or causes them to be kept, is an expenditure of time and money which pays handsome dividends.

The aim of the record-keeping which we recommend to the service engineer is that of determining his cost of service,

of determining the prices he must charge in order to exist, and to know whether the business is making money or losing it.

Properly kept records are an advantage because they provide the answer to such questions as:

How much money have I taken in and how much have I paid out?

When did I take in that money and what did I spend it for?

Am I paying more rent than the business warrants?

Can I afford to buy that new oscillograph now, in two months, or ever?

Can I afford to spend as much as I do on sales promotion, free service calls, advertising?

Can *my* business stand the cost of the service car or shall I get the trucker to haul my sets to and from the shop?

How much business did I do last year compared to this year; January of last year compared to January of this year; any month of last year compared to any month of this year; what seems to be my slack period; which is my busiest?

I need more money personally; can I pay myself more; if so, how much more, or should I take less?

Can I afford a helper to do the simple work?

In case of necessity, what is the lowest service charge I can afford to make before turning down a job for a customer to whom charges are always "too high"?

What is the actual cost of one hour's service; what expenses go into the making of that cost; how do I calculate that cost and know it is correct?

Business records are a real necessity in some circumstances. Suppose your business expands and you need some ready cash quickly. If you can give your banker a proper statement of your business, he will probably lend to you at 6% per year. But you need proper records from which to prepare a proper statement if you hope to persuade your banker to oblige you. The banker may be willing to assume the risk for a return of 6% per year or ½% per month, because your business records, if properly kept, enable him to define the exact extent of the risk he takes.

If, on the other hand, you do not have business records, you will have nothing but your personal, unsupported statement of the condition of your business. While the banker would have no reason to question your veracity and might be willing to accommodate you, he cannot do so either in fairness to his depositors and stockholders, nor to the satisfaction of the state or Federal bank examiners.

Should you need that money badly enough at the time, you would have to go to a concern that lends money at from 2½% to 3½% instead of ½% per month. They would lend you the money at those exorbitant rates if you signed over to them both your business and your earning power. And the reason such concerns are permitted by the authorities to do business at those rates and on those terms, is because such concerns lend money where the risk is not defined. The risk they take in lending money to the proprietor of a radio service shop who does not have proper records of his business is decidedly undefined.

Municipal, state and federal expenditures require more money at the present than ever before. Since these forms of government have no other income than that derived from taxation, we have witnessed and are witnessing new and additional taxes. Few states at present do not have a sales tax. More and more states are levying income taxes and taxes on proprietorships, partnerships and corporations. It has come to the point where it is difficult to invent new methods of or discover new sources for taxation. The inevitable result will be, and signs are pointing that way, that these various branches of government will increase collection efforts in order to realize all that can be raised under taxes now in force. In other words, the municipal, state and federal tax collectors are beginning to crack down more and more.

The man in business who does not keep some appropriate records of his business transactions, his gains or his losses, is at the mercy of these tax collectors who by reason of the nature of their occupation look with distrust upon failure to keep records and class this among methods of tax evasion.

Unquestionably, a man in business, be it radio service or any other form of commercial endeavor, owes it to himself to keep records in connection with his business. He owes that to himself for his own protection and to lay the practical

foundation for business success. Unless he knows at a glance what he has done, in the way of business, how he has done it and when he did it, he is emphatically not in a position to plan his future. He has no guarantee that all his thought, his labor and his hopes are not being wasted in the promotion of a failing enterprise.

. . . . . .

If, at this point, we have succeeded in making clear why there is an advantage in keeping records and a disadvantage in being without them; if so far you generally agree with us, we shall be guilty of omission if we do not also indicate a very necessary principle which must be observed.

It is possible, although not probable, that in reading this you are so thoroughly convinced of the need of records, that your newly acquired enthusiasm may lead you to over-indulgence. Just as it is possible to eat too much or to drink too much or to exercise too much, so is it possible to do too much record-keeping. If that happens, record-keeping will be an unnecessary expense and a waste of time. As in all other activities we must consider the principle of balance or proportion. If one adopts a balanced diet, one will eat neither too much nor too little.

Thus, in the keeping of records it ought to be clearly understood that record-keeping is only a means to an end, and that the records should not exceed the modicum required to show the result of business activity. It ought to be understood that the detail into which record-keeping goes ought to be commensurate with the size and the nature of the business and that the whole scheme of record-keeping should be designed with the idea of practicability in keeping with the average administrative ability. Business should always be the main consideration and the records should be designed to fit the business, and not the business carried on to fit the bookkeeping system.

A man who does a gross business not exceeding $5000 or $6000 a year in the radio servicing industry does not need the bookkeeping system which is necessary for a man doing $30,000 to $35,000. As a matter of fact, a man doing a business of $5000 to $6000 a year can get along nicely and fairly satisfactorily with a simple, non-theoretical set-up that will require little office time and bookkeeping knowledge to be

properly maintained, while the man who does $30,000 a year in all probability is in a position where he can and must hire a bookkeeper to produce records of any degree of reliability.

The main objection of the average radio service shop proprietor as well as the proprietor of a grocery store, drug store, cleaning and dyeing establishment and other small business has always been a mental picture of fright at the complications of bookkeeping. All his time is required to run the business. It is, so to speak, a "personally" conducted business and he has neither the training, the leisure nor the desire to become lost in the complexity of double entry bookkeeping. Therefore, he has not kept records.

It is the intention of this booklet to outline the method of keeping records for a small business and to set up forms which the small shop owner can keep with a little study and no confusion caused by complexity. However, the shop owner who wishes to have a more elaborate scheme than the one we produce can probably indulge himself at little additional cost, because in most communities it is always possible to find bookkeepers who for a nominal fee will do the bookkeeping for the average establishment in their spare time, providing the proprietor of the business is careful to save and file all his business papers for the part time bookkeeper to refer to.

So much then for the discussion of the why and wherefore of record-keeping. Let us now take up the items concerned in the operation of the radio service shop and the manner in which they can be recorded to the best advantage.

Chapter II.
THE BALANCE SHEET

The Assets

The only reasonable purpose of keeping records in any business is that of providing the owner or other interested parties with statements correctly showing the values which are combined to make up the business, and what happens to these values in the operation of the business.

As a result, two major forms of statement have become universally acknowledged as providing those interested with:

(1) The status of the business at a given moment.

(2) The result of the internal transactions in the business over a given period of time.

The first named picture of the business is that represented by the Balance Sheet or the Statement of Assets, Liabilities and Net Worth at a certain date.

The second portrays the net result of transactions during a given period and is called the Operating Statement, or the Statement of Profit or Loss.

Of course many other statements concerning a business can be prepared and are continually being prepared, their nature depending on the character of the business and the desire for information of the proprietor or the executives. Generally such statements are the result of a desire to further analyze the various phases of operations and they usually appear in increasing number and variety as the complications in a business become greater.

A small business, however, neither has need of nor can it afford such statements, usually described as statistical information. The radio service organization, with whose activities this booklet deals, partakes of the simpler nature even when such an organization buys and sells a few radio sets in addition to performing its service tasks.

Because we wish to approach the problem of records in the least profound manner, we will not take any of our space, or the reader's time, in describing any records which, in our opinion, are not essential to the practical control of the average service business.

Therefore, we will consider the two statements, the Balance Sheet and the Profit or Loss Statement as the two basic statements most appropriate to the type and size of business most generally encountered in the radio servicing industry.

The Balance Sheet represents the "status quo" of the business as at the date on which it is written up. A Balance Sheet might be considered as a still picture, a snapshot of the business. It should always bear the date as of which it was written up. Without the date it has no value, because as soon as one transaction takes place subsequent to the date of the "writing up," that one transaction changes the items on the balance sheet. It may not change them all, but it will change at least two of them. A ticket for a world series baseball game is good only for the day the game is to be played at the ball park indicated. The day after the game that pasteboard will have no value when it comes to gaining admission to the ball park.

A Balance Sheet is likewise. One taken off on February 28th, is good only as of that date and does not show the condition of the business as it is on March 31st—if the business is a going concern.

While the Balance Sheet is extremely important, its limited value is pointed out in the preceding paragraph. It is the only means a proprietor has of getting a good look at his business "standing." He might deceive himself greatly by looking at a correct Balance Sheet three months old and concluding that he is still sitting pretty. Unless the Balance Sheet is brought up to date whenever needed, or taken off afresh, it has no current significance.

This does not mean however that any Balance Sheet a month or more old is valueless and might as well be thrown away. By all means save them all carefully and file them safely once you get started taking them off, for like many an-

other thing, the value of your balance sheet is enhanced with age. It is the value for comparative purposes.

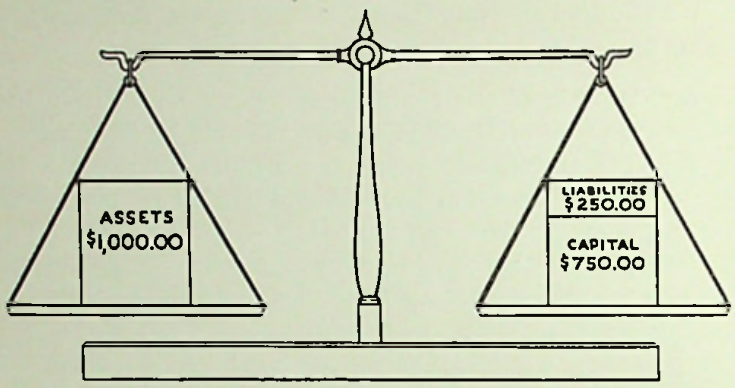
We mention the value of the balance sheet for "comparative purposes."

Any records of the business, if properly prepared, have the instant value of showing the owner how he is doing currently in the matter of dollars and cents. But beyond that these records if preserved and laid side by side or "compared," provide the owner with the yardstick of performance. They will tell him whether he is advancing consistently or spasmodically and thereby serve to confirm him in the way he is handling his business or warn him to mend his ways, if he expects to make a success. They tell him: "At a certain time you were doing pretty well, then from that time on to that date you certainly were slipping; then you seem to have started to pull yourself together and at the moment you seem to be holding your own." The wise shopowner will try to discover the reason for these differing degrees of temporary success or failure and learn how to avoid the deeper of the pitfalls henceforth. There is no better formula for success in any line than the application of the owner's best thought, attention and skill to his business combined with a true knowledge of the condition of his business at any given time and of the meaning of the changes taking place therein as time goes by. Proper records of past as well as present conditions are the best possible sources of correct information and guidance. Hence the suggestion that you decide to save your records once you start making them up.

The Balance Sheet is so named because of the character of its make up. We all have seen the old fashioned scales or balances which once were in use by every grocer, butcher and baker. The weights were put in one of the scales, the bag of sugar, the leg of lamb or the cookies in the other side. When the scales balanced perfectly we assumed we received the correct weight of whatever goods we were buying.

The Balance Sheet is exactly the same kind of device except that one side of the scales holds the "assets," the other side holds the "liabilities" and with them the "capital" of the business. The scales should balance. It is true that for these

"assets," "liabilities" and "capital" we substitute their money values, because the scales we use are drawn on paper, thus:



And since we are not using weights but money values as measures, it follows that the value of the "assets" must equal the value of the "liabilities" plus the "capital." In the scale we have pictured that as so; the "assets" are $1,000.00 and "liabilities plus capital" are also $1,000.00.

It is, however, not customary to draw a picture whenever a balance sheet is desired. Furthermore, the picture drawn does nothing more than illustrate the fact of the balance which must exist in the condition of a business.

Let us write the picture instead of drawing it and present it in the conventional manner thus:

BALANCE SHEET

Expert Radio Service Co.
Tom Jones, Proprietor
As at December 31, 1935

Assets		Liabilities and Capital	
Cash	$500.00	Owing for Shop Equipment	$250.00
Shop Equipment	300.00	Capital	750.00
Service Car	200.00		
Total Assets	$1,000.00	Total Liabilties and Capital	$1,000.00

The written picture also balances, but it is more illuminating because it describes the items making up the balance sheet and shows their value, individually and in the aggregate.

The "assets" are the items which the business owns or possesses. The "liabilities" are the items which the business owes, or claims against the business. The "capital" is the item which the business owes to the proprietor or proprietors. The statement shows the value of the business at December 31, 1935. That value is the difference between the total value of the assets and the amount of the liabilities. In other words, if Tom Jones were selling his business on that day, he ought to get $750.00 out of it. He would do that by paying the $250.00 he owes on his equipment and selling the equipment and the car for $500.00. With the $250.00 left in the bank he would realize $750.00.

That is true only in case the shop equipment is worth $300.00 and the car $200.00 and there is $500.00 of cash. If any of these items are worth less than the amounts shown, Tom Jones can not hope to realize any more than they are worth. If Tom Jones made a false statement out of his balance sheet, Tom Jones was very foolish. It may be a serious offense, that of making false financial statements regarding a business when these statements are falsified with the intent to deceive or defraud a purchaser or for the purpose of obtaining a loan or a partner.

If the statement is not falsified with the intent to deceive, but merely because the owner wishes the business to look good to himself, the whole thing is senseless, because the owner tries to fool himself despite his better knowledge.

Therefore, it is of the first importance that any business man, making up a balance sheet of his business for any reason whatsoever, value his assets at their correct worth, taking care, in case of doubt, to stay at the low side of values rather than at the high side regarding the assets or that which the business possesses, while the liabilities should be stated at their fullest figure and are better stated on the high side than the low side. If that policy is faithfully adhered to, the difference between the assets and liabilities will always be an honest figure and show the conservative worth of the business. Moreover, since the investment represented by the net capital is the automatic result of establishing the difference

between assets and liabilities, that policy will always show the owner's investment at its correct value.

The upright and capable business man never overvalues his assets nor does he understate his liabilities, because to him his business records are the navigating instruments by which he steers the course of his business.

We dwell at length on the balance sheet because it is the starting point of all business records; it is considered the basic statement. It establishes the foundation for the records, because it fixes the values out of which the business is made up.

The balance sheet therefore is the starting point for the records which thereafter will set out the success or lack of success of the business. The first balance sheet made records the condition of the business as of the date it bears. Subsequent balance sheets will set out the condition of the business at future dates. Comparison of these future balance sheets with the initial balance sheet will enable the proprietor to determine whether the business has made progress, held its own or lost ground (and capital) in the interim.

In preparing this text we desired to make it useful to all service men. We consider two categories:

First: The service man who has been in business for some time, not keeping proper records, and wishes to start keeping records.

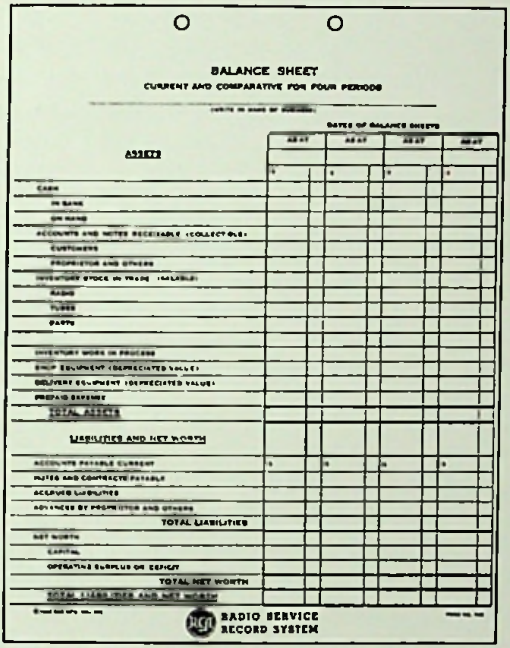
Second: The service man who is planning to start business and wishes to start keeping records at the same time.

A service man in the first category probably knows, in a general indefinite way, what he started with when he began business, but the likelihood is that he does not know the values of those assets after two years use nor the present value of the capital invested in the business after two years operation.

A service man in the second category knows what he has to start with but may not know how to fix the value of his investment or capital.

We believe that it will be of assistance to both categories to enumerate and describe the items generally present in a servicing organization and indicate what we consider the best manner of recording these items and the changes occur-

ring in them, consistent with our idea of the needs and limitations of such an organization. Also to indicate how starting values should be determined, how to determine the value of the business investment and to show the relation between the capital originally invested and the present value of the investment.


BALANCE SHEET

CURRENT AND COMPARATIVE FOR FOUR PERIODS

ASSETS

LIABILITIES AND NET WORTH

TOTAL LIABILITIES

TOTAL NET WORTH

RADIO SERVICE RECORD SYSTEM

FORM 785, THE BALANCE SHEET, need be made up not oftener than once every three months.

Before we do this, however, we make bold to insert a pertinent suggestion which may save you a lot of time. It is this:

> Unless you are willing to promise yourself that henceforth you will conscientiously distinguish between your private affairs and your business affairs, you may stop reading now and put this book away, because it will not be of much help to you.

As we progress, the reason for this suggestion will show repeatedly and in a way, we believe, which will leave no question as to its sincerity.

Cash. The item of "cash" on a balance sheet represents the amount of cash on hand at the date of the statement. Sometimes the item is labeled "cash on hand and in bank." This indicates that the major portion of the cash is in a checking account and that a small amount of cash called "petty cash" is kept on the business premises to meet small expenditures which do not warrant the writing of checks.

The proprietor must not consider the business checking account as his personal checking account and use it to pay his household or personal expenses. The business cash in the bank should never be touched for other than expenditures in connection with the business. The owner should take out of that cash no more than his fixed salary or his fixed drawing account. If, in case of real necessity, the owner takes some of the funds of the business, he should set them up on his records as an "advance to the proprietor" and repay it at the first opportunity. This is one instance where a man may mix his private affairs with his business affairs.

The same thing holds true for the "petty cash." In a number of service organizations the premises will not be suitable for the keeping about of any cash and the proprietor may carry the petty cash around in his trouser pocket. He should not however, consider the business petty cash as his private pocket money and he should pay for his cigarettes, cigars, lunches, shoe-shines and movies with his own money. He should make notes of expenditures of petty cash for business purposes and when the fund is nearly spent, replenish it by check but only for the amount of the legitimate expenditures of the business. If here again he mixes his private affairs with his business affairs there is little or no sense to his keeping records in the hope of controlling his business. Invariably he will find that it costs too much to run the business and too little to live, for he charges his living costs to the business, at least in part, while the salary he draws or the weekly drawing account he has already charges the business with more than his living expenses.

No true picture of the expense of the business is available to the man who mixes his business cash with his private cash. A man doing so and intending to continue wastes his time in keeping records.

The business cash when warranted should be handled through the bank and checks issued when amounts paid are large enough. There is no better proof of payment than the cancelled check, and the danger of loss of considerable money carried around in wallets, trouser pockets or hidden behind a workbench is eliminated.

Cash received should be frequently deposited and in total. Do not hold out a couple of dollars. Surely you own the entire business, but the business owns the cash it takes in. That proprietor is really silly who snatches a couple of dollars from his own business while he owns it entirely. If, as is often the case, someone else has a participating interest in the business it is worse than silly.

A record should be kept of cash receipts and cash disbursements and if all receipts are deposited in bank and all withdrawals made by check, the monthly bank statement should agree with the cash record balance after reconciliation. This is another advantage of correctly dealing with your own business for in this way the bank, which more often than not is an excellent bookkeeper, checks your cash record for you.

Thus as far as cash is concerned, it being the first item on the balance sheet, it is also the one item whose amount if stated correctly on the balance sheet is always worth its face value, which is more than can be said of the other "assets" on the balance sheet.

Accounts and Notes Receivable. This item is often subdivided on the balance sheet in order to distinguish between that which is owed the business by its customers and that which is owed the business by its proprietor, its officers or employees. This distinction leads to two headings,

(a) Accounts and Notes Receivable Trade

(b) Accounts Receivable, Proprietor and Employees

Accounts and Notes Receivable Trade. Trade accounts receivable arise when a sale is made of time or parts, or time and parts, and payment in full is not received when the job is completed or the sale is made. In other words, trade receivables are created when credit is extended for the entire amount or any part of a service charge, a sale of goods or both.

In this connection it is well to insist that the service man have fixed terms of payment. Cash on delivery is the ideal

method. It cuts short bookkeeping, it cuts short collection worry and effort. It eliminates the chiseling of customers who want to pay all right, but always *less than the amount of the charge.* The service man, having no security once he has given up the repaired receiver, is often tempted to cut something off his charge to collect the bill. That is not unusual in any other line of commercial endeavor. "Cash on delivery" goes a long way towards curing that, but it is often an impossible condition.

Therefore, extend the terms which are usual in your vicinity if you must do some of your business on a credit basis. In that event always try to find out what your customer's reputation is, if you can, and find it out before you do the job for him. Does he pay his grocer, his milkman, his butcher or his coal merchant? Does he pay his rent? Is he gainfully employed? The service man owes it to himself to find out what his chances are of getting paid. It is much cheaper to turn down a job, than to do it and spend as much time and money again to collect. In your advertising do not specify credit terms or easy payments. Give credit to a decent risk if necessary, but be careful about extending credit at all times.

You need but fail to collect for a few jobs in order to destroy the profit on a great number. Suppose your average net profit is 20% of your bill. If you fail to collect for one $5.00 job, you have to get four other $5.00 jobs and collect for them in order to get the cost of the uncollected job. If your net profit is 10%, you have to do nine other $5.00 jobs and collect for them in order to get back the cost of the $5.00 job for which you could not collect. Just remember that after you have done 10 jobs at $5.00 each and collected for 9 of them, you will not have made one cent of profit. So much for the extension of credit.

If you have to do business on a credit basis, you must see to it that your customers get an invoice when the job is delivered and that you keep a copy of the invoice in your file. That copy should be a true or carbon copy. The invoice should show the customer's *correct* name and address, the date, describe the receiver repaired by manufacturer's model designation, serial number and type. If you took out the chassis and left him his cabinet, that should show on the invoice. If you took the speaker only, that should show. Show the amount of

the charge plainly. On the copy, the customer should sign for the receipt of the repaired receiver, unit or part thereof.

These suggestions are made in order to facilitate collections and to have the necessary papers to support the total of your accounts receivable. If you do the above, you'll always be able to prove your account and produce all the necessary data which are required in a forced collection.

Mention may be made of possible court action in which you might participate as either the plaintiff or as a creditor. As long as you are in business the possibility exists. Be sure that you can always prove your claim against anyone in a collection proceeding or a bankruptcy proceeding.

If usually you have but few accounts receivable, that is few credit customers, you could get along with a file in which you keep separately your uncollected and collected accounts. But whether you have few or many accounts it will be wiser to write them up on the Accounts Receivable Statement which we provide for you with this plan. You will find a sample of that form and a full description in Chapter IV.

The Accounts Receivable Statement is an important record because it provides a list of those who owe you money and a record of payments that have been received.

Something else in connection with trade accounts receivable which is of importance to the Balance Sheet, particularly if you intend to write one to determine the capital of your business, is the following.

When totaling up your receivables, do not include any which you know you'll not collect. Any receivables which you know you'll collect in part only should be included only as far as the collectible amount is concerned. In other words, set up only the real value of your receivables and not necessarily the face amount. If all are good and collectible the face amount is the value. Any of these accounts on the balance sheet which are not worth the amounts appearing on them will be reflected in your capital but only as so much water which ought to be squeezed out.

Accounts Receivable Proprietor and Employees. "Accounts receivable proprietor and employees" are created by advances to those persons, parts purchased by them and not paid for, services rendered to them by the business or personal payments made by the business for their accounts.

The proprietor may use the service car for personal use, *while all the expense in connection with it is charged to the business.* The business then renders the proprietor service and the proprietor should pay for it. If he does not he mixes his business and personal affairs. We said the proprietor should pay for this service and so he ought in good coin of the realm. Should he elect not to do so, he should at least be charged with the cost of the service and the business receive credit for it on the records. Otherwise, the expense charged to the business is incorrect.

Perhaps the proprietor uses some of the petty cash to buy little things for himself. Those things should be charged to him personally. Having control of the checking account he may draw a check for personal use; that should be charged to him, if it is not for wages or the regular weekly drawing account.

Anything the proprietor takes out of the business in the regular way is a legitimate expense of the business and should be absorbed by it. Anything the proprietor takes out of the business in an irregular manner should be charged to the proprietor under "accounts receivable," whether it be cash, goods or services.

The same thing holds true for the employee who gets an advance on his salary, or takes home a part or a tube without paying for it.

If you desire a correct picture of your business you must do the things recommended above. If they are not done your balance sheet will not show correct values and its worth as a reliable picture of the business will be greatly reduced.

Inventory of Stock in Trade. It is our understanding that the average radio service organization does not stock up heavily on parts. That seems both logical and fortunate. Logical, because with the multitude of receivers of different design, it is impossible to determine what items should be carried in stock.

It is fortunate because any and all inventories of stock in trade are, to a degree, subject to ultimate unsalability due to obsolescence, and that means loss. But whatever stock is carried should be properly controlled and valued. Control is necessary in order to know what is on hand and not to err in ordering some part which is in inventory but overlooked due

to lack of inventory records. A simple card file alphabetically or numerically arranged or both will fill the bill. A card for each part number with proper description of quantity and cost should be kept.

How stock on hand should be valued is important from the balance sheet standpoint. Cost is all right, provided no reductions in cost occurred since the part was purchased or acquired, and the part is not obsolete. Of course, the stock must be in good condition. Broken or "robbed" parts are not worth cost. If reduction in price has taken place, the reduced price should be substituted for the cost. If, however, prices have been increased the old cost should be retained, because increasing the value of unsold parts results in a profit which may never be realized, if the part is never sold. Better take the profit when the part is actually used. That, incidentally, is a fundamental rule of sound business: never take a profit until it is earned, but take your loss as soon as it becomes apparent that you will have to take it some time in the future, if not immediately.

The "inventory" item on the balance sheet is the total actual value of the items listed and correctly priced. That holds good for tubes and receivers as well.

Some service organizations dealing in an occasional receiver, strip the old trade-ins for parts and put the parts in inventory, junking the rest. If it is your intention to keep an inventory record, you will list parts thus obtained on your inventory records. The question is what constitutes cost on such parts.

While you owe it to yourself to sell such parts for the best price obtainable, you also owe it to yourself not to price those parts for inventory purposes in excess of the cost to you of the old trade-in plus the labor required to salvage the parts. These parts are obtained on speculation only, you hope to have use for them, but you may not. They are not like the parts you purchase for a repair job in process of completion. Therefore, be reasonable in pricing these parts for stock purposes and do not fool yourself by giving them a value higher than cost to you.

Once a year at least, go through your inventory and make an honest study of the unsalable parts. If any have fallen

under that classification during the year, such parts should not be valued at all for balance sheet purposes.

Inventory of Work in Process. Very often, at the time of setting up the balance sheet, usually at the end of the calendar month, some uncompleted or unbilled jobs will be in the workshop. Labor has gone into these jobs, and overhead. Also parts or tubes may have gone into them, and have been charged to the jobs. These parts or tubes have been taken out of the inventory and put into the job while the labor has been taken out of expense. Both material and labor to date have been charged to the job. Therefore these uncompleted or unbilled jobs must be set up by themselves on the balance sheet as such. Otherwise their value will be overlooked and their absence will make it appear as if you had suffered a loss to the extent of the material, labor and expense which has gone into them. The item "inventory of work in process" is designed to take care of this situation.

The real cost of service work done during any one month more than likely will *not* be the cost to you of the material, labor and expense *which went into the jobs delivered during the month.* The real cost of service work done during the month is made up of:

1. The cost to complete repair jobs unfinished at the end of the preceding month *and delivered during the present month;*
2. The cost of repair jobs started, completed *and delivered during the present month;*
3. The cost to date on jobs started during the present month but not completed *and to be delivered after the close of the present month.*

The cost to date of the jobs in the third classification should be shown as "inventory work in process" at the end of the month.

It is necessary to do this because the sale is made only after a job is completed and delivered. Whether the job is paid for on delivery or whether it is done on a charge account to be paid at a future date is immaterial. For the purposes of the balance sheet and for keeping records generally, a sale is considered income.

Now then, the difference between the income derived from the sale of a repair job and the cost of doing the job, namely, the cost of material plus labor plus expense accumulated against that particular job, is the profit, provided the income from the sale exceeds the cost of the job. You can readily see that it is therefore absolutely necessary, in order to determine the correct result of your operations, that the monthly cost which you want to compare with the monthly income from sales, be made up only of the cost of the items sold during the month. Should you include in that monthly statement any unfinished repair jobs on which the sale has as yet not been consummated, you put your operations in a false light, because erroneously you show a smaller profit or perhaps a loss, while in actuality you made a greater profit or broke even on your month's operations in the shop.

Setting aside, so to speak, the cost of your uncompleted jobs at balance sheet time under "inventory work in process" will save you from that error.

Ordinarily, that will not be an impossible task with the aid of the Service Job Cost Card which is among our printed forms. While the caption "inventory work in process" looks technical, in reality it is a simple cost finding device.

The total "inventory work in process" at balance sheet time is the total of "time," "shop expense," "material cost" and "transportation cost" (if any) charged in the "cost section" of the Service Job Cost Cards which at that time have not yet been billed to the customers who ordered the service jobs done.

Shop Equipment Valuation on the Balance Sheet. The item "shop equipment" on the balance sheet, an asset also, represents the current value of the equipment in the shop which is needed in its operation. This item includes the value of the tube tester, oscillator, oscillograph, and other test instruments.

What is the correct valuation of the equipment for balance sheet purposes?

In the event of a purchase of equipment, the value obviously is the cost of acquisition, or, what is paid for the equipment provided the purchase price is not too unreasonably high at the time of purchase. Equipment purchased at bargain prices should be set up at the purchase price also, despite the fact that it was worth more than was actually paid. Since the balance sheet deals with the investment it is obvious that

no man is justified in valuing at $400.00, equipment he purchased for $200.00. It is merely another instance of being honest with one's self and while the higher price may make the investment look "bigger" and therefore more "important," the other side of the story is that the higher the equipment valuation is on the balance sheet, the greater becomes the every day operating cost of the business. We will show that a little further on. Our advice, therefore, is never to increase your own valuation of your equipment for balance sheet purposes over and beyond its actual cost to you.

Some equipment may be made up of certain purchased parts which were put together by the proprietor. In that case the value should be that of the parts and the labor required to build the panel, provided however, that value does not exceed the cost of similar equipment if purchased complete at the time. To illustrate: A man may build himself a piece of test equipment. The total cost of parts and labor is $75.00. It may be possible to purchase such equipment complete for $50.00. The valuation of that equipment should not exceed $50.00 on the balance sheet.

Many service men have panels constructed by themselves for test purposes. Probably a lot of time and material have gone into these panels. The memory of the hard task so well accomplished may tempt a man to ascribe to them values greatly in excess of the real value. Do not be sentimental, be honest. These panels are not any better and probably not as good as similar equipment purchased complete and the value certainly should not be more, perhaps the same, perhaps less.

In the case of the service man who has had his equipment for some time and who has kept no records, the purchase price, if remembered, is the value to use. If that price is forgotten present day market price less depreciation to date should be used.

Soldering irons, tuning wands, alignment tools, screw drivers, tweezers, pliers and wrenches should not be considered as equipment. They are small tools and inexpensive. Moreover, they easily become lost or disappear otherwise. Do not include them in the value of your equipment but consider them as items of expense.

Delivery Equipment. Practically all service organizations have a car or delivery truck used in the business. Mostly this

automobile is used privately as well as in the business. Unless the business use is much less than the private use, the automobile should be considered as part of the business equipment. For practical purpoes the cost of the auto should include the finance charges, if any. If, for example, the automobile cost $250.00 and the finance charge is $40.00, the value on the balance sheet may be considered as $290.00. This is not the best or most correct valuation, but to break this valuation down into cost of automobile, finance and insurance charges would lead to complications in record keeping too great for a service man to successfully cope with. On the other hand, the paid out cost of the car is $290.00.

If the automobile is used for business only, then all the expense of operating it should be borne by the business. If, however, the car is used partly for business and partly for private purposes, the expense coincident with private use should be eliminated from the expense of the business and charged to the proprietor. How car expense is calculated and how that expense is divided according to the use of the car is shown in Chapter VI, Estimating Shop Expense.

Equipment and Its Depreciation. Nothing in this world lasts forever. All things suffer wear and tear, due to use or the action of time and the elements. The equipment of the service organization is no exception to this rule. And while the wear and tear may be slight, another factor tends to make equipment useless and therefore valueless. Equipment becomes out-of-date or obsolete.

This fact should be reflected in the value of the equipment in a going concern. An oscillator or oscillograph having been in use for two years is not worth the same as the new oscillator or oscillograph. That such is indeed true is proven by the fact that second-hand or used equipment can be bought at far less than new equipment and that the usual manufacturer's guarantee does not go with used equipment.

Obsolescence as a factor in the radio servicing industry need hardly be explained at length. Due to frequent changes in design and improvement in technique, testers and service equipment often become out-of-date long before they are physically worn out.

The combination of these two factors is called "depreciation" and depreciation should be reckoned with, because it is

an expense of doing business. The expense connected with being in business is never fully stated unless included in it is the element of depreciation of the equipment used by the business. In the cost of doing business, the periodical decrease in value of equipment should be included.

Consider the service automobile. Automobiles decrease in trade-in value each year. That decrease takes place regardless of the amount of use and regardless of the care expended on the car. And that reduction in value is over and above maintenance and operating cost. A car purchased for $290.00 including finance charges may, after two years use, have no greater value than $50.00 towards another car. During the two years the expense due to depreciation is $240.00 or $120.00 per year. If, in calculating the expense of doing business that $120.00 per year item of depreciation is not considered, any service charge per hour, based on the expenses of the business, will fail by $120.00 to realize that expense. Any balance sheet which fails to take into consideration the reduction in value of that service car after one year's use will show fictitious capital or profit at least $120.00 in excess of reality. In other words, failure to consider depreciation of the service car results in a partial loss on operations equal to the amount of the disregarded depreciation item if the charge to the customer is based on the cost of service rendered.

Now also consider the service equipment. Suppose that we estimate the total value of equipment to be around $500.00. How fast does that equipment wear out and how long will it take to become obsolete? It is difficult to make a worth while prediction in that regard. One thing is sure however. The service organization which will prosper is the one whose up-to-date equipment enables it to compete regarding the service charge, both as to labor saving in the diagnosis and the correctness of the repair work done. Such an organization may well consider five years as the limit of the useful life of the equipment. In that case the value of the equipment should be fully depreciated in five years or at the rate of $100.00 per year. As in the case of the service automobile, unless in the expense-of-doing-business figure which is used as the basis for the cost of service is included $100.00 yearly for depreciation of equipment, each year will result in a partial loss on opera-

tions of another $100.00 due to neglect of the cost of depreciation. At the same time, if equipment values are not properly reduced on the balance sheet, it will show capital or profit in excess of reality and equal to the amount of disregarded depreciation.

In a shop where the hourly cost of service is based on 1000 productive hours per year, failure to consider as cost the depreciation on automobile and equipment totaling $220.00 per year, this failure means a difference of 22 cents per service hour. In other words, if the proprietor of the shop has figured $1.25 per hour as the cost of his service, or the amount he must get to earn his salary and the expense of his shop, then each time he has charged $1.25 per hour he has given away to his customer 22 cents for each hour charged, because he ignored depreciation.

Suppose, moreover, that this shop was capitalized at $1000.00 when the owner started in business, then in the short space of 4 years and 7 months this proprietor will have given away his entire capital to the public at the rate of $220.00 per year. That is not good business; it is not even poor business because it is not business at all. We do not believe that a service organization is a philanthropic institution and therefore urge consideration of depreciation for balance sheet as well as operating purposes. Another thing is that the smaller the business, the greater the need of considering every angle of expense. A small business has not much capital to lose until it has no capital at all.

A further explanation showing how to apply depreciation to the cost of doing business will be found in the chapter devoted to determining shop expense, Chapter VII.

Prepaid Expense. In all organizations there are items of expense for which payment has been made and which have not been fully used up at the time of the preparation of the balance sheet. Take for example fire insurance, which often is bought for a three year period, public liability and property damage insurance on delivery equipment bought for a year; a city or state license to do business bought in March for the ensuing year. Such items should not be considered an expense of the month in which they were bought or paid for, but should be spread out over the period they cover. Any unused portion of such expenses should be set up on the balance sheet as

"prepaid expense." If automobile insurance is bought in July for $40.00 covering a year, until July of next year, then at December of that year one half of that amount or $20.00 is prepaid expense. If the city license runs from March to March then at the end of the year three months is a prepaid expense.

One thing to guard against is unnecessary bookkeeping. If that city license is only $6.00 per year, the trouble of spreading it out is greater than the benefit of the result achieved. Should it be $60.00 per year it will be worth while to set up the prepaid portion.

The rule is to make segregations only when failure to segregate or subdivide would give noticeably incorrect operating results. In a business, the size of the average service organization, the item of "prepaid expense" at any time may be negligible and the practical thing to do would be to ignore it.

Chapter III.

THE BALANCE SHEET

Liabilities and Net Worth

We have listed the items which a business usually owns, its "assets." Now we must list the items which a business usually owes to others, its "liabilities." The difference between the assets and liabilities, if any, represents the capital of the business which the owner contributed plus or minus any profits or losses that may have been experienced since the proprietor started in business.

A "liability" is a good claim held by an outsider against the business. For example, if parts or tubes are purchased on open account, that is not paid for C. O. D., the wholesaler selling these parts has a good claim against the business. The business has a liability to the wholesaler for the price of parts so purchased. When the business pays for the parts or returns them and the wholesaler accepts the money or the returned parts that liability is extinguished. But as long as the wholesaler has not accepted the money or the parts in return, the liability continues to exist. This is particularly true when parts are returned to the wholesaler and he refuses to take them back. The mere return of purchases does not cancel liability. The vendor's permission and consent are necessary, or the purchases must be clearly different from what was ordered. When a wrong part is sent by the wholesaler while the order showed the correct part; when the proper part is sent, but found to be defective; or when five parts are sent when two are ordered and returns are made under those conditions, the wholesaler has no choice as to acceptance and your return of the parts or tubes cancels the liability. If, however, a wrong part was ordered through the mistake of the service man, or a part ordered and later found to be not needed, in other words, if the wholesaler is not at fault, his acceptance of the goods returned is necessary to cancel the liability. Under these circumstances, the wholesaler may decide not to take back the purchase and the business owes him for it, just as if the part could be used.

An unpaid bill for gas and electricity used by the business is a liability. Wages earned by but not paid to either the proprietor or his helper are a liability of the business. Transportation charges on goods shipped or delivered are a liability until paid.

It is immaterial whether you have an invoice or a bill for goods bought by or services rendered to the business. The liability arises as soon as the goods are received or the services performed. And if your balance sheet is to be a true balance sheet, you must set up as liabilities, all the things for which the business owes anyone.

It is possible that taxes may be due and payable once or twice a year and that no bill is rendered or demand made except at the times payments are due. The business owes such taxes nevertheless, and as time approaches the due date the liability grows. Suppose certain taxes are payable in June and the amount is $60.00 per year. This means that while the business is not billed until June for taxes on the current year, yet at the end of January the business owes the taxing authority $5.00, at the end of February $10.00, March $15.00, etc. Any balance sheet, which is prepared with the idea in mind of showing the exact condition of the business at a certain date, must show as a liability taxes due but not paid.

It is also possible that you may owe for money borrowed from a relative, a bank or a finance company. Of course, that item itself is a liability. Generally interest is charged by the lender and is payable at certain times, monthly, quarterly, semi-annually or annually. Each month that interest should be set up as a liability. Much depends on the amount borrowed and the rate of interest charged, $100.00 at 6% amounts to only $6.00 per year. That amount of interest is hardly worth bookkeeping even if the rate were from 7% to 10%. But $300.00 borrowed from a small loan company at 3½% per month will cost you $10.50 in interest the first month and thereafter the interest reduction will be only 35c for every $10.00 of principal paid off. Such interest due should be set up as a liability if not paid at the date of the balance sheet. Incidentally, that rate of interest should teach a man to avoid borrowing money from small loan companies if at all possible.

We go into this detail regarding liabilities because the natural inclination is to treat them as lightly as possible or to overlook them entirely. That, as we have said before, is only a way of deceiving oneself because a debt or liability is not discharged by ignoring it. The only way to liquidate a debt or liability is by paying it off, and a very important benefit derived from setting up a balance sheet is that it enables you to ascertain whether your business is burdened by debt in excess of the available cash to pay it off with, or whether you are "sitting pretty" and can afford to buy that much needed equipment or truck, or move into the larger and better premises you'd love to occupy.

Let us now list the main liability items which we may reasonably expect to meet with in the average service institution.

LIABILITIES

Accounts Payable Current. This account should include all debts currently incurred by the organization and unpaid at the date of the balance sheet. By "currently incurred" is meant incurred in the everyday operation of the business. The date on which the debt was incurred has no importance. The nature of the debt and the terms of the vendor determine whether the liability is current or otherwise. For example parts, tubes and supplies purchased on a "10 day 2% cash discount, 30 days net" basis if not paid for at purchase are current liabilities until paid. Whether you have been billed or not at the time of setting up the balance sheet does not matter, as long as you have received the goods and used them or put them in stock and included them in your inventory or charged your customer for them. Any rent due but not paid, a telephone bill, a gas and electricity bill, unpaid subscription for service information or magazines, if you have subscribed for them, are current liabilities or debts. Also, any wages *earned and due* the proprietor or his help but unpaid at the date of the balance sheet. Any unpaid gasoline, oil, garage and repair bills should be included among the current liabilities at the time of making up the balance sheet.

Notes and Contracts Payable. This item on the balance sheet should include all liabilities of the business for which the business has given a note, as in the case of borrowed

money, or signed a contract of payment, as in the case of equipment purchased on the time payment plan. It does not seem necessary to enlarge on the nature of a note payable other than to describe it as a written and signed promise to pay, on an indicated date in a specific manner, a stipulated sum of money. One thing may be emphasized and that is the inadvisability of going on somebody else's note, which is in itself a promise to pay somebody else's debts if he should fail to do so. If this is done as an accommodation, it really means that the business, if it "goes on" or "endorses" a note, puts itself at the disposal of a third party who may in turn ruin the business by defaulting on the note when due.

It is not unlikely that you may have borrowed money from some relative without having to sign a note for it. While it is very kind of a relative to advance money, it is not very wise on his part to do so without getting a note for it. In fairness to yourself you should give him a note, because the note will serve to fix absolutely the amount of the debt and also provide on the back a place to make notations of payment. If your brother-in-law should lend you $200.00, to be paid back as you can, probably neither you nor he will ever forget that the original amount of the loan was $200.00. Your brother-in-law might have difficulty proving that he lent you $200.00 if you choose at any time to deny it. However, when you have paid off $65.00 in $10.00 and $5.00 amounts, over a period of time, you may well believe you have paid $75.00, while he is equally sure you only paid $55.00. Having no original note and no record of payments, the issue will never be settled in a mutually satisfactory way. Our advice then is to make the matter of borrowing money from relatives a real business-like transaction by passing a promissory note and recording payments thereon as made.

The item of "Contracts Payable" should include any balances unpaid at the date of the balance sheet which may then be owing for shop equipment, delivery equipment or merchandise being purchased on a time payment basis. Those balances should include the carrying charges on the time payment contracts. While these carrying charges are not really part of the cost of the equipment, but more in the nature of interest on borrowed money, for the sake of simplicity they should not be separated from the amount due for the equip-

ment or merchandise alone. These carrying charges are actually part of what it costs you to acquire the equipment or merchandise you are buying on the installment plan.

Assume you bought a piece of testing equipment the published price of which was $80.00. Could you have paid cash for it in 10 days, you would have received a 2% cash discount, and the cost to you of the equipment would have been $78.40. Could you have paid for it in 30 days, you would have paid the net price of $80.00, no discount having been earned by you. As it happened, you could not pay for it in either of these two ways, and you bought it on an installment basis of 20% down payment and the balance over 6 months in equal installments. A $4.00 carrying charge was added for the accommodation, making the balance payable (the liability or debt incurred by the business) $68.00. The total cost to you of the equipment thus became $84.00, of which $80.00 is equipment cost and $4.00 carrying charge. The entire $68.00 is the liability or debt you should show on your balance sheet.

The same thing holds good for anything you may owe on the delivery car or truck. Be sure to set up as a liability the total contract balance owing on it as at the date of the balance sheet.

We repeat here our advice not to go easy on your liabilities or debts when you set them up on your balance sheet. Be truthful about them and go to some trouble to get all of them. If that is not done your balance sheet will have no practical value and it will not be the proper start of your attempt to control your business. What is more, failure to get all your liabilities on your balance sheet may prevent you from making the correct calculation of your hourly "service cost" or "shop expense." Since one purpose of your records is to provide you with knowledge sufficient to determine your service cost reasonably accurately, you will be going against your self interest if you omit some of your liabilities from your records.

Accrued Liabilities. The dictionary defines the word "accrued" as follows: "To come into existence as an enforcible claim." In business and in connection with liabilities to be set up on the balance sheet, that definition fits the situation quite well. "Accrued liabilities" are, generally speaking, liabilities which have come into existence during the month, for which the business is not billed at the date of the Balance

Sheet because payment is not due until a later date. They must be set up by the business because if it should ignore them, the actual liabilities of the business would be understated and the proprietor of the business would be fooled. In a large business, some accruals are often overlooked in order to save routine bookkeeping effort and because the setting up of these liabilities would not noticeably affect balance sheet comparison. The theory is that these accruals average themselves month after month.

In a smaller business, such as the average radio service organization where a small amount of expense has a visible effect on the total liabilities for balance sheet purposes, it may well be that failure to accrue expenses at the month's end will result in varied balance sheet totals for consecutive periods, which will cause the proprietor to doubt the correctness of his cost-keeping.

Suppose, for instance, the proprietor gets $40.00 a week and the helper $25.00, Saturday is payday and the end of the month comes on the preceding Thursday. Now the end of the month is "balance sheet time." By Thursday, the proprietor and helper, working a six-day week have each earned two-thirds of a week's wages. That would be $26.67 for the proprietor, and $16.67 for the helper, a total of $43.34 for both. Because that will not be paid until the following Saturday, which falls into next month, the amount of $43.34 is a liability of the business on Thursday when the balance sheet is made up. The same holds true for your rent, telephone and gas and electricity. Your rent may be due on the first of the month and be $25.00 per month. Because it is unpaid on the last day, it should be set up as a debt on that day on the balance sheet. Your telephone bill may run from the twelfth of the month to the twelfth of the next month and average about $6.00 per month. You paid your last bill a week ago and you have no unpaid bill, because the telephone company will not send another again until the twelfth of the following month. Nevertheless, you owe them for service to date, which would be about $4.00. Your gas and electricity run from the fifteenth to the fifteenth. You have not yet paid the bill rendered you on the fifteenth and that is $9.00. That, of course, is a current debt or liability, and you need not estimate the amount. But from the fifteenth to the end of the month you have been using

gas and electric light. For this last half month you have not been billed and will not be billed until next month, but that gas and electricity for the half month is an accrued liability of the business to the gas company. Last bill was $9.00, therefore $4.50 is another liability of the business to be set up on the balance sheet, if a reasonably accurate one is desired. And if the desire is not towards a reasonably accurate balance sheet, it would be wisdom to stifle the wish, because a balance sheet which is not reasonably accurate is of no value, particularly in a small organization.

It may seem to you who read this that we are advocating the opposite of our introductory remarks, namely, a lot of detail bookkeeping. If we aim at one of the declared objectives of this booklet, namely, a reasonably accurate "balance sheet," items enumerated above must be taken into consideration. Therefore, in advising you to do so we do not ask for unnecessary detail. Taking care of these liabilities as they exist whenever you make up a balance sheet will enable you to look upon it with confidence.

To avoid the danger of becoming confused in your attempt to control your business you must continually remember that your aim in preparing a balance sheet is to portray the condition of your business at the date of the balance sheet as accurately as possible. Any rent, wages, taxes, telephone expense and power and light costs, if unpaid at the time should be shown as owing. The smaller the business, the greater the need of "watching the pennies," and the greater the reward of watching the pennies. In a big business, failure to set up a recurring item of $200.00 on the balance sheet may have no appreciable effect on "net worth," while in your business an omission of $50.00 may be a serious matter.

In determining your "cost of service" we will not ask you to calculate "accrued expense" caused by "accrued liabilities." We only want them on your balance sheet.

Advances by the Proprietor or Others. We indicated before that the proprietor should be charged for any money or services he takes out of the business over and above his wages or drawing account. In the same manner, if the owner should at any time advance money to the business it should be made a matter of record. These advances, of course, are temporary advances and should be paid back to the owner, just like the

owner should pay back advances he takes from the business. There is this difference however. If it is continually necessary for the proprietor to advance money to the business, this shows that the business does not have sufficient funds to operate. In other words, the business does not have sufficient capital. Under those circumstances, the proprietor should put more money into the business as capital and discontinue these advances. In doing so the proprietor does not put himself at a disadvantage, because at all events in a business run as a one man business, or a partnership, the owner or the partners are individually liable for all the debts of the business. This means that if the business is unable to pay its debts, the owner or the partners will have to do so themselves anyway. Therefore, rather than continually advance money and have the business pay it back, it is better to increase the capital.

The Capital. The capital of a business is the original investment made in the business by the proprietor and is equal to the difference between the total of all assets and the total of all liabilities at the time of the organization of the business. It is sometimes called the "original investment" or the "invested capital." This "invested capital" can only be increased by the additional investment of money in the business, and decreased by the withdrawal of money from the business. On a balance sheet it is always shown at its original amount.

As the business is operated the earning of profit or the taking of losses will change the difference between total assets and total liabilities. Profits will increase, losses will decrease that difference. And these changes will increase or decrease *the value of the original investment*, while, of course, they do not change the investment itself.

The total of this changing difference between total assets and total liabilities is called the "net worth" and is always stated as the "original investment" plus or minus profits or losses since organization of the business. As long as the total "net worth" is in excess of the invested capital, the difference between these two is called "surplus." When the total "net worth" is less than the invested capital, the difference is called a "deficit."

If the surplus warrants it, the owner can appropriate some of the profit of the business by paying over to himself an amount not in excess of "surplus." When that is done

"surplus" should be reduced. Such a "taking of profit" is in no way an expense chargeable against the business.

Where the proprietor has been advanced some money by the business and a profit has been earned as shown by "surplus" the proprietor can set off the advance against the surplus. In other words, he can take the advance to himself from his records if at the same time he reduces "surplus" by exactly the same amount.

Incidentally the changes from month to month in "net worth" should correspond to the monthly operating results. In other words, if your operating statement shows a profit of $75.00 for the month, your "net worth" should show an increase of $75.00. Conversely, if your operating statement should show a loss of $50.00 for the month, your "net worth" should show a decrease of $50.00 compared to the end of the previous month.

Thus a balance sheet taken correctly at the end of each month will show whether you made a profit or took a loss during the month, but that is all it would show you. It would be of no assistance to you in determining *how* the profit was earned or the loss incurred; it would only state the fact. In order to control your business, you must know the individual items which caused the profit or the loss.

The operating statement, if set up correctly, will show the reason for profit or loss.

A properly prepared balance sheet shows the actual current condition of the business. The individual items on the balance sheet enable you to correctly label the condition of the business in terms commonly used for the purpose.

In order to round out this description of the balance sheet for our purposes we will mention some terms most often used to label a business' condition, and briefly explain them.

Liquidity. A business is said to be in a "liquid condition" when its assets are such that they can easily and readily be converted into cash. Cash, accounts receivable and marketable securities, such as government bonds or other bonds which have an immediate market are considered liquid assets. There is, however, always a doubt regarding receivables, unless it can be demonstrated that the accounts are due for payment in the very near future and that there is no doubt of their being paid when due.

It is desirable to keep the assets of a business as liquid as possible. Which is just another way of saying that it is unwise to tie up the operating funds of the business in equipment that is not needed for its efficient operation, no matter how cheaply it may be bought at the time and how attractive a proposition may be offered on it as an inducement. Nor should the operating capital of the business be tied up in long term receivables, such as installment sales, unless there is an excess of cash available at the time. If selling on the installment plan should cause inability to purchase and pay for necessary equipment, necessary wages, necessary advertising and force the proprietor to borrow money at excessive rates or hamstring the efficiency of his operations, such sales should not be made. Installment selling means practically the same as lending money to a person. The proprietor pays the wholesaler in 30 days and the customer pays the proprietor over a period of 30 to 60 weeks. It is true there is a carrying charge to be earned by the proprietor, but against that there is the possibility of customer's failure to pay and legal expense to repossess. The majority of service organizations will not be able to discount customer paper with banks or finance companies and must carry their own paper. To carry one's own paper requires that funds be available for the purpose. Therefore, consider carefully if installment sales will tie up the business from a financial standpoint, before you enter into them.

Insolvency. A business is insolvent when unable to pay off its just debts as they become due. Insolvency may be a direct result of failure to keep the assets as liquid as possible. It comes about when the working capital has been tied up to the extent that it cannot with reasonable promptness be turned into cash, wherewith to liquidate or pay off the debts incurred by the business. Insolvency most often results in bankruptcy. In the process of bankruptcy, the business itself is liquidated or turned into cash on behalf of the creditors and distributed to them in proportion to the claims they have against the business. Bankruptcy really means that the owner of the business, especially in the case of a business owned by one man or one or more partners, is also personally stripped of all his possessions down to the legal minimum prevailing in the state in which he carried on his business.

Balance Sheet Ratios. Operating ratios as related to the balance sheet are expressions, mostly in percentage or ratio form, of the relation between the various items on the balance sheet.

The one most frequently used is the ratio existing on the balance sheet between current assets and current liabilities, mainly with a view of stating the degree of solvency of the business at the balance sheet date, or in connection with determining the credit standing of the business.

To illustrate: if the balance sheet shows a total of cash and receivables collectible in the near future of $500.00, and accounts payable, bills and debts due, in the near future of $250.00, the ratio between them is as 2 to 1. The amount available for payment of debts is twice the amount of the debts.

This is a healthy condition, and shows good management.

To the banker who is solicited for a loan, or the wholesaler who is asked for credit on his regular terms, it is an indication that the business is a good credit risk for a certain amount of money.

Should the position of the values be reversed, namely $250.00 in current assets and $500.00 in current liabilities, the indication is that the business presently will have to pay twice as much money as it will have available in the near future.

The proprietor had best set about finding means of checking the growth of the liabilities and increasing the amount of the current assets. Unless he does that promptly he may find himself insolvent, with resultant loss of his means of livelihood. He also should make up his mind to remember constantly never to bite off any more than he can chew.

Over or Under Capitalization. We mentioned heretofore that the capital of a business at the outset is the invested capital and that its extent is the amount of the excess of the total sum of the assets over the total sum of the liabilities. Also that while the capital investment is not changed through operations, the value of the investment changes as profits are realized or losses incurred. The difference between total assets and total liabilities then becomes Capital plus or minus profits or losses. This is also called "net worth." It follows, therefore, that at the outset it is possible to value the assets at a higher value and obtain a high "capital investment" or

value them at a lower value and obtain a low "capital investment." It is seldom one meets with undervalued assets and there is little or no harm in undervaluation of the assets of the business or "under capitalization" as it is called. More often does one find assets valued in excess of true value in order to make the business seem to be more substantial than it really is.

In the service industry, the inventories, the delivery equipment or the shop equipment may be over valued and result in "over capitalization." The receivables may be in the same condition and the balance sheet may picture a business which in reality has far less "net worth."

To do this is foolish because the time is bound to come when for some reason or other it becomes imperative to reduce the values to their proper amounts. When the time comes to take these losses, their effect on the operating statement is going to be very disappointing.

And what will happen if on application for loan or credit the banker or wholesaler discovers that the values of the assets are fictitious? Remember that credit accommodation is based principally on the character of the prospective debtor.

Therefore, we repeat our suggestion to be truthful, honest and conservative in making up your balance sheet if you want to serve yourself to the best of your own ability.

Chapter IV.

THE OPERATING STATEMENT

Recording Sales and Their Cost

The more important of the two basic statements is the Operating or Profit and Loss Statement. This is more pointedly true in the average service organization as an example of the smaller or "one man" organization.

The greater part of the working capital is the proprietor's technical knowledge and experience which it is impossible to evaluate for balance sheet purposes. Consequently, the balance sheet statement in the average service organization will be of secondary import, while the Operating Statement will be of prime importance and necessity in recording the success or the lack of success with which the proprietor meets in the exploitation of his talents.

Therefore, while we have taken the description of the Balance Sheet in two strides or sections, it will be necessary to be more measured regarding the Operating Statement and we will deal with it in greater detail.

Discussion of the Operating Statement is divided into five sections:

1. Recording sales and their cost.
2. Calculating the cost of service.
3. Estimating monthly "shop expense."
4. Determining "shop expense rate" to be used and checking it.
5. Preparing the monthly and cumulative operating statements.

In this chapter then we take up the "recording of sales and their cost."

We will proceed for the present as though you knew time cost and shop expense. Do not think, however, that we want to pass up this, your greatest problem. We only wish to defer the cost analysis to our next chapter, in order to be able to maintain a logical sequence in outlining the records we have prepared for your use. In the next chapter we will pick up the unknown elements of the present and thus gradually

and in easy stages proceed to develop the operating statement for the average service organization.

The Operating Statement is also called the Profit and Loss Statement because, if properly prepared, it shows the net result attained through the operation of the business over a given period of time. The most generally used periods of time are the calendar month, the quarter year, the half year and the entire calendar year, because the division of time into these periods is the more convenient from the standpoint of keeping records.

The same form of Operating Statement is well nigh universally used irrespective of the nature of the business it describes or the period of time it covers. Variations of form are found and can be made if desired. In many cases such variations serve no purpose other than that of expressing a desire for originality. The main purpose of the Operating Statement is to portray simply, accurately and clearly the causes which resulted in the profit or the loss arrived at through operations during the period. In following the standard form, an Operating Statement is obtained which will mean something to the proprietor of the business as well as to his banker, his wholesaler or any other business man to whom it might be presented.

While, therefore, in a book of this nature an unusual form of Operating Statement might be presented, common sense recommends that we adhere to the standard form if possible.

However, the manner in which the *figures* in this standard form are worked up is not universal by any means. In one business it may be a comparatively simple matter to obtain and fill in these figures, due to the simple nature of the business. In another business getting up the figures to be used on the Operating Statement may not be so simple because the business partakes of a more complex nature than that first mentioned.

The simplest form of commercial endeavor from the standpoint of record keeping is a "merchandising" business. The merchant or retailer buys commodities from his wholesale house or manufacturer at a known price. He sells these commodities to others at his selling price, attempting to get a price high enough to cover the amount he paid for the

goods, plus his overhead, plus his legitimate profit. He does nothing to change the composition, form or condition of the commodities. He may buy by the carload, the gross, the case, the barrel or in bulk and sell these same goods by the case, the dozen, the piece, the pound or the quart. Nothing he does goes into the goods as they were delivered to him. He merely gathers together in one place many commodities from a few sources of supply and divides them into smaller quantities conveniently available to numerous individuals who have a need for them. Therefore, the basic cost to the merchant of the goods he sells is not difficult to state. Let him refer to the bills his wholesaler sends him and there is that cost in black and white. It may require simple division to figure out the cost of one can of peas when the bill shows that a two dozen case cost $3.95. But, beyond that, there is no cost problem. The merchant starts off with a clearly defined basic cost price.

The service organization which sells tubes, parts and a radio set now and then is, in that phase of its business, also a "merchandising" organization and the cost to it of these goods cannot be a problem. But the principal function of a radio service organization is the inspection, overhauling, tuning up and repairing of radio equipment. It performs labor upon the article itself and changes its operating condition from unsatisfactory and useless to satisfactory and useful. In other words, into the radio receiver as it is received by it, the service organization puts that portion of its time, experience, technical skill and knowledge which is required to restore the receiver to normal operation. It also puts into that receiver a portion of the useful life of its testing and repair equipment together with a portion of its general expense.

The major portion of the sales of the service organization are of a commodity called "service." That service is not purchased by the service organization from any wholesaler and it cannot refer to any bills to find the cost of the service sold. The organization itself creates the service commodity it sells and the cost of that service cannot be determined otherwise than from records kept by the organization which renders the service. It is made up of the proper proportion of the cost of acquiring the technical knowledge and experience, the proper proportion of wages or salaries, rent, light, heat and

power, telephone, insurance, taxes, depreciation and all the other varieties of expense which the service business as a whole must carry in order to function.

The basic cost of the commodity called "Radio Service" is not a simple one to determine because radio service is not a simple business buying its wares at a fixed amount and selling them to those who have need of radio service.

To him who gives the matter thought, it should become very clear that the one chief reason why many service organizations are not able to state their basic cost of rendering radio service with any manner approaching confidence or authority is that the calculation of these costs is not a simple, but rather a complex matter, requiring knowledge not now possessed by many service organizations.

We mention this characteristic of the radio service business at this time because we want to make sure that you will read and follow this text carefully. We feel that unless you do so any results from its application may not be reliable and may not give you trustworthy figures for your "cost of service" rendered, upon which you base the price you must charge for your service in order to save your business or make it prosper.

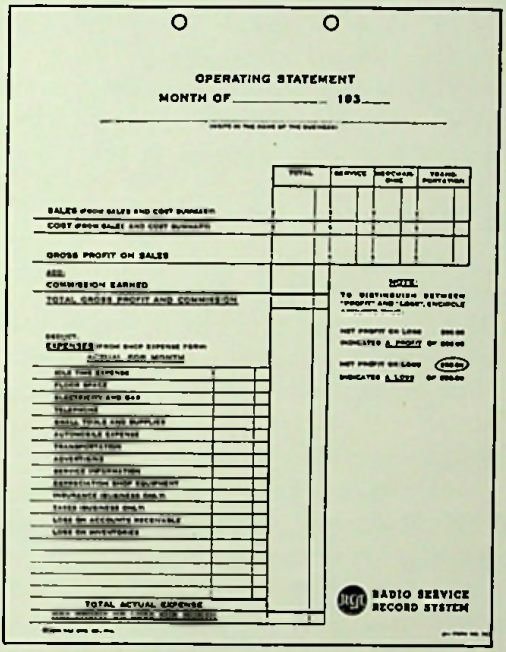
On the opposite page is a skeleton standard form of "Operating Statement" adapted to the needs of the average service organization. The captions are self-explanatory. The problem is to arrive at proper figures to fill the blank spaces reserved for the purpose.

Operating Statement. You will note that the statement is made up of two parts. The first or top part deals with sales, the second or lower part deals with the expenses incurred while the sales in the first part were being made.

The "gross profit and commission" item constitutes the dividing line between the two sections. "Gross profit" is the difference between the total of the sales made during the period and the cost of the material, labor and expense or "cost of sales" that went into the goods and services that were sold.

The "net profit or loss" item at the bottom of the statement is the difference between the amount of "gross profit and commission" and the total of the expenses incurred during the month.

A net profit will result when the total of the expenses is *less* than the amount of gross profit and commission during the period. A net loss will result when the total of the expenses is *more* than the gross profit on the sales and commission earned during the period.



FORM 782, THE OPERATING STATEMENT should be made up once a month.

It follows, therefore, that all mercantile and manufacturing business in reality is a "tug of war" between "gross profit" and "expenses." These two are always pulling at each other and the heavier of the two wins the match.

The service organization's chief problem, therefore, is to earn the greatest possible gross profit at the least possible total expense consistent with efficient operation.

The emphasis too often is laid on *sales volume* and the thought entertained that greater sales are the solution of the money-making problem. What is forgotten, most often, is that unless these sales, if made, result in an increase of

Gross Profit, greater than the concurring increase in expenses, they will not solve the "money-making" problem. And if the business does not know its "cost of goods or services sold," it cannot truthfully state what the gross profit is. We can go further and safely say that such a business does not know whether there is any gross profit at all in the sales it has made.

At the same time, should the business know how to correctly state its "cost of sales" while failing to construct a proper record of its sales, so that the *correct total of sales* cannot be entered on the Operating Statement, then again the amount of gross profit thus derived is not reliable because the sales total was not reliable.

We state the foregoing mainly because while emphasis is laid on the determination of *actual costs* in a service organization, it must not be overlooked that determination of the *actual sales* item is also of great importance though admittedly much more easily obtained. Since "sales" is the first item on the Operating Statement, we will continue by discussing it.

Sales. A sale is a transaction whereby the ownership of goods or benefit derived from service rendered or to be rendered is transferred from one person to another for a sum of money. Commercially, it seems essential that money enter into the transaction if it is to be called a sale. Note, however, that as long as "a *sum* of money" is the consideration, a sale is made. A sale at a profit or sale at cost or a sale at less than cost is correctly described as a "sale."

It is not necessary that the money be paid at the time the sale is made. A sale on account, that is a sale for a sum of money to be paid at a future date, also falls within the meaning of the term.

In order that for the purpose of the operating statement the correct total of sales be available at the month's end, thought must be given to the means whereby that total may be obtained conveniently.

The logical thing to do therefore is to first analyze the sales made by a service organization. We find that the nature of these sales depends much on the type and size of the organization making them.

Generally speaking we may divide the service organizations in the country in two major classes in respect to sales.

(a) The smaller, usually one-man business, which sells service and supplies parts and tubes only as they are needed in its service work.

(b) The larger organization which sells service and furnishes tubes and parts as they are required in its service work and also has "over the counter sales" of tubes, parts and perhaps a radio occasionally. By "over the counter sales," we mean sales of these articles not as a part of any of its service jobs.

The business under (a) has, therefore, only one kind of sales, while the organization under (b) has merchandise sales as well as service sales.

When contemplating the means of recording sales, we must, therefore, bear in mind to group them in two classes, namely:

1. Sales arising from service jobs, herein called "service sales."

2. Sales of merchandise apart from service jobs, called "merchandise sales."

A business which has no merchandise sales at present naturally has none to record. It must, nevertheless, remember the distinction. The forms we have prepared in connection with this text, especially the Sales and Cost Summary Form, group sales in these two classes. The necessity of grouping sales in an organization where both classes of sale occur will be clearly demonstrated as we go on and the forms are set up with the intention of making them *suitable to all service organizations.*

Furthermore, both service sales and merchandise sales, as you probably know from experience, again fall into three classes, according to the manner in which you collect for them.

Cash or C. O. D. Sales are most desirable because you get your money at once, in full upon completion of the job or when you hand your customer his purchase.

The part payment sale is the next most desirable sale because you at least get part of your money at once and a definite promise for the balance at a certain time.

The sale on account is the least desirable because you do not get any money right away. Instead, you get a promise of payment at a future date.

Perhaps it is your custom to simply take the money, hand the customer his goods and let it go at that. In the case of a part payment or "on account" sale, you may have trusted to your memory to collect for it at some future date.

If so, you are now confronted with the necessity of reformation; you will have to change your ways if you desire to know how you are doing in a business way. *The first necessity is that you make a proper record or notation of all your sales,* promptly and accurately. And not only should you be scrupulous about the amount of money, but about the date of the sale as well.

That is not going to be a laborious task if you will follow the following instructions:

RECORDING SALES

For recording sales, you should establish three simple rules:

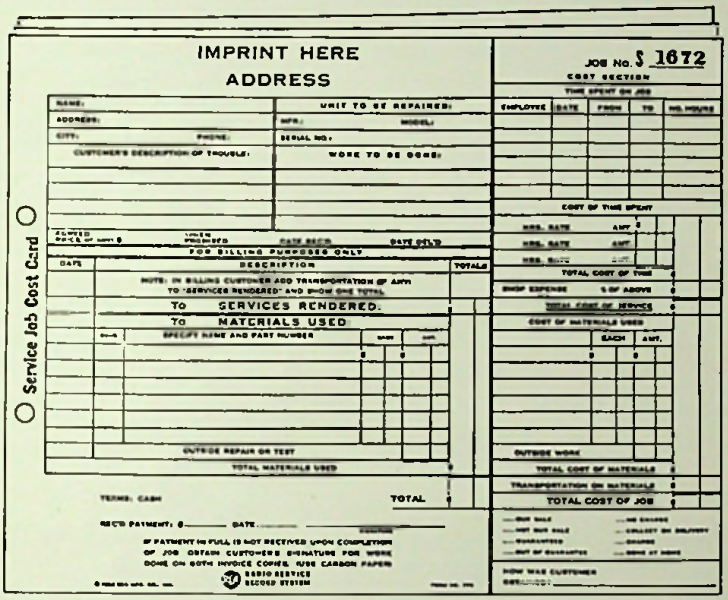
Rule A. *A receipt in duplicate* must be made out for *all cash taken in.* The original must be handed to the person making the payment; *you will retain the duplicate for the business, and save it carefully.*

Rule B. A *"Service Job Cost Card"* (see Form 775 on page 99) must be made out for each service job done no matter how small or large the job.

Rule C. An *invoice in duplicate* must be made out for each sale *"on account,"* whether the sale is a service sale or a merchandise sale. The purchaser to be given the original. You will retain the copy for the business, *and save it carefully.*

Service Sales. Abiding by these three rules would of itself not be a hard task. But we have further simplified that task in connection with service sales by preparing the Service Job Cost Card in such a manner that by making out the Service Job Cost Card you also, in the same operation, make out the

customer's invoice, and duplicate invoice to be retained by you. Moreover on the invoice we have provided a space to record any cash you may receive at once upon the completion of the job.



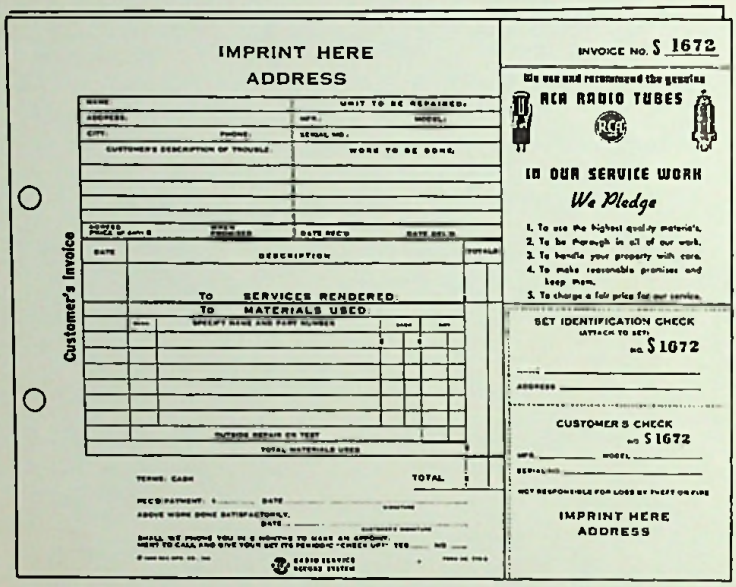
FORM 775 is a triplicate form comprising SERVICE JOB COST CARD, CUSTOMER'S INVOICE, and SHOP INVOICE COPY. Since the carbon paper does not extend under the Cost Section of the Service Job Cost Card, no cost information appears on the Customer's Invoice.

This means that in all service sales the observance of Rule B, which orders the making out of the Service Job Cost Card, takes care of Rule A, the "cash receipt" and also Rule C the "invoice."

Thus the radio service business which sells service only and does not sell other merchandise "over the counter," will have a complete record of all its sales if it faithfully uses the Service Job Cost Card form every time it does a service job.

These service sales may be paid for in three ways. See the following outline:

Cash Service Sales. If a service job is paid for at once upon completion you will enter the amount in the space provided therefor at the foot of the Service Job Cost Card. The carbon will transfer this to both "invoice" copies following



FORM 775 with Service Job Cost Card removed.

the Service Job Cost Card on the pad. The Customer's Invoice you will hand to him and your Shop Invoice Copy is the duplicate cash receipt which you will save until the end of the month.

Part Payment Service Sales. Let us suppose you do a service job, for which you charge $7.00. The customer has but $4.00 to pay down at once, and promises to pay the balance of $3.00 on his next pay day, which is a week off. Although you do not like to do so, you nevertheless agree.

You enter the $4.00 cash received on the "Service Job Cost Card" while it is still on the pad. Because of two sheets

of carbon paper that are used, the amount will come through on both "Invoice" copies. You then tear off the Service Job Cost Card and take out the first carbon. The Customer's Invoice now is the top sheet. Then you pass the pad to the customer, showing that you signed for the $4.00, and have him sign the Customer's Invoice on the line having "customer's signature" printed underneath it. Be sure to leave the second carbon on the pad until he has signed. After that you tear off the Customer's Invoice and give it to him. The Shop Invoice Copy, to be retained by you, then shows the whole story. It shows the price of the job, the payment received and therefore the balance owing. It also has the customer's signature and subsequently he can not deny owing you the money or claiming the job was not done right. It also gives you the data needed for your record of sales.

The total of $7.00 is the "service sale" and that is the amount you must fill in on your Sales and Cost Summary for the month. It will be necessary, therefore, to make out an additional duplicate cash receipt slip for the $4.00 received and mark it "On Account of Service Job No. ....." When, at the end of the month you work up the total of your sales for your Operating Statement, such cash receipts marked "on account" must not be counted in as "sales." The Shop Invoice Copy which you retain must be used for the purpose of arriving at your "service sales" total. When the balance of $3.00 is paid, whether before or subsequent to the end of the month, the cash receipt slip given the customer should also always be marked "on account." No cash slip marked "on account" ever enters into "sales."

Why, you may ask, is it necessary to make out a cash receipt, when the Shop Invoice Copy carries a notation of the amount paid? It is true that the cash receipt could be dispensed with, but to do so would make it impossible to keep separate records of the moneys received by the business and the moneys owed to the business. Therefore, we strongly recommend that a cash receipt be made out for all partial payments. From the customer's standpoint, however, no cash receipt, other than that on the Customer's Invoice, is needed and you destroy the original copy of your cash receipt, retaining the carbon copy. Later, when the customer makes another payment on account, you will acknowledge it by making out

another cash receipt in duplicate, giving the customer the original and retaining the carbon.

Service Sales on Account. At times you will do a service job which you have agreed beforehand to do "on account." This means that your customer will not pay anything at once on completion of the job, that you extend the customer "credit." In all such sales follow the method outlined under "Part Payment Service Sales" and be sure to have your customer sign for the work done and to hand him his invoice. Of course no notation of payment is made when you do not get any at the time. The copy you retain you use at the end of the month to enter on your Sales and Cost Summary.

The radio service organization which sells service only and consistently uses the Service Job Cost Card form possesses the information it needs to correctly state its "total sales" for the month.

The radio service business which has merchandise sales as well as service sales will have a complete record of its service sales if the Service Job Cost Card form is used faithfully on each service job. In addition, it must carefully observe Rule A on cash receipts and Rule C on invoices in its merchandise sales.

MERCHANDISE SALES

Merchandise sales may be made in any one of three ways.

Cash Merchandise Sales. If Rule A is observed a cash receipt in duplicate will be made out for all cash taken in, which of course covers cash taken in for an "over the counter" sale of tubes, parts, etc.

On such cash receipts, first of all, the month, day and year on which the money is received should be recorded as shortly as possible. (For example: Not as Monday, May 27th, 1936, but as 5/27/36.)

Secondly: the words "cash sale" should be written in plainly.

Third: The quantity and a short description of the goods for which payment is made such as: 2 RCA 6A8 or 1 RCA 80, if tubes are sold; 1 volume control RCA No. 7304, or similarly if parts are sold.

Fourth: the amount of cash received for the article sold.

The best way of recording cash transactions is with the aid of a "register." Not the kind which rings the bell when the keys are pressed and the cash drawer comes sliding out. Rather the type which has the flat writing surface and the two rolls of paper as well as the carbon inside the register and where the movement of the crankhandle or turning knob shoves out the original, the duplicate remaining in the register. Such a register has the added advantage of saving your duplicate cash receipts for you in a safe place until the end of the month. It is quite likely that such a register second-hand, but in good working order, can be picked up for a song.

If such a register is not used, small pads, used by grocers, can be bought very cheaply. Equipped with a piece of carbon paper, such a pad answers the purpose, provided care is taken to save the carbon copies. The use of carbon for copying is necessary, because hand copying takes time and often results in errors.

We recommend a register if cheaply available or a pad of "cash receipt slips" because of the importance of saving all of your duplicate cash receipts. Indeed, it is absolutely necessary you do so, for two reasons.

First: Having, at the end of the month, all your duplicate cash receipts, you can, from them, pick out and total up your cash sales for the month. You need records of your monthly cash sales for your Sales and Cost Summary.

Second: Having at the end of the month all your duplicate cash receipts you can total them up and, if you have been faithful in making one out each time you received cash, either for a cash sale or "on account," you will then have your "total cash receipts for the month." You can use that information to enter in your cash book, if you keep one. We suggest you do that and also enter there your cash payments as you make them.

Deducting the payments from the total of your balance, plus your receipts, will give you the cash which should be on hand at any time.

Merchandise Part Payment Sales. If parts or tubes are sold and payment in part only is received at the time of the sale, Rule C must be remembered because an invoice in dupli-

cate must be made out for the sale. On that invoice must be noted:

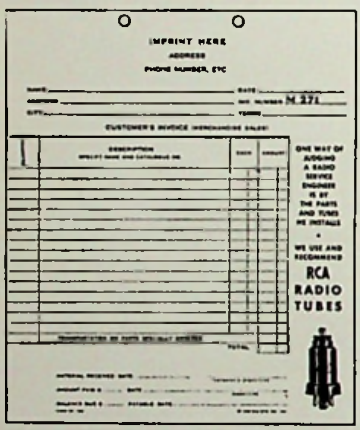
(1) Date of sale.
(2) Customer's correct name and address.
(3) Quantity, description and price of goods delivered to customer.
(4) The amount paid by the customer.
(5) Customer's signature for receipt of the goods.

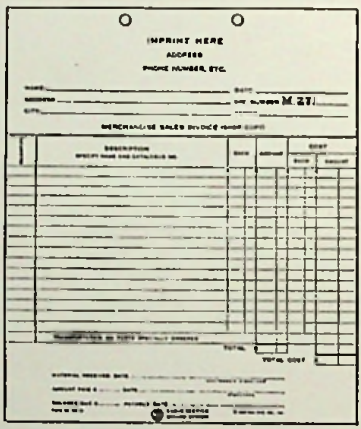
Hand the customer his invoice, retain your copy and save it carefully.

As in the case of a part payment service sale, the amount of the sale is not the money received then, but the amount of the invoice. A "cash receipt" for the money received should be made out. This should be saved along with all your other cash receipts.

Of course the invoice used should not be one of the copies on your Service Job Cost Card. It should be a separate form and also should be numbered.

An acceptable form of Merchandise Sales Invoice is shown below.





FORM 780 is a duplicate form for sales of merchandise only. Cost information does not appear on customer's copy.

Merchandise Sales on Account. This kind of sale is of the same nature as the service sale on account. You extend credit to your customer.

Make out a Merchandise Sales Invoice in duplicate the same as on a merchandise part payment sale.

Have the customer sign for the receipt of the goods on the Customer's Invoice before you remove the carbon and agree on the time payment is to be made.

The Shop Copy you retain is to be used by you for the accumulation of "total sales" on your Sales and Cost Summary.

When payment is made a cash receipt in duplicate must be made out and "on account" written plainly thereon.

Cost of Sales. At the end of the month then, if you have been careful to save your paper work, you will have:

(1) Service Job Cost Cards for all *service* sales.
(2) Shop Invoice Copies for all *service* sales.
(3) Duplicate cash receipts for all merchandise *cash* sales.
(4) Duplicate Merchandise Sales Invoices (Shop copies) for all *part payment* or *"on account"* sales made of merchandise.

You have accumulated these for three purposes:

(A) To arrive at your "total sales" during the month.
(B) To enable you to determine "cost of sales" for the month.
(C) To determine what your "gross profit" was for the month.

If you have properly made out your Service Job Cost Card on every service job and retained the Shop Invoice copies, you have on them all the sales information on service sales, both cash and "on account" or part payment sales. You should then sort these into two groups, one group "service cash sales," the other group "all other service sales."

If you have made out cash receipts as we suggested, all the "merchandise cash sales" will be among them and these should be sorted out in one group.

Now get all "cash sales"—service and merchandise—together in one group.

Having made out an invoice for all merchandise sales "on account" or "part payment," you will have saved your invoice copies.

Take these Merchandise Sales Invoices (Shop Copy) and combine them with the Shop Invoice Copies of the "all other

service sales" mentioned above. Thus you will have all your part payment and on account sales in a second group.

The two groups combined will represent your "total sales" on your Sales and Cost Summary. However, they will give you only half of the information you want, because you must have your "cost of sales" as well.

That is the reason we suggest getting all your papers covering sales together. In order to get your "total cost of sales" you must "cost out" the cash receipts and invoices.

Your first group of records consists of:

1. Shop Invoice Copies covering service cash sales.
2. Duplicate cash receipts covering merchandise cash sales.

All your Shop Invoice Copies have a number in the top right hand corner, which is the number of the Service Job Cost Card for that particular job. If you have done the right thing, these corresponding Service Job Cost Cards are all together in your file and each one will have the "cost section" made out.

If, therefore, you then get out these Service Job Cost Cards and run them in the group of Shop Invoice Copies, each Service Job Cost Card immediately following its corresponding Shop Invoice Copy, you will have put together in one group the "cash service sales" and the "cost of the cash service sales" with the cost of sales immediately following its corresponding sale. The costing out of your cash service sales you have done each time before you fixed the amount of the charge to the customer.

Your cash merchandise sales receipts are not so complete, because your merchandise is (we hope) sold at a fixed price and it was not necessary to determine cost each time. Therefore you must now "cost out" these sales.

Having written in on your cash receipts as we suggested before, the proper description of the goods sold for cash during the month, you are in an excellent position to figure up "the cost to you" or "the cost of sales" of these goods. You need that "cost of sales" for your Sales and Cost Summary.

In the event the latter is not clear to you, let us look at it more closely. You sold parts and tubes for cash during the month and you wrote in the numbers of the parts and the types of the tubes; also the quantities. At the month's end you figure out what the wholesaler or manufacturer charged

you for these parts and tubes sold C.O.D. *to your customers* during the month. You get these wholesale or manufacturer's prices from their invoices on which they billed you or from their cash receipts on which you paid them for these parts and tubes or similar ones. Or, if your business is big enough, you make up a little book of wholesaler's or manufacturer's prices on the goods you buy from them. Or, if you are so negligent a business man, which we sincerely hope you are not, that you lose, mislay or destroy their bills or cash receipts, you can call them up or write them for their prices. At any rate, the total of the cost to you of these parts and tubes sold for cash is your "cost of sales" for them on the operating statement.

The next thing to do then is to put "cost prices" on your duplicate "cash merchandise sales" receipts. This you do by referring to your wholesaler's bills, price lists, or your inventory records.

Your second group of records consists of:

(1) Shop Invoice Copies covering "part payment service sales" and "service on account sales."

(2) Merchandise Sales Invoices (Shop Copy) covering "part payment merchandise sales" and "on account merchandise sales."

All your Shop Invoice Copies will show a number corresponding to the Service Job Cost Card covering them. If you have made the correct use of the Service Job Cost Card Form, your cost on these sales will be waiting for you to obtain it in the same manner as outlined under the "cash sales" of the first group of records.

Again, if you have used our form and studied the preceding text, your Merchandise Sales Invoices (Shop Copy) will show the quantity and the description of the merchandise sold on them.

In this second group you also refer to your wholesaler's billings, price lists or your inventory records.

Having done this, you will have all your sales information showing what you charged your customers, which is equivalent to your sales figure, and also the basic cost to you of these services and materials sold to your customers. You will have all this in orderly, workable form.

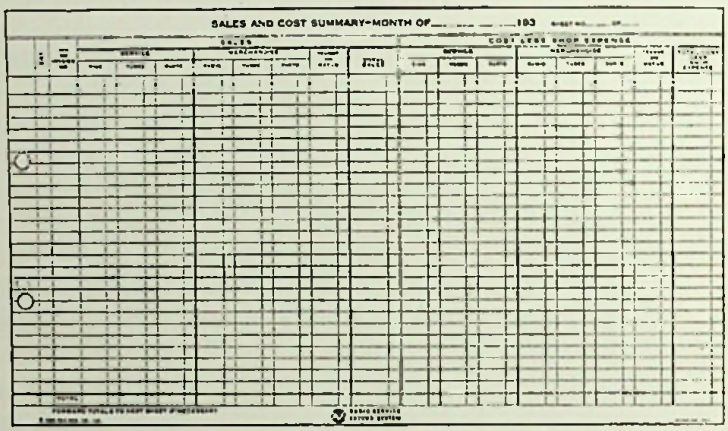
You are now ready to make up your Sales and Cost Summary.

Sales and Cost Summary. We have reproduced the form below—let us study it for a moment.

On the top you will fill in the month and the year.

On the first horizontal line you write in "cash sales" and begin by writing up cash sales first.

In the first column you fill in the day of the month as shown on your invoice or cash receipt copy by means of a single figure, because month and year are already shown at the top.



FORM 784. THE SALES AND COST SUMMARY. Each sale is recorded on this form.

In the second column you fill in the job number, which is the same as the invoice number on Service Jobs. In the case of a "merchandise cash sale" you write in that column "C.R." meaning your information comes from a cash receipt duplicate.

The rest of the summary is divided in half by a double vertical line down the center. In the eight columns to the left of this double line enter the sales information; in the eight columns to the right enter the cost information, but always on the same horizontal line for the same invoice or cash receipt.

Writing the sales and the cost information on the same horizontal line, will prevent your taking in a sale without cost, or a cost without sale in any one month. In that way you are

not so likely to deceive yourself with imaginary profits or losses. Moreover, having both the sales and cost information on the same papers or immediately following, it is only one operation to write it down, as you continue from sales to cost or from left to right.

When you have recorded "cash sales" continue with your "sales on account."

The eight columns on each half of the balance of the statement are further subdivided into four parts, namely:

1. The first 3 columns for Service.
2. The next 3 columns for Merchandise.
3. The next column for Transportation.
4. The next column for Total.

Recording Service Sales. The first three columns on the "sales" side will register in detail what you have charged for service jobs during the month. If you will refer now to the Service Job Cost Card you will note that a heavy line divides it into two parts, the left hand part being marked "for billing purposes only" and the right hand part "cost section." Whatever you write in the left hand section will come through on the Customer's Invoice and the Shop Invoice Copy. Conversely anything you write in on the right hand "cost section" will not come through on the invoice copies. The carbon paper coming with the Service Job Cost Card pad does not extend under the cost section.

The reason for making this carbon paper arrangement is obvious. It inspires customers with confidence when an invoice is handed them for work done, especially when that invoice shows details of the amount you ask him for the job. That information is also important to you if you desire to "get a line" on your own business and therefore the billing information comes through on all the sheets.

The cost of material, the service and the shop expense is essential to you. More particularly when, having finished a job, you have to figure what the charge to the customer should be. More than likely you will, whenever possible, base your charge to the customer on the information contained in that right hand or "'cost section," because your charge should never be less than the total of your cost and always sufficiently more to assure a fair profit on the job.

Your cost information should never be handed to your customer and therefore the carbon is cut so that anything written in the right hand side will not come through on the invoices. Incidentally, the blank space left on the invoices is occupied by suitable advertising copy.

Note that in addition to providing you with billing and cost information, the Service Job Cost Card with its duplicate and triplicate copies also provides other useful information.

By occasionally tabulating the answers to the question "How was customer obtained?" you can obtain valuable data for your guidance in planning your advertising and sales promotional program.

The space directly above the question "How was customer obtained?" provides for information especially useful in the service organization employing several service men, who may not be familiar with all the conditions surrounding the customers they are sent to call on nor the instruments they are to repair. If, for instance, "our sale" is checked, the employee is warned to be unusually careful not to disparage the instrument he is sent to work on, since it was sold to the customer by the shop the service man represents. If there is a check mark before the word "guaranteed" as well as before "our sale," the employee knows that his shop sold the set, that the guarantee period has not expired, and that therefore any repairs covered by the guarantee will probably have to be done at no cost to the customer and that if other repairs are necessary they should be fully explained to the customer.

At the foot of the Customer's Invoice, the first sheet under the Service Job Cost Card, there is the question "Shall we phone you in six months to make an appointment to call and give your set its periodic 'check-up'?" Most customers will answer this question in the affirmative. When you phone the customer six months later and remind him that you are calling at his request he will be far more favorably disposed than he would be toward the usual phone solicitation.

The Customer's Invoice also provides a Customer's Claim Check and a Set Identification Check. Use of these sections of the form is optional. Even though the size of your business is such that claim checks for the customer to present when obtaining his goods are not really necessary, the use of the check impresses the customer and reassures him, since

the check serves as a receipt for the equipment he has turned over to you. To use the check is good showmanship, which is part of good salesmanship.

The check also serves as a protection to you. For this purpose it is well to make a note on the customer's check of any damages to cabinet, missing parts, etc., so that there can be no misunderstanding about such matters later.

The set identification check is intended to be attached to the equipment. If this is not convenient, you may prefer some other method such as simply writing the customer's name and invoice number inconspicuously on the chassis. Note that both the customer's check and the set identification check are machine-numbered for you to correspond with the number on the invoice.

The "pledge" that appears just above the set identification check is designed to create confidence in you and your work. In the form of a window display it was first introduced to radio service men several years ago by RCA Radioron Division. It has proven to be highly effective and has been used in newspaper and other advertising by scores of successful service engineers.

You are now ready to begin writing up your Sales and Cost Summary for the month.

In the first "service sales" column on the Sales and Cost Summary you enter the amount charged the customer for service time plus shop expense. (Do not include "transportation.") In the second column you enter the amount charged the customer for tubes used (if any) in the service job as shown by the Service Job Cost Card. In the third column you enter the amount charged the customer for parts used (if any) in the service job as shown by the Service Job Cost Card.

If the Service Job Cost Card shows that any transportation on materials used was included in your total charge to the customer for "service" you enter such amounts in the column showing the corresponding heading, namely, the column preceding the "total sales" column.

Then in the last column you enter the total charged the customer as shown on the invoice copy.

The amounts entered on the horizontal line, so far, when added across should equal the amount in the "total sales" column.

Having thus entered the "sales" detail of the service job whose number and date were entered in the first two columns on the Sales and Cost Summary, you proceed to fill in the right hand half or the cost data on the same horizontal line.

These cost data, if you have followed instructions, as far as "service sales" are concerned, will be stated in detail on the Service Job Cost Card in the "cost section."

From the "cost section" you pick up the item "cost of time spent" and enter the amount in the first column under "cost less shop expense" on the Sales and Cost Summary headed "time." Next you pick up the cost of the tubes you may have supplied on the job. These costs will show under "materials used" in the "cost section." If more than one tube is used, get the total cost of all the tubes, and enter that amount in the second column under "cost less shop expense" on the Sales and Cost Summary, headed "tubes." Do the same regarding parts used, entering the total amount in the third cost column headed "parts." Then in the column under "cost less shop expense" on the Sales and Cost Summary, headed "transportation on materials," enter the cost of such transportation if any was incurred on specially ordered parts for the job. In the "total cost less shop expense" column enter the amount of the "total cost" shown at the foot of the "cost section" on the Service Job Cost Card *less the amount of shop expense included therein.* The items entered in the individual columns on that same horizontal line under the "cost less shop expense" heading, when added across should equal the amount entered in the "total cost less shop expense" column. If they do not you have not transcribed them correctly or your addition is not as good as it ought to be.

When you have gone this far, you have entered on the Sales and Cost Summary the sale and cost less shop expense of that individual service job both in detail and in the aggregate.

All "sales of service" whether "cash," "part payment" or "on account," together with their cost, are recorded in the manner described above. In other words, your Shop Invoice Copy tells you the number of the Service Job Cost Card to be used to obtain all the needed information for your Sales and Cost Summary both as to "sales" and "cost less shop expense."

Be sure to restore all the Shop Invoice Copies which show a balance due you from your customer to your Shop Invoice

file where you should keep these all in numerical order for possible future reference.

Recording Merchandise Sales. In recording "sales and cost" of merchandise sales, you will find that your information comes from two sources.

1. The duplicate "cash sales" receipts.
2. Merchandise Sales Invoices (Shop Copy).

If you have followed instructions you will have put "cost" on these before beginning to write up your Sales and Cost Summary. You will also have made up an invoice for all part payment or "on account" merchandise sales.

Having previously grouped these "merchandise cash sale receipts" and Merchandise Sales Invoice copies, you proceed to enter them on your Cost and Sales Summary. This procedure is much simpler than that for service sales.

On cash sales, put in the date and the reference "C.R." (meaning "Cash Receipts"). On the left hand side in the second three columns combined under the heading "merchandise" enter the sales value of the merchandise, in the proper column. If there is any transportation on specially ordered parts, of which you have advised your customer when he ordered the part, enter that in the column so headed. In the "total sales" column should be entered the invoice total of the charge to the customer. That total should equal the amounts entered in the "merchandise" and "transportation" columns if added across.

Now under the three "merchandise" columns under "cost less shop expense" (right hand side of summary) enter the cost of the merchandise sold, in accordance with the "cost" you have written in on your Cash Receipt duplicates. Be sure to enter these "costs" in the columns corresponding to the "sales" columns used for the transaction. Enter "transportation" and "total cost." The total of the "merchandise" and "transportation" cost columns when added across should equal the "total cost less shop expense" in the last column.

On "merchandise part payment" or "on account" sales follow the same procedure, except of course that invoice copies should be used and their number entered in the second column.

After all your sales and costs for the month have been entered, the vertical columns should be added. On the sales side the total of all the vertical columns under "sales" should

equal the total of the "total sales" column. On the cost side they should equal "total cost less shop expense."

If instructions have been followed as you went along you will then have developed the first two important figures for your Operating Statement namely your "total sales" and your "total cost" for the month.

In developing these two important totals you will also have provided the answer to the most important question "Is my income from sales more than what it cost me to make those sales in material and labor; did I make any *gross* profit this month?"

The answer is easily obtained now. Deduct your total cost from your total sales and you have it.

The next big question not yet answered is the following—"Were my expenses in total for the month less than my gross profit for the month? In other words, did I make a *net* profit this month?"

We will come to that presently. First, in order logically to end our discussion of sales we must deal with certain items arising in connection therewith and which should be dealt with at this time. These items come about when you do other than a cash business.

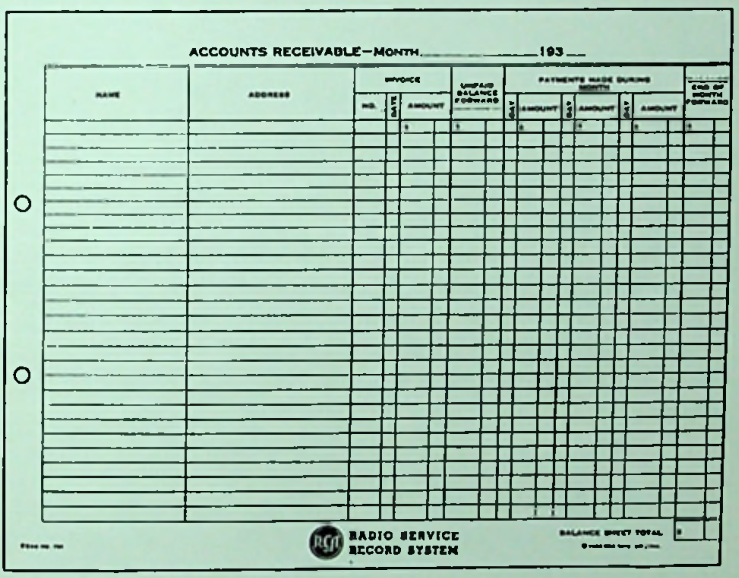
Accounts Receivable. In the preceding discussion of service and merchandise sales we frequently mentioned "part payment" and "on account" sales, describing them as sales for which payment in part or in full was not received at once, but rather at some future date. When such sales are made, good claims by the business against outsiders are created. The name given to such claims is "Accounts Receivable."

Some simple method of following up these accounts receivable ought to be devised, because it is important that these accounts receivable be collected at the earliest possible moment. It is more necessary in your kind of business, because you deal mostly with individuals whose residence may change without notice, making collection difficult, if not impossible.

Therefore, as soon as a "part payment" or "on account" sale is made a record of the amount owing on the transaction should be made by you and in such a manner that it is easily available for reference at any time.

The "Accounts Receivable" form reproduced on the opposite page provides a monthly record for such amounts owing you.

It will be advisable to fill in the name and address of the customer, the invoice number, date and amount as soon as a "part payment" or "on account" sale is made. Please note that the amount written in when this first notation is made should be the full amount of the invoice. Thus you will always have a complete record of the entire transaction. When this transaction is a "part payment" sale, the date and the amount paid down upon completion of the job should be entered in the first two columns under "payments made," the date of such payment in the first, the amount in the second column. If subsequently during the same month additional payments are made these should be entered in the other columns under "payments made."



Form 781. Accounts Receivable Statement.

It is possible that at the end of the month the invoice is not paid in full and a balance is owing. In that case total the amounts in the columns "payments made" horizontally and subtract from the original amount of the invoice and enter that balance in the last column.

This last column serves two purposes:

(1) The vertical total of the amounts in the last column gives you the "total accounts receivable" for your Balance Sheet.

(2) By transferring the individual amounts to the Accounts Receivable Statement for the next month, in other words by "carrying them over" to the next month, you will always have all your unpaid "accounts receivable" on one sheet, no matter how old and stale they are. Moreover, the last column on your Accounts Receivable Statement will always show, at the end of any month, who owes you money, how much is owed to you and how old these debts are.

When transferring at the end of the month to the next month's statement, write in on the new sheet the name and address of the customer, the number, date and the original amount of the invoice. In the column immediately following and headed "unpaid balance forward," you enter the amount shown in the last column on the preceding month's Accounts Receivable Statement. Then as payments are made you enter them in the "payments made" columns on the present month's statement. You understand, of course, that any accounts receivable paid up in full during any one month is not transferred to the next month's statement, because as soon as one of these accounts receivable is paid in full it ceases to be one. There is no purpose served by carrying over from month to month names and addresses without any money claim to accompany them.

Uncollectible Accounts Receivable. At the same time if you have to go in for Part Payment or On Account Sales, you probably will from time to time carry over for a period of time a balance on your Accounts Receivable Statement which you cannot collect for some reason. When it becomes apparent that such an account is hopeless no further useful purpose is served by carrying it over from month to month. It then becomes a credit loss, an unfortunate, but sometimes unavoidable expense of doing business. Such accounts should be omitted from your Accounts Receivable Statement.

To omit such accounts merely by failing to carry them over for another month is the smallest and easiest part. It

must be borne in mind that the amount of such accounts omitted at any time becomes a loss and must be charged against the business.

In a business, whose records are kept on a double entry basis, which requires a thorough knowledge of bookkeeping, it is customary to anticipate such losses by adding monthly to the expenses of the business an amount based on the average monthly loss experienced by that business due to its failure to collect in full for all of its sales. The total of these monthly expenses is gathered in what is technically known as a "reserve for loss on accounts receivable" and uncollectible accounts are charged against that reserve when their worthlessness is conclusively demonstrated.

We believe, however, that our recommendation of the above procedure in an administrative plan designed for a comparatively small business, whose owner is not a qualified double-entry bookkeeper, would be absurd for more than one reason.

Yet, to ignore credit losses entirely to escape the complexity of their theoretical and practical correct treatment would be overdoing the desire for simplicity, because they are unfortunately the sad experience of every organization which does business on a credit basis.

It is furthermore true that the small business suffers proportionately more from credit losses than the bigger organization because the former's credit policy and collecting ability are mostly rudimentary.

Our suggestion, repeated here, is to avoid sales on credit as much as is possible, consistent with your local conditions.

Secondly, if you have an uncollectible account receivable, omit it from your statement and in the same month add it to the "actual for the month" on your "Shop Expense Form" in the place provided for "Loss on Accounts Receivable." Do this as soon as you become thoroughly convinced that there is no way of getting your money.

The same thing should be done when you settle an account owing you for less than the amount of the balance. The portion not collected is "loss on accounts receivable" while the amount collected should be entered under "payments made."

Any money spent by you to collect the full balance owing, while commonly known as "collection expense" in a smaller

business can logically be added under "expenses" to "loss on accounts receivable," because that is really what such "collection expense" amounts to.

At the end of the month, when carrying over balances owing you on accounts receivable, scrutinize those balances as you transfer them and deal with the bad ones in the manner outlined above.

Payments Made on Accounts Receivable. If you remember our advice to make out cash receipts for all cash taken in, you will also remember that we recommend marking your cash receipt slips "on account" when receiving money for sales previously made.

If you do this, it will make it unnecessary for you to enter payments made on your Accounts Receivable Statement every time they are made.

By saving your duplicates you can at any time and at your leisure enter payments made on the Accounts Receivable Statement, provided however, you have put on your cash receipts the information we suggested.

We trust you will decide to follow our instructions on cash receipts. If you do not follow them, entering payments every time they are made will soon prove to be a nuisance and you will oblige yourself to carry the Accounts Receivable Statement on your person all the time, so as to be always prepared. If, on the other hand, you expect to trust to memory you will find that like all of us, you forget amounts owing you as well as amounts paid you and you will be at the mercy of your debtors. Moreover, it is far wiser to use your memory-energy to carry your knowledge of the technical details of your profession, for it is impossible to carry your textbooks with you all the time.

So much for Sales and their complications.

The next subject for discussion will be the items "cost of time" and "shop expense." We passed these by, assuming for the moment they were known quantities. In this chapter we reserved our discussion in order not to break the sequence of the text in connection with Sales and Cost Summary. There is another reason.

There is a very close connection between "shop expense" chargeable to service and expense in general. In fact, this "shop expense" chargeable to your service jobs is the major

portion of expense in general. We must develop the subject from the ground up in order to make ourselves clear.

Before you go on with the next chapter, make sure the present chapter is clear to you and that you understand the method followed in summarizing your "sales" and your "cost."

Chapter V.

THE OPERATING STATEMENT

Calculating the Cost of Service

The Service Job Cost Card divides the cost of each service job done in two major classes of cost.

1—Cost of Service
2—Cost of Materials

The Cost of Service in turn is made up of two elements:

(a)—Cost of the time spent, plus
(b)—Shop expense.

The first portion of Cost of Service we labeled "Cost of Time Spent" for the sake of brevity, because of the limited space available on the Cost Section of the Service Job Cost Card. Had space been available, we would have called it:

(A)—Cost of time spent, or wages or salary paid for time spent *directly* on this job.

Furthermore, the item of "Shop Expense" is also a term condensed for purposes of brevity due to limited space. More fully and therefore more clearly expressed, we would have named the item:

(B)—Shop Expense, or portion of the *general* or *indirect* expense of maintaining the organization which should be charged against this job in direct ratio to the wages or salary paid for time spent *directly* on this job.

To have man power, by itself, will not in most cases enable a commercial enterprise to function. There are other necessary conditions which must be provided for to enable the establishment to do business.

The cost of operating the business therefore consists of the cost of the man power paid out in wages or salaries *plus* the cost of meeting the other necessary conditions as paid out in rent, electricity and gas, telephone, consumable supplies, tools, equipment, insurance, taxes, etc.

These costs are incurred in the hope of at least recovering them out of the proceeds of goods or services sold. The

expectation is that not only will they be recovered but that the operation of the business will yield enough revenue, so that something, a profit, will be left after all these costs have been provided for. This is true of the one man as well as the larger organization.

The man who is in business by himself wants to recover more than his living expenses. The larger organization wants to recover more than the wages and expenses it pays out. If the small proprietor fails to do that, he goes into debt; the larger organization eats up its capital.

Cost of Time. In the execution of a service job part of the cost of the job should be definitely known. That part is represented by the cost of materials used and the wage or salary cost of the time spent on the job.

The material or parts and tube cost is known. We say "should be definitely known" only as far as wage or salary cost is concerned, because a service man running a one man organization may not have a very definite or regular way of paying himself. He may put all the receipts of the business in his pocket and pay both private and business costs out of that same pocket when necessary. In such cases, it is probably impossible to determine the "wage cost" of a service job because the man has never put himself on his own payroll for any definite amount.

Such a service man if he wishes to benefit by our plan must now set a weekly wage for himself or a weekly drawing account. That wage or drawing account should be a sum commensurate with his needs, local wage conditions, and the amount of business he does. For example, a man doing an average of $50.00 per week in a smaller community, where his weekly personal living costs are $20.00 to $25.00 should not put his weekly wage or drawing account at $45.00. He should be reasonable and put it at any figure between $25.00 and $30.00. If in the end more than that is left for him, he will get it, because he owns the entire business. If the figure is too high at between $25.00 and $30.00 per week he will soon realize that fact, because after a while he'll not be able to take that sum as it will not be there for the taking. Generally, the weekly wage or drawing account of the one man shop operator should conform to the general wage scale of his community in comparable occupations.

Except then for the man who has not as yet determined upon a weekly wage, the wage or salary cost of a service job is definitely known, because the hourly wage rate is the weekly wage divided by the number of hours in the standard week. That standard week may vary according to locality as in some regions the 6-day week of 8 hours per day or the 48-hour week is considered standard, while in other regions the 5½-day week of 8 hours or the 44-hour week may be accepted as such. Elsewhere a week's work may represent a greater or smaller number of hours. The American trend happily is toward fewer work hours per week but store keepers and shop employees have not advanced as far in this respect as industrial employees.

That hourly rate multiplied by the number of hours of time spent on the job makes wage cost easily determined.

Please note carefully that *we advise division of the weekly wage by the number of hours in the standard week,* in order to determine the hourly rate of wage or salary cost for use in calculating the service job cost. *It is extremely important that you do just that.* Do not at this time raise the objection that you do not at any time during any week work the number of hours in that standard week. If you are inclined to object, remember that the business week after week pays you the same amount, regardless of the number of hours you actually worked during the week. Any question you may now raise on that point will be answered in its logical order as we go on.

In order to enable you easily to determine your wage or salary cost on any job in accordance with the time spent on that job we make another suggestion. It is this: Always express fractions of hours spent on a job in decimal form, not in fractional form.

Suppose your Service Job Cost Card shows you worked on a job from 10.35 a. m. to 11.50 a. m. The cost would be the result of 1 hour and 15 minutes multiplied by the hourly rate. The 15 minutes are equal to ¼ hour so that your calculation would be 1¼ x hourly rate. This in turn would mean you would have to divide the hourly rate by 4 in order to get the cost of that quarter hour, and add it to the cost of the one hour to arrive at the total cost of time spent.

If, however, you express the 15 minutes not in the ¼ *fractional sign*, but the .25 *decimal sign*, your calculation would be 1.25 x hourly rate, a straight multiplication problem.

The decimal method is superior to the fractional method in point of ease and time required to calculate the result, which is the total wage cost.

If, furthermore, you do not break the hour down in smaller than 6 minute periods, which means that you round the minutes contained in a fractional hour either up to the next full 6 minute period or down to the prior full 6 minute period, the time spent on any job if a fraction of an hour is spent will never be other than 6 minutes or multiples thereof up to 54 minutes. These 6 minute periods are easily expressed in decimal points. Six minutes is one-tenth hour, in fraction 1/10, in decimal .1. It is much easier and it will not make a material difference to consider 10 minutes as two-tenth hour which expressed in decimals is .2.

How slight the difference is can be demonstrated.

Assume a $30.00 per week salary for a 48-hour week, which is equivalent to a rate of 62½ cents per hour or $.625. Ten minutes considered as 2/10 hour would figure at $.125, while 10 minutes considered as 1/6 hour would figure at $.104, a difference of $.021 or two cents variation or inaccuracy.

We therefore recommend that you round your time to 6-minute periods and use the following table:

6	minutes	=	one	tenth	hour	or	.1	covering	4	to	9	minutes
12	"	=	two	"	"	"	.2	"	10	"	15	"
18	"	=	three	"	"	"	.3	"	16	"	21	"
24	"	=	four	"	"	"	.4	"	22	"	27	"
30	"	=	five	"	"	"	.5	"	28	"	33	"
36	"	=	six	"	"	"	.6	"	34	"	39	"
42	"	=	seven	"	"	"	.7	"	40	"	45	"
48	"	=	eight	"	"	"	.8	"	46	"	51	"
54	"	=	nine	"	"	"	.9	"	52	"	57	"
60	"	=	one	full	"	"	1.0	"	over		57	"

Thus 1 hour and 10 minutes @ $.625 per hour becomes 1.2 x $.625 or $.75 or 75 cents. A very simple calculation.

Expressing hours in decimals also greatly facilitates adding the total time for one day's service jobs. It is far easier to add 1.2 hour plus 1.8 hour plus .6 hour than to add the

equivalent amounts expressed in common fractions, 1-1/6 hour plus 1-5/6 hour plus 7/12 hour. Let us try it:

1 hour—	10 minutes=	1-1/6 hour=	1.2 hour
1 " —	50 " =	1-5/6 " =	1.8 "
	35 " =	7/12 " =	.6 "
3 hours—	35 minutes=	3-7/12 hours=	3.6 hours

3-7/12 hours is exactly 3 hours and 35 minutes. 3.6 hours is exactly 3 hours and 36 minutes. A difference or variation of one minute in the result, but a saving in time of numerous minutes and a simplicity which will save you a headache. Therefore give this method of expressing "Time spent on job" in decimals, by rounding it out as recommended, your serious consideration.

It is also possible, particularly in a smaller organization, that it is not customary to figure time more closely than the 15 minute period, as follows:

Up to 7 minutes	is not considered.	
8 to 22 "	=¼ hour or	.25 hour
23 to 37 "	=½ " "	.5 "
38 to 52 "	=¾ " "	.75 "
53 to 67 "	=1 " "	1.0 "

Where this custom prevails the difficulty in using fractions instead of decimal points is less and use of fractions may well be considered optional.

Whatever the number of hours in the standard week may be and regardless of use of decimals or fractions the "cost of time," sometimes called "productive labor" or "direct labor" is definitely known and simple to calculate, *providing* you always properly and promptly make up the cost section of your Service Job Cost Card on each job.

Shop Expense Percentage. Having read as far as this heading "Shop Expense Percentage" you may, if yours is a one man organization operating from your residence, feel like passing by this caption. You have no shop and therefore it may seem that you cannot have shop expense.

Nothing could be more incorrect, because while you may not have "shop expense" in the literal meaning of the term,

you nevertheless have "shop expense" in the broader sense in which we employ the term. You unquestionably have "idle time" which is time for which the shop pays you while you do not work on any service job. This is "time cost" or "wage cost" of the business which cannot be charged to any job because there were none to which to charge it. In other words, that "idle time" or "non-productive time," because the business pays you for it as well as for your "productive time," is an expense or a cost to the business which the business aims to recover. In fact, it must recover what it pays you for your "idle time" if it is to continue its existence.

There is, however, one only way in which the business can recover any of its outlays for business purposes and that is from its trade or customers.

Therefore, the "idle time" as well as the "time spent on jobs" must in some way be charged to your customers if the business is to recover thru its operation all it pays out.

Each service job done must carry its proper share of "idle time" as part of the "total service cost."

Consequently, if you have no shop but operate from your home and if you have "idle time" between jobs, you have a certain amount of "shop expense" to apply on each service job done.

And, if you operate from your home, you must have some "shop expense" in addition to your "idle time." Don't you have a room set aside for a work shop? You need transportation to get you to and from your destination on service calls. You must have some service or test equipment, tools, soldering irons. You must use up some supplies in your service work. You must spend some money for service information, some money to get service jobs. You must use electricity for light and repair or test purposes. In all probability, your phone is used for service calls as well as for household use.

It is safe to say that whoever engages in the radio service business has "shop expense" whether he runs a small establishment or a larger one. Possibly the "idle time" item is the biggest of all factors in "shop expense" but never is it the only factor.

In the service organization operating from its own business premises, supplied with necessary modern equipment,

the item of "shop expense" need not be emphasized, because it is self evident.

The problem regarding "shop expense" is its equitable application to "cost of service." Consequently, numerous service organizations, both small and larger ones, experience great difficulty in determining the result of operations because the "cost of service" which is the only proper basis for the charge to the customer is not known and the charge to the customer is mere guesswork. Most often, competition forces down the charge to the customer. While attempting to meet competition, the service man suffers loss.

If, then, we can develop a method whereby each service job done, is made to assume its proper share of "shop expense," we shall at least have put the service engineer in the position where he can decide for himself, whether or not he will meet ruinous competition. Because, with the knowledge of his actual "cost of service," and being aware of the fact that his charge to the customer should, at its lowest, be equal to the cost, he need no longer go it blindly.

"Shop expense" is variable and the amounts applied currently to current jobs are always estimated, because the actual shop expense for the month is not known until after the jobs during the month have been finished, charged to the customer and perhaps paid for by him.

The fact that "shop expense" is applied on an estimated basis, therefore, makes it necessary to make a *careful* estimate. Should the estimate be too low, the result will be that the "service cost" fails to recover all of the cost and expense of the business. We all know that means loss, because the charge to the customer will be too low in consequence. Should the estimate be too high, the result may well be that the charge to the customer will be too high and potential business will be lost.

The chief difficulty in your estimate of "shop expense" will be "idle time." Wages will probably be the largest single item in running the business and it is quite possible that "idle time" will be the largest single item in "shop expense."

Let us assume a few items in an imaginary service organization of the one man variety. We will deal with only a few items of expense to simplify matters. Then we will assume that we are service men, trying to determine what

our "shop expense" probably will be for the next month, so that we may go ahead and make up our Service Job Cost Cards as we do service work during the next month.

The weekly drawing account is	$30.00
The monthly rent chargeable to the business is	15.00
The monthly use of supplies, solder wire, etc., is	3.00
The monthly electric bill for the business is	6.00
The monthly telephone bill for the business is	4.50
The monthly automobile expense to the business is	12.00

The items rent, supplies used, electricity used, telephone and automobile expense are about right. We know from past experience that those expenses run about that much per month.

Wages, however, are different. $30.00 per week for 4½ weeks (the next month has that many weeks) amount to $135.00. The great question in regard to wages is how much of this is going to be for "idle time," not chargeable to service work directly but part of "shop expense."

There again your experience can be of assistance, and thought on the matter makes you decide that out of the 216 hours, based on a 48 hour week, you will do service work 130 hours. You base that on an average of 5 hours per day which you believe you generally spent on service work in the past. You probably wish you had kept a record of your time spent on service work in the past. That would be of very great assistance to you now.

You estimate then 130 hours out of 216 hours as productive time which leaves 86 hours as "idle time" or "shop expense."

These 86 hours, at the rate of 48 hours for $30.00 or $.625 per hour, represent an amount of $53.75.

A summary of "estimated shop expense" for the next month then would look as follows:

Idle Time 86 hrs. @ .625	$53.75
Rent	15.00
Supplies	3.00
Electricity	6.00
Telephone	4.50
Auto expense	12.00
Total	$94.25

This item of $94.25 "estimated shop expense" you cannot charge on your Service Job Cost Card as either "time spent on job" or "materials used." Yet you must enter it as cost on your Job Cards so that you will not fool yourself in regard to the "cost of service" on which you base the charge to your customer in the space indicated for "services rendered."

If your estimate is correct, during the next month, you will charge to "time cost" on your Service Job Cost Cards, an aggregate of 130 hours amounting to $81.25. On top of that, you will have to add $94.25 in "shop expense."

Dividing $81.25 into $94.25, you find that the latter amount is 1.16 or one and sixteen hundredth times $81.25.

Expressed in another manner then, we say that, based on your estimate for the next month and in order to make sure that "service cost" will include all the "time cost" and "shop expense," to each $1.00 of "time cost" you must add $1.16 of "shop expense." Or, "shop expense" is 116% of "time cost," which is the wage or salary cost of the estimated time you expect to put in during the next month on service jobs.

If, during the next month, you spend 1 hour and 45 minutes on a cerain service job, you would show the following on your Service Job Cost Card for that job:

COST OF TIME

1.75 hours at .625 per hour—amount	$1.09
Total cost of time	$1.09
Shop expense 116% of above	1.26
Total cost of service	$2.35

Suppose that your estimate was entirely correct and you did spend 130 hours in total during the month on service jobs. At the end of the month you would have the following:

Time spent on jobs during month 130 hrs. @ .625 =	$81.25
Shop Expense added during month 116% of above =	94.25
Total	$175.50

Against the following wages and expenses:

Wages paid for the month	$135.00
Rent paid for the month	15.00
Supplies used for the month	3.00
Electricity used for the month	6.00
Telephone for the month	4.50
Automobile Expense for the month	12.00
Total	$175.50

This means that "cost of service" on the individual jobs which you figured during the entire month has taken in all the expense of the business, that your charges during the month to your customers, if you have based them on the Cost Section of your Service Job Cost Card, *have been sufficient to recover all your costs*, if you, at no time knowingly did a job for less than cost.

We trust that you will always be able to charge the customer more than the "cost of service" shown on your Service Job Cost Cards, because that will mean that you make a profit, in addition to recovering all your costs.

The example we gave, showing actual "service costs," for the month exactly equaling the total wages and expenses for the month was made up to illustrate our point. It should be clearly understood that it illustrates the reasoning, whereas the figures used to demonstrate, agree so perfectly because *we made assumptions which in practice seldom, if ever, occur.* We assumed:

(1) That the estimate of 130 "Service Job" hours out of 216 Shop hours made at the beginning of the month, was 100% correct,

(2) That the estimate of expenses during the month also was 100% correct.

In practice, there will nearly always be a difference between "estimated idle time" and "actual idle time." Seldom, if ever, do the "estimated expenses" equal the "actual expenses."

Chances are, especially in a smaller organization, that the "estimated expenses" and the "actual expenses" will not be very far apart. After all, your rent, telephone, electricity, auto expense, supplies, etc., will be fairly constant, unless you rent a larger shop or use more equipment. If you do, you will be aware of these factors and able to construct your estimates accordingly.

Not so with your estimates of "productive service hours" and "idle time." It is hard to predict how business will go during the next month.

Suppose, for example, that all other expenses were fairly accurately estimated in the foregoing example, but that during the month, you had 145 hours spent on jobs instead of 130 hours spent on jobs out of 216 total hours. You would then have had 71 hours of "idle time" instead of 86 hours. Instead of having to include in Shop Expense 86 hours at $.625 per hour or $53.75 for "idle time" as estimated, your expense for that item was 71 hours at $.625 per hour or $44.38.

Your estimate, made conscientiously and carefully, showed 116% "shop expense" should be used during the month and that is what you did use.

What will be the result of the inaccuracy of the estimate of "idle time" while the other expenses are about the same? Let us see.

At the end of the month, you would have the following:

Time spent on jobs during month 145 hrs. @ .625	=	$90.62
Shop expense added during month 116% of above	=	105.13
Total		$195.75

Against the following wages and expenses:

Wages paid for the month	$135.00	
Rent paid for the month	15.00	
Supplies used for the month	3.00	
Electricity used for the month	6.00	
Telephone for the month	4.50	
Automobile expense for the month	12.00	
		$175.50
"Service cost" applied on Service Job Cost Cards in *excess* of actual cost		$20.25

Your charges during the month to your Customers, if based on the Cost Section of your Service Job Cost Cards have been *more than sufficient to recover all your costs,* provided no job was charged to any customer at less than cost. This is due to *underestimating* the number of hours you expected to spend during the month doing service work and not underestimating or minimizing your expenses.

Our advice is to bear the above example in mind—be as correct as possible in your estimate of productive time. In case of reasonable doubt, increase your estimated "idle time," decrease your estimated productive "service hours."

What will happen if you *overestimate* your productive "service hours"?

In our first example, perfect but wholly theoretical, we assumed that the estimate of 130 hours was 100% correct, for the actual "service hours" obtained during the month covered by the estimate was also 130 hours.

In the second example, wholly practical, we assumed that 145 productive hours were obtained during the month against an estimate of 130 hours, with favorable results.

In this third example, also wholly practical, we will assume 110 hours of productive hours were obtained during the month against an estimate of 130 hours.

What will the result be of *overestimating* or being too optimistic regarding business to be obtained in the near future? Assuming the other expenses to conform to the estimate, how will we make out under that condition?

On the basis of estimated "shop expense," we decided to use 116% "shop expense" added to productive "time cost." We will get the following, therefore:

Time spent on jobs during month 110 hrs. @ .625 =	$68.75
Shop Expense added during month 116% of above =	$79.75
Total	$148.50

Against the following wages and expenses:

Wages paid for the month	$135.00	
Rent paid for the month	15.00	
Supplies used for the month	3.00	
Electricity used for the month	6.00	
Telephone for the month	4.50	
Automobile Expense for the month	12.00	
		$175.50
"Service cost" applied on Service Job Cost Cards was *below* actual cost by		$27.00

Your charges during the month to your Customers, if based on the Cost Section of your Service Job Cost Cards,

have been *insufficient to recover all your Costs,* even if no job was charged to any customer at less than cost. This is due to *overestimating* the number of hours you expected to spend during the month on jobs, even while you did not underestimate or minimize your expenses.

Throughout these examples, we have assumed that the estimate of your other expenses, such as rent, electricity, telephone, supplies and automobile, corresponded with actual expenses. That, of course, is just as unlikely as estimating "idle time" 100% correctly.

There is, however, much more of a possibility that you will come closer on other expenses, than on "idle time."

Any over or under-estimate in expenses will have the same basic effect as over or under-estimating "idle time," except that the effect on the result is not so pronounced.

In the second example, your "service cost" applied was $20.25 higher than estimated, because

(1) 15 hours @ .625 or $9.37 was taken off your estimated "idle time" included in "estimated shop expense" and became "productive" or "chargeable" time cost,

(2) 116% of this amount of $9.37 or $10.88 was taken out of your estimated "shop expense" and added to "chargeable" time cost,

(3) a total of $9.37 plus $10.88 or $20.25, instead of being expense to be borne by the business, was instead included in the "cost of service" recoverable from your customers.

In the third example, you did not recover 20 hours @ .625 or $12.50 in "time cost" and in addition, failed to recover 116% of that amount of $12.50 or $14.50 in "shop expense" which you estimated you would recover. A total of $12.50 plus $14.50 or $27.00.

This clearly demonstrates that arriving at the correct cost to the business of "service time" requires thought, and in the following chapter we will outline the method whereby the estimate of "shop expense" can be made by you with reasonable accuracy.

The Charge to the Customer. A word, however, regarding the charge to be made to the customer for service work done.

We have dealt with the "cost of service" to the business. We have not dealt with the charge that should be made to the customer, because that is one of the things we cannot do for obvious reasons. As far as the charge to your customer is concerned, you must determine that yourself and much will depend on local conditions and competition.

The assistance we can give you is toward determining your real cost so that you will know the *cost to the business of the services rendered.* Furthermore, we repeat the following three points:

1. If the charge to the customer is less than the cost of services rendered, the operating result is a loss. If persisted in, the service organization will go out of business.
2. If the charge to the customer equals the cost of service rendered, the operating result will be nil. The service organization earning its wages and expenses will continue to exist but will not grow.
3. If the charge to the customer exceeds the cost of services rendered, the operating result will be a profit. The service organization will prosper and grow.

Our advice is then not to sell service below cost; not to be too liberal with free service calls and other leaders; always to charge at least the cost of service rendered and take a profit, however moderate, whenever humanly possible.

Chapter VI.

THE OPERATING STATEMENT

Estimating Monthly Shop Expense

In the preceding chapter we attempted to demonstrate that the reasonably accurate determination of the "shop expense" rate is a pre-requisite in obtaining a reliable and workable "cost of service" on the Service Job Cost Card.

We will now analyze a little further the composition or makeup of "shop expense."

"Shop expense" is the aggregate or total of all expenses incurred by the business which cannot be said to apply directly to any specific service job.

In doing a service job, material cost, time or wage cost and shop expense make up the cost of the job. The material cost is the cost of parts and tubes installed on the job to replace worn out, defective or missing parts or tubes. Any parts or tubes used in this manner are installed in the repair job in their entirety and their cost in its entirety forms part of the individual job. The time spent translated into dollars and cents with the aid of the hourly rate is in its entirety part of the cost of the individual job.

"Shop expense" however covers all the jobs done and goes on when no jobs are at hand. It is an aggregate and is composed of a number of classes of expense, of which a proportionate amount belongs to the individual jobs. "Shop expense" in its entirety as it accumulates during busy time as well as during idle time should be borne by the jobs actually done, because there is no other place where this expense can be absorbed.

"Shop expense" in the radio service organization is separable in two major parts:

1. Idle time.
2. Other or running expenses.

In most radio service organizations the "idle time" item will be the largest. At the same time it will be the most important item in "shop expense," because of the effect "idle

time" has in increasing or decreasing the total "shop expense" to be absorbed in "cost of service." Also because "idle time" experienced determines whether "shop expense" will or will not be absorbed in the "cost of service." It is therefore necessary that we analyze "idle time" thoroughly.

Idle Time Estimated. "Idle time" for our purposes is that portion of wages paid by the business for time not spent on service jobs or other chargeable work. This is in accordance with the principle that all outlays made by the business for business purposes must be recovered by the business through its sales. "Service time" is directly recoverable through the charge to customer. "Idle time" should be recovered even though it is not directly recoverable. The recovery, if made, must be made indirectly.

In a service organization, which sells parts, tubes and radio, "idle time" will be the balance of wages paid out after the "service time" and "merchandise sales time" have been taken out. By "merchandise sales time" is meant the time consumed in selling tubes, sets, or parts not in connection with a service job as distinguished from time consumed doing repair work.

Such "merchandise sales time" however is also indirectly recoverable only. It cannot be charged to the sale in the same manner that "service time" is charged to the service job on the Service Job Cost Card. Recovery of "merchandise sales time" depends entirely on the amount of gross profit realized on the sales of merchandise.

Determination of "merchandise sales time" in a service organization will require numerous notations of small periods of time, if merchandise sales occur often. If they occur seldom the total of "merchandise sales time" will be small; perhaps the time required keeping track of it and making notations will be more than the "merchandise sales time" itself.

The individual operator who wishes to keep track of this "merchandise sales time" can do so. We do not recommend it, unless such time monthly runs into an appreciable number of hours. This does not seem possible.

The average merchandise sales for the year 1935 of tubes and parts was $436.00, of which $162.00 is for parts and $274.00 for tubes, according to information supplied by 743 independent service engineers from 41 states.

The monthly average total, according to reports received, is $36.33 per month, being $13.50 parts and $22.83 tubes per month. Therefore, the form we provide for recording of chargeable "service time" has some blank columns which you may use for "merchandise sales time" if you wish. The only column we will use on the Daily Chargeable Time Report form is the first column marked "chargeable time."

All wages paid in excess of "service time" we consider "idle time," while a provision for "gross profit on merchandise sale" is made in the "Shop Expense" estimate.

While we speak of "idle time" we do not mean time spent in idleness such as reading the paper, or standing around doing nothing. It is quite possible that "idle time" will be fully occupied in cleaning the shop or store, maintenance of equipment or perhaps reading up on service notes or information. It is described as "idle time" from the viewpoint of direct earning capacity. While these other activities are worthwhile they cannot be recovered directly through charges to anyone.

It is true that it may be of interest to the proprietor to know how much time is spent in such "idle time" occupation. Nevertheless, further sub-division of "idle time" would complicate this scheme to the extent of making it useless for the greater number of small service organizations. If such further detail is wanted the business can provide it by hiring a competent double entry bookkeeper.

Our present problem is to decide how much of wages paid is "idle time" expense and should be regarded as "shop expense." It is also necessary that the answer to the problem be sincere and not a mere, wild guess. In the preceding chapter we demonstrated that very clearly.

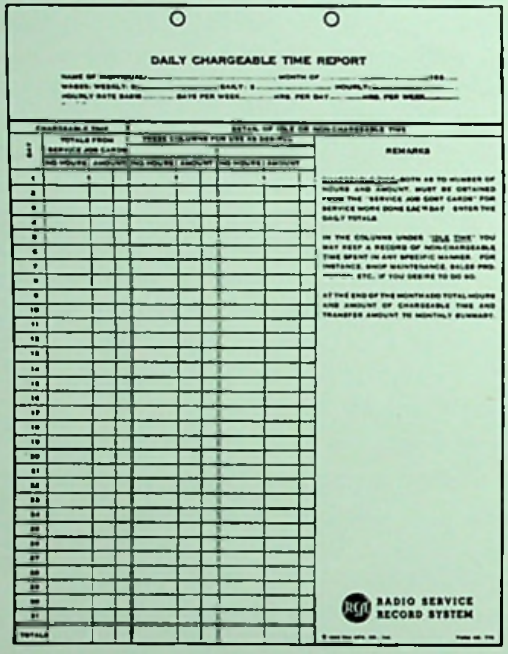
It is therefore desirable to develop some method whereby "idle time" can be estimated month by month in a logical manner. As long as there is no method to the manner in which we make our estimates of "idle time," they will continue to be guesses based on memory, which at best is inaccurate and most times entirely unreliable.

Estimates, when worthy of the name, are nearly always based on past experience adjusted to present known conditions. The service organization then which has had, up to this time, some method of reliably recording its "service time"

has built up a record of past experience which will be of help in building up estimates of "shop expense."

The longer the period covered by this record of past "service time" the more accurate will be an estimate based upon that record.

For the benefit of those service organizations which have so far not kept any records on chargeable "service time" we have prepared two forms, both of which can to advantage be adopted by all service organizations. The first form, called the Daily Chargeable Time Report, is shown below.


DAILY CHARGEABLE TIME REPORT

REMARKS

RADIO SERVICE RECORD SYSTEM

FORM 778. DAILY CHARGEABLE TIME REPORT.

Daily Chargeable Time Report. The form is designed to record the chargeable time of the individual owner or employee. Where more than one person is employed, a form for each person should be used each month. The heading is self-explanatory.

Many radio service shops are open for business more or less than 8 hours and more or less than 6 days per week. We do not intend to prescribe or regulate the work hours of the radio service industry. The use of the 48 hour week in determining hourly rates is advisable, because the American trend is toward the 48 hour week and perhaps towards the 44 hour or even 30 hour week. Since some service engineers are on call any time during day or evening it may perhaps be impractical or impossible to make the 8 hour day a reality for 6 days per week. On the other hand there is no good reason to concede that the service engineer is more of a wage slave than his fellow citizens. Finally we surmise that few service engineers find it possible to regularly put in 48 service hours per week in gainful activity. If we are wrong, then the radio service industry is far more prosperous than its members generally claim.

However, use the 48 hour week or whatever other number of hours agrees with your ideas. Our emphasis is on the method, not so much on the number of hours.

The Daily Chargeable Time Report is divided by a double vertical line into two parts and the left hand side is the important part of the report.

Under the subheading "chargeable time" we find two columns, one marked "day" underneath which the days of the month are listed. Year and month are not necessary here, because they are provided for in the heading.

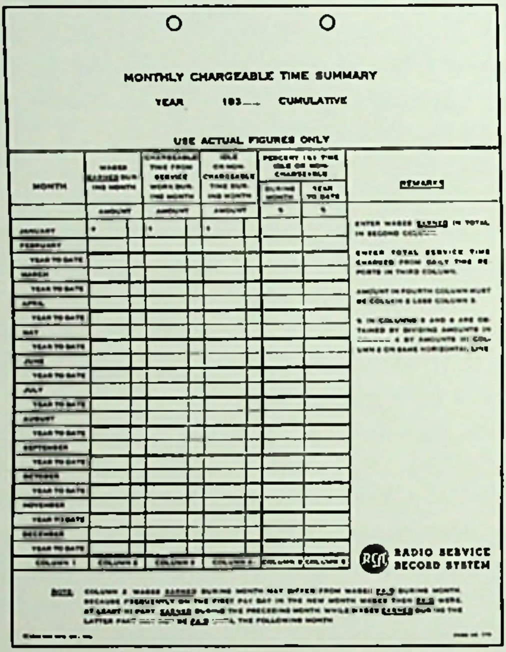
The second and wider column of the left hand portion is headed "totals from Service Job Cards." By this is meant that you obtain these totals from the cost section of the Service Job Cost Cards covering the jobs for that day by adding together all the hours and all the amounts shown as "total cost of time" for the day. Be sure not to take the amounts shown on Job Cost Cards as "total cost of service" because those amounts include "shop expense" and we are interested in "cost of time" only.

If that is done for each day during which service work chargeable to customers was performed, then, at the end of the month by totalling the "hours" and the "amount" columns you will get the "actual chargeable time" for the month.

The amount of this chargeable time is then entered on the second form, described and illustrated on page 140.

Monthly Chargeable Time Summary. This form has six columns, five of which are for your entries.

The first column lists the months individually and cumulatively or "year to date." In column 2 you must enter the total wages *earned* during the month, because that represents the entire "wage or salary cost" to the business. Be sure to enter wages *earned* during the month and not wages *paid.* At times these may be the same, but mostly they will be different.


MONTHLY CHARGEABLE TIME SUMMARY

YEAR 193__ CUMULATIVE

USE ACTUAL FIGURES ONLY

REMARKS

RADIO SERVICE RECORD SYSTEM

FORM 779. MONTHLY CHARGEABLE TIME SUMMARY.

To column 3 you transfer the total amount of chargeable time for the same month from the foot of the form called Daily Chargeable Time Report.

Having filled in columns 2 and 3, the amount in column 4 is the difference between column 2 and column 3, and equals the "idle" or "non-chargeable time."

You make the necessary division and arrive at the percentage for column 5, which is the *actual* percentage of "idle time."

As soon as you have entered the second month on this form you add the amounts in columns 2, 3 and 4 and obtain "wages earned," "chargeable time" and "idle time" for the year to date, in so far as you have made records of chargeable time.

We say this because you may start keeping records in May and therefore not be able to state any "year to date" results until the end of June.

As soon as you have a "year to date" result you calculate the percentage for the "year to date" and enter that in column 6.

Never add up either columns 5 or 6. Such addition has no meaning and can produce no useful result. As a matter of fact percentages in column 6 as developed are the result of combining the percentages shown in column 5.

We have developed the form Monthly Chargeable Time Summary and advise the calculation of the "year to date" percentage for the purpose of estimating "idle time." A "year to date" percentage is more significant and useful. And the only reason for developing the two forms for the recording of time is to have a useful aid in estimating future "idle time" as the major part of "shop expense."

We attempt to arrive at a method whereby "shop expense" can be estimated and used during an entire business cycle. Radio servicing is more or less seasonal. The result is more "idle time" in summer than in winter. Consequently, actual "shop expense" in summer may be greater than in winter, due to increased "idle time."

A service organization basing its cost on "idle time" immediately preceding will have greatly varying rates of shop expense.

If that organization adopts our cost-finding method and bases its current charges to customers on *current* costs, it will have to charge considerably more for a job when done in summer, than it charged for the same job done the preceding winter or early spring. This can be avoided by using an "idle time" percentage based on a complete business cycle.

The "idle time" percentage should be developed over the entire business cycle, covering the four seasons or the entire year in order to insure constant "cost-of-service" levels and constant "charge-to-customer" levels. We therefore strongly

recommend the keeping of both forms, the Daily Chargeable Time Report and the Monthly Chargeable Time Summary for the year.

In your monthly estimates of "idle time" for "shop expense" rate purposes always use the "year to date" percentages, as soon as available. You will have to adjust them until you have developed a "year to date" percentage covering a period of twelve months. The adjustment you must base on what you know lies in the immediate future.

You may have started your Daily Chargeable Time Report in April and arrived at an actual percentage for that month. You have to decide your "shop expense" for use on your Service Job Cost Card during May. In that case you take the actual April percentage of idle time during April. If you know that service work falls off during May, you know that you'll have possibly a greater "idle time" percentage during May than you experienced in April and you try to set your May percentage accordingly. If you expect to do without your helper in May, while you employed him during all or part of April it is possible that your May percentage of "idle time" will not be greater than the April percentage in spite of an anticipated reduction in jobs obtained.

At the end of May you will know your actual percentage of "idle time" for the month. Entering this also on the Monthly Chargeable Time Summary you will be able to figure your "year to date" percentage, which will be the percentage resulting from the combination of April and May. That again serves as the basis for your June estimate of "idle time," which you again attempt to adjust for July in accordance with your knowledge of your business.

By the time you reach the end of December, if you have done your paper work right you will have developed a "year to date" actual "idle time" percentage as the net result of 9 months operation. That percentage of "idle time" begins to approach the fair standard for your business and may serve with minor adjustments in determining "shop expense" rates.

At that stage you should not consider it advisable to discontinue keeping your time records. In fact we believe that they should be kept up as a check on your business. It is quite possible that your business may prosper and the "idle time" percentage becomes gradually smaller. To know beyond a

shadow of doubt that such is the case is extremely worthwhile, because the knowledge may enable you to safely meet competition should it ever become necessary. This knowledge will also enable you to determine the extent to which you can go in meeting competition without loss. If, on the other hand, you see a gradual increase in your "idle time" percentage it will serve as notice to you that you must increase your shop expense percentage in order to keep your cost on an "actual level." That may result in the necessity of increasing your charge to the customer, if conditions will permit. Otherwise it may serve as notice on you to hustle more business and thus increase your chargeable time.

Your First Idle-Time Percentage Estimate. If you decide to start the foregoing time records, you will not have the "idle time" percentage of the preceding month at the start for use in your "shop expense" rate estimate for the next month. If however you want to make immediate use of the cost section of your Service Job Cost Card you must estimate the "shop expense" rate to be used and therefore estimate your "idle time" percentage for the first month without the benefit of an existing time record.

You must therefore draw upon your memory and use any business papers which you have that can be of any help to you in deciding how much of your time during the preceding month was "chargeable time" and how much "idle time." There should be no difficulty in recalling the amount of wages earned during the preceding month.

Assume today to be April 1, 1936. During March there were four (4) full six day weeks and two extra days. If your salary or drawing account is $30.00 per week, wages earned during March were 4 1/3 times $30.00 or $130.00. The difficulty now is to divide that more or less correctly into "chargeable" and "idle" time.

In March the number of shop hours, if based on a 48 hour week were 4 1/3 times 48 hours or 208 hours. You estimate your "chargeable time" at 125 hours which is 60% of 208 hours. Therefore your "idle time" is 83 hours or 40%.

60% of $130.00 = $78.00 was "chargeable."

40% of $130.00 = $52.00 was "idle time," and became a part of "shop expense" to be absorbed in "service cost."

By this method, and substituting your own figures, you arrive at "idle time" for use in your first estimate of "shop expense." Subsequently if you use the two time forms (Forms No. 778 and No. 779), the forms will give you actual figures.

Idle Time of Part Time Service Operators. Some service men do service work as a sideline, having more or less regular other employment. If such service work is done merely for the sake of augmenting the income from regular employment, the question of "idle time" becomes highly debatable and its determination a difficult task. To calculate "idle time" expense there must be a fixed work-hour week and a regular weekly compensation.

Lacking both these elements, the determination of "idle time" for the purpose of estimating the "shop expense" ratio to be used in determining the "cost of service" on service jobs becomes a difficult problem. In fact, for such service men, there is no "'idle time expense" because they do not operate in a regular manner.

In fairness to those whose livelihood depends on their service business, however, men doing service work in their spare time should be careful to charge for such work in conformity with local standards.

It is not impossible that the part-time service man some day will want to set up as a full-time service engineer. If, in the meantime he has established himself on an unfair, low scale of prices, he will find it impossible to hold his trade or to increase it when it becomes necessary for him to get prices commensurate with the "cost of service" he renders as a full-time service man.

If, as a part-time operator, he devotes his evenings and Saturdays to service work, he should take as his standard week the number of hours of his spare time during the week. Taking this spare time as from 6 P. M. to 10 P. M. daily for 5 days and 8 hours on Saturday, he would have a 28 hour week. His compensation should be figured at the hourly rate for a competent service man in his locality.

He should be honest with himself in determining "idle time" on that basis. This "idle time" then will be considerable and help to raise the "cost of service" for the few jobs he does. His charge should be based on his cost.

If he does the foregoing, and also includes his actual expenses in his "shop expense," he will not be guilty of attempting to ruin the local radio service trade, which at any time may become his one and only means of livelihood.

Running Expenses Estimated. The "shop expense" ratio should cover not only "idle time" but also the "running expenses" of the business.

These expenses for the greater part do not present the difficulty inherent in the determination of "idle time" because they are more or less the same from month to month. It is therefore easier to estimate them fairly accurately. The chief problem often is to determine the portion of such expense directly applicable to radio service.

In organizations doing nothing but radio service work and furnishing tubes and parts in connection therewith only, occupying separate busines premises, all expenses become part of "shop expense" applicable to radio service work.

In organizations as mentioned above which also have "merchandise sales" of tubes, parts and an occasional radio we feel that for simple cost purposes all expenses should become part of "shop expense" and an adjustment to "shop expense" should be made for gross profit realized on merchandise sales, providing however that the organization is a service organization having occasional merchandise sales and not a merchandise organization having an occasional radio service sale.

We confine ourselves in this book to the problems of a business primarily a radio service organization which may or may not have merchandise sales of secondary importance. A survey has shown that radio servicing is carried on chiefly by service organizations and that radio dealers with service departments represent only 15% of those engaged in the radio service industry.

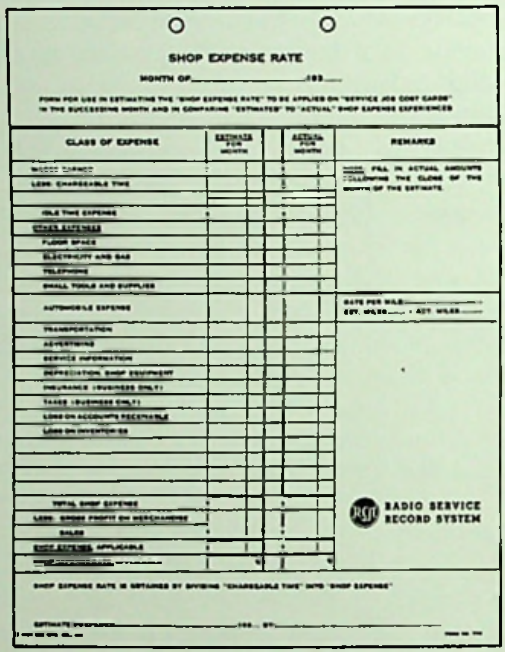
In service organizations set up to render automotive electrical and radio service the methods of this book apply, as long as "service" is the major item of stock in trade. Such organizations, almost without exception, have separate business premises and all expenses not directly chargeable against specific jobs become part of "shop expense."

In the case of a service business carried on in the residential premises of the owner, running expenses should be

divided whenever such expenses cover the home as well as the shop. In estimating "other" or "running expenses" the question is not so much as to the amount of such expenses but as to the portion that should be considered as "shop expense."

We have provided a monthly Shop Expense Rate form (Form 776) which is reproduced on this page. The first major item is "idle time expense" with which we dealt fully heretofore.

The first item under "other expenses" is "floor space."



SHOP EXPENSE RATE

MONTH OF_____19__

CLASS OF EXPENSE	ESTIMATE FOR MONTH	ACTUAL FOR MONTH	REMARKS
GROSS EARNED			
LESS: CHARGEABLE TIME			
IDLE TIME EXPENSE			
OTHER EXPENSES			
FLOOR SPACE			
ELECTRICITY AND GAS			
TELEPHONE			
SMALL TOOLS AND SUPPLIES			
AUTOMOBILE EXPENSE			
TRANSPORTATION			
ADVERTISING			
SERVICE INFORMATION			
DEPRECIATION, SHOP EQUIPMENT			
INSURANCE (BUSINESS ONLY)			
TAXES (BUSINESS ONLY)			
LOSS ON ACCOUNTS RECEIVABLE			
LOSS ON INVENTORY			
TOTAL SHOP EXPENSE			
LESS: SHOP PROFIT ON MERCHANDISE			
SALES			
SHOP EXPENSE APPLICABLE			
%	%		

RADIO SERVICE RECORD SYSTEM

SHOP EXPENSE RATE IS OBTAINED BY DIVIDING "CHARGEABLE TIME" INTO "SHOP EXPENSE"

FORM 776. SHOP EXPENSE RATE FORM.

Floor Space Estimated. If you have separate business premises, in the column headed "estimate for month" you enter the amount of your monthly rent or one-twelfth of the total of your yearly carrying charges, maintenance, taxes and water rent if you own the premises.

If you are buying through a building and loan association, or on a reducing mortgage plan, be sure not to consider as expense your monthly or yearly reduction of principal. Pay-

ing $20.00 a month on 10 shares of B. & L. stock means that you pay $10.00 to reduce the B. & L. mortgage and $10.00 for interest. Your expense is only $10.00 not $20.00. The same holds true on a fixed reducing mortgage plan. Consider this when you figure your yearly carrying charges, etc.

The above applies when you have separate business premises entirely occupied by your service business. If you rent out any portion to somebody else, your expense for floor space should be reduced by what your tenant pays you for his floor space.

If you are among the 27% of service engineers who carry on their service business from their residence, your floor space expense chargeable to "shop expense" should be a correct portion of the monthly rent or, if you own your residence, a correct portion of your carrying charges, maintenance, water rent, etc.

We advise a *correct portion* meaning thereby that the floor space charge to the business should be reasonable compared to the rent or charges on your entire residence.

If you use one third of your home you should not charge the business one half or two thirds of the entire rent or charges.

You take your weekly wage or drawing account and your personal expenses should be paid out of that. It is far wiser to increase your weekly salary or drawing than to charge the business with your living expenses under the pretense that they are part of your "shop expense."

Electricity and Gas Estimated. For separate business premises your monthly expense for this item should be easily estimated because you get bills for these services regularly.

In estimating, it should be remembered that winter or summer make a difference and that your consumption of electricity has a direct relation to the amount of work to be done or your "idle time" percentage.

If you work from home and there is only one meter for the entire premises you will have to split your expense between personal and "shop expense." It ought not to be extremely difficult to arrive at a fair division. As an expert on electrical devices contained in a radio set, knowing the power consumption of your equipment and soldering irons and the amount of use made of them, as well as the power of the bulbs used in the

home part of your residence, a proper division of cost of electricity cannot present a serious problem to you.

Telephone Estimated. The telephone bill is a good guide to use in estimating this item. If, as is often the case, you advertise in the telephone directory, that amount on the bill representing the telephone company's charge for advertising as distinct from telephone service rendered, should be considered by you as "advertising" and combined with that item on the Shop Expense Rate form. In the case of residential business premises a division should be made.

Small Tools and Supplies Estimated. In your service work you use small tools, such as screw drivers, alignment tools, soldering irons, tweezers, etc., which have to be replaced from time to time, due to loss or damage. You also use supplies such as solder, wire, etc. Such items are too small to capitalize as equipment and to depreciate over their useful life. In fact, the useful life of screw drivers and tweezers is almost unlimited and replacement is mostly due to loss.

In a year's time the cost of such tools and supplies may be considerable and by taking care of a little each month as an item of shop expense, you will make sure that your "cost of service" as a basis for the charge to the customer provides for the recovery of such necessary business expenses.

Automobile Expense Estimated. Replies to a questionnaire show that almost without exception persons engaged in the radio service industry have an automobile, whether car or truck, which they use either entirely or partly for service work. Furthermore, few of these automobiles are used for service work entirely. In fact, less than 5% (five percent) are used for service work exclusively.

Therefore in 95% of the cases of ownership of automobiles by service organizations the expenses in connection with them must be divided into "shop expense" and personal expense.

How can that be done best? Of course the answer is not simple, but if made on a mileage basis it is likely to be more reliable than any other way.

In other words, if it is possible to know the number of "business miles" the automobile runs and the cost of each mile, the problem will be solved. "Automobile expense" to be added

to the "shop expense" would then be a multiplication of the number of business miles run by the cost per mile.

The number of business miles can be determined with a little work, the cost per mile with a little thought and research.

Let us first look at the cost per mile and set up a hypothetical case, as nearly average as we can make it.

A service man owns an automobile of the following description and characteristics:

Cost less trade in allowance, including finance charges $400.00
He expects it will last him ..... 3 years
Mileage per gallon of gasoline ..... 15 miles
Grease and oil every ..... 1000 miles
Registration and driver's license yearly $15.00
Garage expense per month $4.00
Repairs and tires per year $60.00
Insurance: P. L. & P. D. per year $40.00
Insurance: Fire, Theft, Tornado, etc. $12.00
Yearly mileage ..... 16,000 miles

What is the cost per mile of running that automobile? Any man who owns a car can set up the above figures for his own automobile and determine the cost per mile.

Automobile expenses may vary. Some may be mentioned here which you, as an individual, do not incur. For example, you may not carry any P. L. & P. D. insurance on your car feeling that you cannot afford to insure it. The fact is that you cannot afford not to insure your car, because one accident may result in considerable court costs, attorney's fees and a judgment for damages against you. Should that happen, you will work for a long time for the benefit of the person holding the judgment, which means that person will get all your earnings over and above a certain amount until judgment is satisfied or compromised by cash payment. However you may be one of many who consider such insurance a waste of money, and you do not carry it.

Possibly you may not want to carry fire, theft or pilferage insurance on your car and its contents on the strength of the fact that your car, never having been stolen or tampered with to date, is never going to be tampered with. Your oscillators, oscillograph, your testers and meters, your tubes

have never been stolen so therefore the likelihood is that they never will be. Let us hope that no car thief will ever steal your car, your equipment or your customer's radio, while you stop on the way to the shop to make a service call. If he does, you'll wish you had insured against that contingency.

If you do not carry insurance, your cost per mile will be less. If you leave your car on the street or in the alley day and night you have no storage charge. Probably your repair bill will be higher or you'll have to charge up parking fines. If your car runs 25 miles on a gallon and you never change the oil but only add a quart now and then, your expense will be less for the moment, but your car will not run so long nor so well. There is such a thing as being "penny wise and pound foolish." No real busines man should fall into that error.

Any expenses mentioned in the tentative list given previously which you do not incur, should be omitted when you calculate the cost of running your car a mile. Some expenses not mentioned in that list you may incur and these should be added when you calculate the cost per mile. But all the expense you actually incur should be included.

Let us then figure the estimated cost per mile on the basis of our hypothetical figures.

Cost of running and maintaining automobile for one year

16,000 miles at 15 miles per gal.—1,067 gal. @ 20c		=	$213.40
Greasing every 1,000 miles @ $1.00 per job		=	16.00
Oil change 6 qts. per 1,000 miles @ 25c per qt.		=	24.00
Garage at $4.00 per month		=	48.00
Repairs and tires per year		=	60.00
Insurance P. L. & P. D. per year		=	40.00
Insurance Fire, Theft, Tornado, etc., per year		=	12.00
Cost of automobile	$400.00		
Trade in value after 3 yrs.' use	75.00		
Depreciation for 3 years	$325.00, 1 yr.	=	108.34
Total cost for 16,000 miles per year		=	$521.74
Estimated cost per mile, $521.74 divided by 16,000		=	3.26 cts.

We thus have rather quickly arrived at a fairly accurate cost of each mile run.

If you will use a little book and make notations of these various expenses as you go along and keep track of gas, oil, greasing and repairs you'll soon be able to test the accuracy of this cost per mile. Some gasoline companies provide such little books free on request.

If at the same time you will do some speedometer reading and recording, checking up on total miles run, and business miles run, you will have the other factor of "miles run" to help you calculate the "auto expense" of the business.

In setting up your estimate for "shop expense rate," base the number of miles on past experience, modified to meet the coming month as much as possible and use the cost per mile to arrive at the amount.

Transportation Estimated. This classification is set up to take care of express, parcel post or other delivery expense on the merchandise you purchase for resale. It is unlikely that your expenses under this heading will be a considerable amount and it is possible that they occur so infrequently that they cannot be estimated with any degree of accuracy. If such expenses do occur you should make the best possible estimate of them monthly.

Advertising Expense Estimated. Nearly all service engineers advertise in some way or other. The yearly amount expended on advertising is considerable, in comparison to income from sales. Therefore in estimating shop expense each month the *average monthly* advertising expense should be included. It will be more advantageous to use the average monthly amount in your estimates even though you may not advertise each month. Try to arrange your estimated advertising so that the total of the averages used in estimates over a year will equal the actual advertising expense.

Service Information Estimated. If you subscribe to service publications, purchase technical books or periodical publications, the estimate should be made to include such expenses.

If the yearly cost of these items is small, you can safely estimate on them as they occur and need not spread them out as evenly as possible over the year. If the yearly cost is considerable, compared to your expenses under other classifications, your estimate for "service information" should follow the method of your estimate on "advertising."

Possibly you incur expense in connection with attending service meetings. Possibly you are a member of an association of service engineers. Expenses and dues in connection with associations are part of the cost of doing business and they should be included in your "shop expense" estimate.

Depreciation of Shop Equipment Estimated. All service organizations have shop equipment, some more, some less, All service engineers agree that such equipment has a distinctly limited useful life. But not all service engineers agree on the length of that useful life.

The fact however that, without exception, service men are aware of the depreciation and obsolescence factor inevitably connected with shop equipment makes it clear to all that the expense of doing business is not fully stated unless it includes an acknowledgment of this factor. It was discussed in Chapter II under the heading "Equipment and Its Depreciation."

In order to give effect to depreciation and obsolescence of shop equipment you should make a memorandum which contains:

1. The descriptions and original cost of your shop equipment.
2. The estimated useful life at the time of acquisition.
3. The yearly and monthly depreciation to be charged to "shop expense."
4. The date of purchase.
5. The remaining period over which "shop expense" is to be charged monthly with depreciation of shop equipment.

For example:

In July 1935 you purchased a piece of test equipment for $80.00. You estimate its useful life to be 5 years. Yearly depreciation on this one piece of equipment will be $16.00, monthly $1.33.

The present date is April 25th, 1936, and you are going to make your first estimate for the month of May, 1936. Therefore 9 months have elapsed since purchase and 4 years and 3 months remain of its estimated useful life. Therefore for May 1936 to and including July, 1940, your monthly estimate should include $1.33 for "depreciation of shop equipment," on that piece of test equipment alone.

Do this with all your shop equipment and you have constructed a schedule of depreciation.

Should any piece of equipment become obsolete before the end of the period of its estimated useful life has been reached, all of the depreciation not yet taken up in "shop expense" should be charged in the month in which the equipment passes out.

Should the piece of equipment be still usable at the end of the period of its estimated life, you would continue its use but must not charge up any more monthly depreciation. Do not *knowingly* over-estimate or under-estimate the useful life of your shop equipment. Depreciation of the business automobile is included in the cost per mile under "automobile expense."

Insurance Estimated. Insurance included as such under "shop expense" should take in all insurance carried by the business, except insurance on the automobile which is included in the "cost per mile" and insurance on the business premises, if owned, which is included in "floor space."

Naturally a man whose shop is located in his residence, should not consider insurance of his household effects as a business expense. Neither should any proprietor consider insurance of his own life a business expense.

Fire, flood, tornado, sprinkler leakage and pilferage insurance on the stock in trade and the shop equipment, workmen's compensation, owner and tenant liability, elevator insurance and any other occupational coverage is an item of "insurance" in "shop expense." You will do well to list your insurance policies, premiums paid or payable, the "term," which is the period covered by the premiums, and the monthly expense of carrying the insurance.

When starting to estimate "shop expense," eliminate the expired portion and line up the unexpired premium over the remaining term of the policy, in the same manner as you treat "depreciation of shop equipment."

For example. In July 1935 you took out fire insurance for a three year period at a premium of $36.00. By the end of April 1936, nine months have expired and therefore $9.00 of the premium has been used up. $27.00 remain to be charged monthly to "shop expense" over a 27 months period. There-

fore for May 1936 up to and including July 1938 your "insurance expense" for the fire policy will be $1.00 per month.

Make a memorandum covering all your policies and arrive at your monthly total charge. Be sure not to continue charging "insurance" for policies that have expired. When you renew policies, cross out the old ones and write in the new policies.

Taxes Estimated. The monthly amount for taxes should be one-twelfth of the total yearly taxes you pay or expect to pay. This item should include only taxes levied on your business by the municipality, county, state or Federal Government. Remember that real estate taxes are included in "floor space," if you own your premises and, therefore, should not again be included here. Any taxes in connection with the automobile used for service must be included in "auto expense" and taken up in the "cost per mile" which you use to determine "auto expense."

Taxation methods vary so much in different states that it is not possible to cite examples. The general principle to be observed is that only business taxes not elsewhere included in your "shop expense" classifications should be entered under "taxes."

Loss on Accounts Receivable Estimated. This item has been fully dealt with in Chapter IV under "Uncollectible Accounts Receivable" and the manner of treatment recommended in connection with credit losses is outlined in detail.

Loss on Inventories Estimated. If at any time parts or tubes in inventory are in danger of becoming unsaleable and therefore worthless, the amount should be entered under this classification, provided however that at a prior time value was ascribed to these parts for balance sheet purposes, or that they were purchased since you started keeping records. If no value ever was ascribed to them, no loss can result from their unsaleability and no expense caused by it.

Larger organizations may find it advisable through analysis of inventory on hand and the recollection of past experience to add to "shop expense" each month under this classification an estimated amount which when taken in total at the end of the year will be sufficient to cover the prior valuation of stock found to be worthless at that time.

Most service organizations, however, will not carry stocks of radio tubes or parts sufficiently large to warrant the practice of providing for inventory losses.

A periodical survey of the stock in trade in inventory should be made to judge its saleability. The result of these surveys should determine the advisability of adding Loss on Inventories to Shop Expense estimates. This item has previously been discussed in Chapter II under Inventory of Stock in Trade.

Miscellaneous Items. You will note that five blank lines have been ruled on the Shop Expense Rate form following the item Loss on Inventories.

These blank lines are for your use if desired. Possibly you may have recurring expenses for which no title has been provided on the form and which you may desire to show. The blank lines are provided for that purpose.

Chapter VII.

THE OPERATING STATEMENT

Determining the Shop Expense Rate and Checking It

The aggregate of the expense items discussed so far constitutes the total "shop expense" in a service organization selling radio service and handling tubes and parts needed in its repair or test jobs, because we have previously decided, for simplicity's sake that tubes and parts so handled are an element of service sales.

In a service organization which also sells radio, tubes and parts as a "merchandising" proposition, the expenses enumerated heretofore in the aggregate are more than "shop expense" only. A certain portion of nearly all of these expenses would apply to the merchandising activity of the organization. Some of the "idle time," floor space, the electricity, the telephone, the automobile, and the advertising expense must be due to the merchandising activity, because it is carried on by the same people who do the servicing and it is housed in the same premises in which the shop is located.

Should Shop Expense Be Sub-Divided? If we were following the *theory* of record-keeping it would become necessary to divide all these expenses individually between service sales and merchandise sales. This would have to be done each month in order to arrive at an estimate for "shop expense" on the one hand, and "selling expense" on the other hand, the two added together equaling the "total expense."

Since doing the foregoing will greatly increase the work as well as the complexity of arriving at the "shop expense" rate, so much perhaps that it might cause the service engineer to abandon the idea of doing anything constructive towards working up his real cost of business, we have again sacrificed theory to practicability in this instance. Any sound

basis for dividing the expenses between service and merchandise sales would be hard to determine. An arbitrary basis would be open to as much justifiable criticism as the decision not to make the division.

What would be a correct basis for dividing floor space expense, when the stock rack holds parts used in service sales as well as merchandise sales and the counter is used for both? How would you divide electricity when the bulbs used provide light for both activities? How about telephone expense, advertising, automobile expense? But more than that, what about the time spent on merchandise sales?

Any method of division, pro-ration or allocation of these expenses between service and merchandise can, in the average service organization, at the very best, be only very arbitrary and a most unsupportable guess.

The Practical Answer. In the average service organization any allocation of service and merchandising costs is not worth the fictitious result obtainable and most decidedly does not compensate for the complications which inevitably must arise with it.

Nevertheless, it must not be overlooked or disregarded that merchandise sales as well as the service activity of the business are subject to the expense of doing business.

The foregoing is stated with the average service organization in view. There are some organizations whose main activity is the merchandising of radios, parts and tubes, with radio service as a minor consideration. In such organizations the problem of allocation of expense, of course, is reversed.

Where merchandise sales are the smaller part of activity, the fact may not be fully considered that merchandise sales nevertheless have an important bearing on "shop expense." Their effect is wholly determined by the principle employed in making merchandise sales. That principle must be based on the fact that merchandise sales made at correct prices ease the burden of "shop expense," while such sales made at incorrect prices will add to that burden.

The Expense Factor in Merchandise Sales. Quite often, in an organization where radio service is the chief activity, tube sales may be made to serve as a stimulant to service sales.

Offers to sell popular types of tubes at low prices are made to attract customers, on the theory that while the tubes are sold at cost, service jobs will be obtained on which a profit can be realized.

The cost of the tubes thus offered is taken to be the wholesale cost. Thus a tube listing at 59 cents, costing the organization 35.4 cents is offered for sale at that figure or the price is rounded off to 35 cents. The operator reasons that the tubes being sold at cost he neither profits nor can he lose on the venture, more so when he earns a 2% cash discount which he does not grant to his customers.

What the operator overlooks is that it costs money to sell the tube, money which continually is spent to pay for idle time, electricity, floor space, advertising, etc., and which applies in part to merchandise sales as well as service sales.

If, on the sale of tubes or other merchandise he fails to recover the expense of making the sale, even though he recovers what he paid for the tube, he still loses money on the transaction. The greater the number of these transactions, the greater the loss.

He expects to make up for it on service sales. If an operator does enough of this "leader" business, it is quite possible that such unperceived or uncalculated losses may eat up the entire profit on his service sales. As a matter of fact, it is exceedingly doubtful whether the average service organization can, at any time, afford to offer merchandise for sale on that principle, or more correctly, with such lack of business principle.

A simple example will illustrate this point. A service engineer obtains a carton of 50 tubes for 32 cents each or a total of $16.00. His tube wholesaler lives in the same city and the distance to his warehouse is three and one half miles. The service engineer jumps in his car, goes to the wholesale house, gets the carton of tubes and returns to his own shop. The time spent in getting the tubes is three-fourths of an hour and the distance covered seven miles. He sells the tubes over a period of time for 35 cents each. Most of them are sold to customers who bring in their old tubes to be tested. Most of them are sold for cash; a few on account.

The service engineer earned a 2% cash discount by paying for them when he received them from his wholesaler.

How did he fare? Let us find out:

Cost of tubes $16.00 less 2% or $.32	=	$15.68
¾ hour wages $30.00 per week, $.625 per hr.	=	.47
Auto expense 7 miles @ 3c per mile	=	.21
Cost of tubes laid down on operator's shelf	=	$16.36

40 of the tubes are sold to customers who brought in their tubes of varying types to have them tested. Suppose one tube was sold for every three tubes tested; then 120 tubes were tested. These 120 tubes were of all makes, all types, mostly old types. He had to use adapters on his tester on many of them. Some of his customers were skeptical and he had to show them the reaction of the dials on the tester for the tube said to be worn out; then show the dial reaction on a good tube. To those who remained skeptical he demonstrated by putting the bad tube in a radio set while the customer listened to it, replacing it with a good tube to show the improvement in performance.

Each operation involved in buying, selling and testing the tubes added to his true cost of each sale. For example, he spent 20 minutes unpacking the tubes and arranging them on the shelves.

How much time did he spend in testing the 120 customers' tubes, picking the bad ones and convincing the customer that they were bad? Let us be conservative and discount the time spent on old type tubes and tubes neither good nor entirely worn out. Let us disregard the writing of cash slips, the making of change, the usual conversation between buyer and seller and say that the testing of these 120 tubes occupied, on the average, 1 minute each, 120 minutes in all or 2 hours.

The other 10 tubes were sold to 10 customers who did not have old tubes to be tested. The sales were consummated in quick time. It took 15 minutes to make these sales.

Forgetting floor space, electricity, telephone, advertising, depreciation of test equipment and all other expenses, considering only the expense of time, did he get back his cost in selling these tubes at cost or a little more?

Let us see now.		
Income from sale of tubes 50 @ $.35	=	$17.50
Laid down cost of tubes	$16.36	
Arranging stock 20 min. at $.625 per hr.	.21	
Testing customer's old tubes, etc., 2 hrs. @ $.625 per hr.	1.25	
Selling new tubes without test of customer's tubes 15 min. @ $.625 per hr.	.16	
Total cost and part of expense		17.98
Loss under these conditions		$ .48

Suppose now that we could add all the other expenses which we did not add, not because they do not exist, but because it is so difficult to reduce them to a factor of "expense per tube sold." The loss would be greater. Is one in business to lose money?

What would have happened had he sold these tubes at wholesale cost of 32 cents each, imagining that he would break even?

Just this:

Income from sales would be 50 x $ .32	=	$16.00
Total cost and part of expense	=	17.98
Loss under these conditions	=	$1.98

Yet in the first summary, charging 35 cents, this sales price was 10% above the wholesale cost and 13% above wholesale cost less cash discount earned by the operator.

An operator can never break even selling any merchandise at wholesale cost. The result without fail is a loss.

The operator in the foregoing example, taking up only part of the total expense, in order to break even on this tube deal, that is, in order not to suffer a loss on the tube deal, should have charged at least 37½ cents for each tube if he considered 32 cents his wholesale price, or 37 cents if he earned the 2% cash discount. This in turn means that his sales price should have been 17% above the wholesale cost or 19% above wholesale cost less cash discount. Even at those prices he could not have made a profit.

Two conclusions can be drawn from the foregoing: First, an operator selling merchandise over the counter in addition to service sales should not at any time sell his tubes or parts for less than wholesale cost plus 25% (or more if he knows his expense is heavier); Second, failure to make merchandise sales at a price high enough to provide for the recovery of the shop expense of the business, applicable to such merchandise sales, merely loads up the shop expense which must be recovered through service sales in the shop expense rate and therefore increases the "cost of service."

The exception to the first conclusion, of course, is a sale made to get rid of old or obsolete merchandise which is worth only what it will bring because there is no current market for it.

Gross Profit on Merchandise Sales. In the estimate of "shop expense," therefore, a provision should be made to give effect to the amount of "shop expense" which it is expected to recover through merchandise sales made at real cost or more.

If any is recovered through merchandise sales it will be in the gross profit made on such sales. The gross profit on merchandise sales is the total of these sales made less the wholesale cost to you of the goods so sold. The gross profit on the tubes mentioned in the above example is as follows:

Sales price per tube	=	$ .35
Wholesale cost of tube	=	.32
Gross Profit per tube	=	$ .03

This means that on each tube sold for that price you had 3 cents to pay for the expense of getting them to your place, storing them, testing them, testing the customer's tubes and the time involved in making the sale.

Your gross profit is the difference between the amount your customer pays you and the amount you paid the wholesaler or other person for the same article. Therefore gross profit is the profit before deducting expenses and you must have a gross profit on your transactions if you except to recover expenses incident to sales.

In this cost-control plan for the average radio service organization we provide on the Shop Expense Rate form a line to deduct the estimated "gross profit on merchandise

sales" from the "total shop expense" in order to arrive at the "shop expense" applicable to service sales during the succeeding month. We do not consider the question whether that gross profit is more than the amount of shop expense which rightfully has been incurred on these merchandise sales or whether it is less. Because, as pointed out in the preceding chapter, the average monthly merchandise sales themselves are small, the answer to the question would be inconsequential. The time required to get the answer would be out of line with the value of the result obtained.

Therefore on the line reserved for it, fill in the estimate of "gross profit on merchandise sales." If these sales are very small in your organization and you have no prior record or feel unable to make a fair estimate, we suggest you do not consider the item until you have made up your Cost and Sales Summary for several months and thereby have obtained a fair idea of the volume and gross profit on your merchandise sales.

At this point you will be able to fill in the final amount of your "shop expense applicable" in the "estimate for the month" column and develop your estimated "shop expense rate applicable" during the succeeding month.

That is the rate you will use on the cost section of your Service Job Cost Card. The method of giving effect to this "shop expense rate" is by adding to the "total cost of time" on the line provided therefore an amount equal to "total cost of time" multiplied by the "shop expense rate."

Thus if the "total cost of time" on a job is $.94 (1½ hours at $.625 per hr.) and the estimated "shop expense rate" is 120%, you multiply $.94 by 120% obtaining $1.128 or $1.13. Adding this to the "total cost of time" at $.94, the "cost of service" for that job will be $2.07.

If no material is used on the job and no part of the job was done for you by someone else, the total "cost of service" will be $2.07.

On that amount you base the charge to the customer, always bearing in mind that the least you can afford to take for the job is $2.07.

Had you submitted an estimate on the job and agreed to do it for $2.50, then your charge to the customer would be $2.50. Your profit based on your estimated "shop expense rate" would be $.43.

Whether your actual profit is $.43 will depend on the care and accuracy with which you made your estimate. If you were not too optimistic in your estimate of "idle time" and "other expense," $.43 or more will be your profit. If you were careless and too optimistic in estimating your "shop expense," that is if you estimated it too low, your profit will be less than $.43, and perhaps no profit but a loss will be your experience.

In order to enable you to verify the accuracy of your estimated "shop expense rate" we have set up on the same form alongside of the column "estimate for the month," a column headed "actual for the month."

Comparing Estimated to Actual Shop Expense. So far we have worked with the idea of obtaining the best possible estimated "shop expense rate" for use on the Service Job Cost Cards.

We will leave our work unfinished if an estimate, no matter how carefully prepared, is the end of our attempt to control the service work done by the organization.

If we stop with the estimate we still will not know the actual cost of service. A service operator who diagnoses the trouble in a radio set, corrects it and considers the job finished is not worthy of his profession. He tests the set before delivering it.

He must have the same attitude towards his "shop expense rate." He does not lay last month's estimated rate aside for the next month's estimated rate until he has found out for himself how well he did in making his estimate and what his actual rate was.

By doing so he learns how to refine his estimate. He also obtains the picture of what the business actually did for him in the past month.

It is possible that after a sufficiently long period of time it is not absolutely necessary for him to make a monthly estimate to obtain a useable "shop expense rate." He may do it every second or third month.

It will always be necessary for him to check the result obtained by the use of this estimated rate, each month, if he wants to keep tabs on his business.

Actual expenses of some classes may undergo changes of which he will not be aware unless he makes a consistent effort to keep track of them.

The "idle time expense" estimate, we believe will always differ from the actual "idle time." If estimates are made conscientiously over a period of time and the estimator has acquired experience in making up his "shop expense rate," he will become better able from month to month to estimate this item. He will learn the effect of the seasons on his activity, know his slack period and his busy period. If his business warrants, he will learn when a helper can be gainfully employed.

This necessary knowledge will be obtained only when the "actual idle time" is compared to the "estimated idle time." That must be done as promptly as possible after the close of the month on which the estimate was made.

With the help of the Daily Chargeable Time Report and Monthly Chargeable Time Summary he ought not to have difficulty in doing that, because the first form states "actual chargeable time" and the second form is so arranged as to set out in column 4 the "idle time" each month and cumulatively. It will be a simple matter to transfer from the Time form to the Shop Expense Rate form.

The fact that differences will occur between "estimated" and "actual idle time" need not disturb the operator unless they become too glaring.

If this method of cost finding for the service operator is adopted, the result will be that on the Monthly Chargeable Time Summary a cumulative "idle time" percentage will be developed in Column 6 which is the "idle time" percentage covering a business cycle, that is, the slack as well as the busy period. If that percentage is properly developed, and used with occasional necessary but small adjustments, it will naturally follow that during slack periods the estimate will be lower and during the busy period the estimate will be higher. Over the entire period however the estimate should equal or nearly equal the actual "idle time" experience.

In order to arrive at a reliable and useable estimate of "idle time" over a year, it is necessary that the monthly estimates be conscientiously compared to the actual rates. The reasons for this are so manifold that enumeration of them would fill many pages.

We attempt herein to develop for the service engineer a method of cost finding which will enable him to be uniform

in his charges to the customer, in spite of the variation of his monthly cost due to seasonal business.

The "actual for the month" on other expenses should not vary greatly from your estimate with few exceptions.

Floor Space—Actual. If you rent your place of business in the usual manner your actual floor space should be the same as estimated. The possible exception will be when you effect some repairs or maintenance which are not chargeable to the landlord and must be borne by you.

If you own your place your estimate may differ from the actual because of changes in assessed valuation, the local real estate or school tax rate. However as soon as these facts are known you can adjust subsequent estimates to correspond. Take up the accumulated difference in the actual for the month in which you receive your new tax bill and use thereafter one-twelfth of the new yearly tax bill for both estimated and actual floor space expense. Until the new rates are known estimated and actual will be the same.

Maintenance, repairs, carrying charges and water rent follow the same method.

One thing must be observed: the total of the "actual floor space" expenses entered monthly during the entire year should equal the yearly actual total.

Electricity, Gas and Telephone—Actual. If your bills for these expenses run from the first to the last of the month, the actual amount of these expenses will be known shortly after the close of the month. Entering them in the actual column will be simple.

More often than not, the bills will run from some time during the month to the same date during the next month as from the 17th of May to the 17th of June and the actual expense for the month will be part of one bill and part of another.

In that case the bill last received could be taken as the "actual" for these expenses. In other words the bill received on the 18th or 19th of May for the month from April 17th to May 17th can be set up as the actual for the month of May.

If that is done consistently you will over a twelve months' period take up the actual expense of that period with very little variation.

Small Tools and Supplies—Actual. Purchase of these items is not like purchase of electricity or telephone service. The latter occur regularly month after month; the former more than likely are purchased sporadically when needed.

It is however certain that some small tools and supplies will be purchased from time to time. When such purchases are made, the amount should be listed as "actual for the month" in the month in which they occur.

Automobile Expense—Actual. The actual "automobile expense" depends on the actual number of business miles run, compared to the number estimated.

In the "remarks" column on the same horizontal line we have provided a space to enter the "'rate per mile" which is used for estimate as well as actual. That rate is subject to revision but not from month to month. It will take at least three months to a half year to properly test the cost per mile because several thousand miles must be run before a test can be made which means much.

We have also provided space to enter the estimated number of miles run and the actual miles run. The difference will most often occur in the number of miles.

If a record is kept of the business miles in running the service automobile, then at the end of the month the expense of running the actual miles at the established rate should be entered in the "actual for month" column.

Transportation—Actual. Unless transportation expense is charged back to the customer who ordered the parts, tubes or radio, it will become an expense of the business.

Hauling done by the service automobile is automatically taken up under "automobile expense" in the number of business miles run.

Any transportation charges actually paid out or incurred during the month, in connection with the activity of the business should be entered in the "actual for month" column.

Advertising and Service Information—Actual. Neither advertising nor service information expense occur with monthly regularity in most service organizations.

If in the "estimate for month" care is taken to approach as closely as possible the actual monthly average, it would seem advisable to use as "actual for the month" the amount

of the estimate during the months when no advertising is done. In the months when advertising is done the total of the estimate to date should be compared to the actual expense incurred during the month and the difference between the total of the estimates and the actual entered as "actual for the month."

Suppose for example that the estimated average is $7.50 per month. For the months of April and May you estimated a total of $15.00. You did not advertise in April, but in May you run an ad in the local newspaper, and you distribute circulars in your neighborhood, the total cost of which is $16.13.

For April, as "actual for month," you used the same as the "estimate for month" which is $7.50. In May your estimate is $7.50. However, having taken up $7.50 for April, both ways, you take up as "actual for month" in May $16.13 less $7.50 or $8.63.

During June and July you do not advertise and use $7.50 each month for "estimate" and "actual." In August you advertise again, in the newspaper and by distribution of circulars. Your newspaper ad is a little bigger and you put out a few more circulars than in May. The total cost of this advertising was $21.83.

Having taken up in June and July a total of $15.00, and estimated $7.50 for August, the "actual for month" in August will be $21.83 less $15.00 or $6.83.

Thus you keep "estimate" and "actual" reconciled.

If you advertise in the telephone directory you know your monthly cost and act accordingly.

"Service information," including association dues, follows the same method. You will have to be guided by the manner in which these "actual expenses" occur.

Depreciation Shop Equipment—Actual. Depreciation of shop equipment is the one item of shop expense on which it is difficult to obtain "actual for month" with any greater degree of accuracy than the "estimate for month," until such time as the useful life of the shop equipment is ended. That, perhaps, is the main reason why the item is more often ignored than considered in considering the real cost of doing business.

Yet, in many a business of a servicing or manufacturing nature, depreciation of shop equipment is a major item of expense. A service operator who has equipment and does not

consider its depreciation cannot fail to understate his costs. Doing this he is in a fair way to incur losses, while entirely unaware of the fact.

Depreciation of shop equipment being based on the estimated useful life of the equipment and its original cost is, therefore, an uncertain item, its correctness wholly depending on the operator's ability to determine its useful life.

The item must be carried at the same amount in the "estimate for month" and "actual for month" column until the total of its original cost has thus, month by month become a part of "shop expense."

It is altogether likely that the estimated useful life will differ from the actual useful life. The only way to determine that is by experience.

If the useful life exceeds the estimate, the month will come when the operator will still have the use of the equipment, while no expense needs to be entered either as "estimated" or "actual" on the Shop Expense Rate form.

If, on the other hand the useful life of the equipment proves to be less than the operator's estimate, the month will come when the equipment is no longer of any use, and the remaining portion of the original cost not taken up in "shop expense" by the month to month method must be taken up as "actual for the month" in its entirety.

The moral is therefore that the useful life should be estimated with the greatest possible care and certainly should not knowingly be overestimated.

Perhaps an example will be in order.

Two service operators, A and B, own similar equipment bought in January 1932 for the same price which is $150.00.

Operator A estimated the useful life to be 3½ years, while B estimated 5 years.

Operator A is using a monthly "depreciation shop equipment" for "shop expense" of $150.00 divided by 42 months or $3.57, while operator B is using a monthly "depreciation of shop expense" of $150.00 divided by 60 months or $2.50.

By January 1936, developments in the radio industry have made the equipment useless, and both operators are faced with the absolute necessity of purchasing more modern equipment, if they wish to continue in business in competition with others.

Operator A is not worried. On his "Shop Expense" form for July 1935 he entered $3.57 as "Depreciation Shop Equipment" for the last time as both "estimated" and "actual," having at that time taken up the total original cost of $150.00 on a month to month basis over the 3½ year period elapsed since January 1932. Since June, 1935, he has enjoyed such use as he could make of that particular equipment "free of expense." Having based his charges on his "cost of service" he is in a position to buy the modern equipment for $175.00.

Operator B, in January 1936 is still charging $2.50 per month for "Depreciation of Equipment" and will have to continue to do so for the entire year of 1936, in order to get in 5 years on a month to month basis. The equipment however, is already useless in January 1936. Therefore, he must charge to his "actual for month" as "depreciation shop equipment" the entire balance of the original cost not taken up to date by the month to month method. He charges "actual for month" on his January 1936 Shop Expense form with $30.00.

If operator B has also based his charges to customers on his "cost of service" he has failed to take up in that cost this balance of depreciation on shop equipment, amounting to $30.00. This is entirely his fault due to being over optimistic regarding the useful life of that particular equipment.

Neither operator A nor operator B were entirely correct in their estimate of 3½ years and 5 years respectively, because the useful life of the equipment proved to be 4 years.

The example shows, however, that the one who underestimated the useful life profited, the optimist lost.

Reasonable correctness in your "depreciation shop equipment" monthly expense will be the result if you list your equipment, its life, and cost as suggested in Chapter VI under "Depreciation of Shop Equipment Estimated."

Insurance and Taxes—Actual. As the "actual for the month" on these two items you should use one twelfth of the actual yearly cost.

Sometimes half a year may elapse before you know your "actual taxes" and until you get your new tax bill your "estimated" and "actual" will be the same figure, because the more correct figure is not available.

The same may hold true of the "insurance actual" figure. Some time may go by during which your "actual" figure is not known.

When such a circumstance occurs you cannot do else than use the same best obtainable figure for both the "estimate" and the "actual."

As soon as the real figures are available you will be able thereafter to set up new monthly figures for both "estimated" and "actual."

Meanwhile during the preceding months the figures you have used will, in all probability, have been a little too low or a little too high. If the variation is small, the difference should be taken up in the one month in which actual taxes or insurance become known and the monthly estimated figure for the remainder of the year adjusted in order to make sure that over the entire year the total of the "actual for month" expenses will equal the total yearly tax or premium.

For example, your total of business taxes for 1935 was $80.00; you do not know till May of 1936 what they will be for 1936. Not being able to determine at that time, exactly what they will be for this year, it is reasonable to assume they will again be about $80.00 for 1936. Accordingly you start the year by setting up one-twelfth of $80.00 or $6.66 per month both as the "estimated" and "actual" expense on your Shop Expense Rate Form.

Thus by the middle of May, 1936, you have set up five times $6.66 per month in your estimates and four times $6.66 in your "actual for month" column. The month of May is not over and you have, therefore, not been able to make up the actual "shop rate" for that month.

You now learn your actual taxes will be $74.00 for 1936. You may adjust in either of two ways.

Having used four times $6.66 or $26.64 as your actual expense to the end of April, you must take up the balance of $74.00 minus $26.64, or $47.36, during the remaining 8 months of 1936, or $5.92 per month. You, therefore, use that as the "actual" for May 1936 compared to the $6.66 in the "estimate" and use $5.92 for both "estimate" and "actual" beginning with the month of June 1936.

Or you may reason that the "actual" charge per month in 1936 should be one-twelfth of $74.00 or $6.16 per month

and that is what you will use for both "estimate" and "actual" henceforward.

But you have already used four times $6.66 in your "actual" column, while you should have used four times $6.16 or $26.64 against $24.64. You are $2.00 over in your "actual" for the first four months of 1936.

Therefore, instead of charging the "actual for month" in May, 1936, with the figure of $6.16, you deduct the $2.00 overcharge, accumulated to date and you write in the "actual" column for May the amount of $4.16. Thereafter you use $6.16 for both "estimate" and "actual" until the end of the year.

The odd pennies you make up when you desire to do so, in order to bring the total of all "actual for the month" column entries for 1936 up to $74.00.

We advance the suggestion you list these items as suggested under the heading of "insurance estimated" in Chapter VI, so that you have year's figures before you when working on your Shop Expense Rate Form.

Loss on Accounts Receivable—Actual. In Chapter IV we discussed this item also known as "credit losses" or "bad debts." In Chapter VI under "loss on accounts receivable estimated" we passed the item with a reference to Chapter IV.

This was done because it is preferable to have the entire matter of "loss on accounts receivable" in connection with "shop expense" together in one place.

If your credit business is small and credit losses occur seldom and in small amounts, it will be well to follow the suggestion of Chapter IV, pages 116 and 117.

When you omit a bad account from your Accounts Receivable Statement, add it to your Shop Expense Rate Form as "loss on accounts receivable" in the "actual for month" column, regardless of the fact that you have not put anything in the "estimate for the month" for the same item. The effect it will have in causing the actual "shop expense rate applicable" to vary upwards from the estimated "shop expense rate applicable" will not be severe.

On the other hand, if your experience has taught you that your credit losses over a year run to a sizeable figure, compared to other individual items under "shop expense" you must make use of that knowledge to add monthly in the "estimate

for month" column an amount as "loss on accounts receivable." The monthly amount may vary from time to time but at all times should be such that when you add these monthly estimated amounts for the period of a year, the total should closely approximate the total of the actual credit losses you haxe experienced during the year.

No difficulty should be met in determining the credit losses suffered during the year if you follow the suggestion we made in Chapter IV under "Uncollectible Accounts Receivable."

The only reason we introduce this complication is one of necessity.

If your credit losses are really sizeable in relation to other individual expense items and you do not load your "estimate for month" consistently, the unexplained variation between estimated "shop expense rate applicable" and actual "shop expense rate applicable" month after month may be so pronouncedly discouraging to you, that you lose confidence in yourself, our advice and the possibility of getting close to your actual "cost of service."

Except for that reason, we would not suggest estimating "loss on accounts receivable." We would feel justified in advising you to follow the method outlined in Chapter IV.

We repeat that the surest way of avoiding the complications of credit losses is a refusal to do a credit business. We realize, however, that your refusal to extend credit may lose you a lot of business which you need.

Therefore, we again suggest that you be circumspect in the extension of credit for the following main reasons:

First: The extension of credit requires more ready cash than many radio service organizations have available. Therefore it embarrasses the operator.

Second: The time consumed in following up proper collection and the trouble, when translated in dollars and cents, may seriously impair operator's chances of making a profit.

Third: The service operator's customers are mostly householders, a goodly percentage of which may move away at will, on short notice or without notice.

Loss on Inventories—Actual. Most radio service organizations do not stock radios, parts or tubes in such quantities that any portions of this inventory, when having become shopworn, obsolete, damaged or broken, have thereby become a serious loss.

On the occasion when worthless inventory is discovered the wholesale cost, or the cost of acquisition, should be entered under "actual for month" as "loss on inventories."

The same should be done when it is discovered that any parts or tubes have disappeared, either having been lost or stolen.

At times a loss on inventory will occur when a price reduction takes place on parts or tubes of which you may have some in stock. Only, however, when the price protection or rebate made by the manufacturer or wholesaler is inadequate.

When such a price reduction does take place, and it affects your inventory, the amount of the reduction per part, or per tube, multiplied by the quantity of such parts, or tubes that you have on hand constitutes the loss on inventory which you suffer and the amount should be entered as such in the "actual for month" column on the Shop Expense Rate Form for the month in which the price reduction occurs.

In the great majority of radio service organizations the operator's purpose will be served when such losses on inventories are taken up as "actual expenses" when they do happen.

Shop Expense Applicable—Actual. The total of "idle time expense" plus "other expenses" entered in the "actual for month" column is the actual "total shop expense" for the month. This total applies to the entire operation, to service sales as well as merchandise sales.

As pointed out in the opening of this chapter, a compensation for "shop expense" applicable to merchandise sales should be made.

The Sales and Cost Summary at the end of the month will give you the "gross profit on merchandise sales." Under "sales" in the left hand portion of the Sales and Cost Summary are three columns grouped together under the heading "merchandise." These three columns are headed respectively "radio," "tubes," "parts." In the right hand part under "cost" you will find the same three columns grouped under a heading "merchandise."

If you followed the text you will have filled in the amount of your merchandise sales in the three "merchandise" columns in the left hand portion and the "merchandise cost" of these sales in the three "merchandise" columns in the right hand portion.

Totaling the three "sales" columns and adding together the three totals you will have obtained the total of your "merchandise sales." Totaling the three "merchandise cost" columns and combining these three totals you will have the total of your "merchandise cost."

The "sales" total should be greater than the "cost" total and subtracting the "cost" from the "sales" total will give you the "gross profit on merchandise sales" to be entered in the "actual for month" column opposite the item "gross profit on merchandise sales."

Now you deduct that "gross profit on merchandise sales" from the "total shop expense" above it in the "actual for month" column and arrive at the actual "total shop expense applicable" for the month.

Shop Expense Rate Applicable—Actual. Dividing your "actual chargeable time" into this actual "shop expense applicable" will give you the actual "shop expense rate applicable" for the month.

We are sure that you now can see the effect of "gross profit on merchandise sales" on the "shop expense rate" which you must use to arrive at a proper "cost of service."

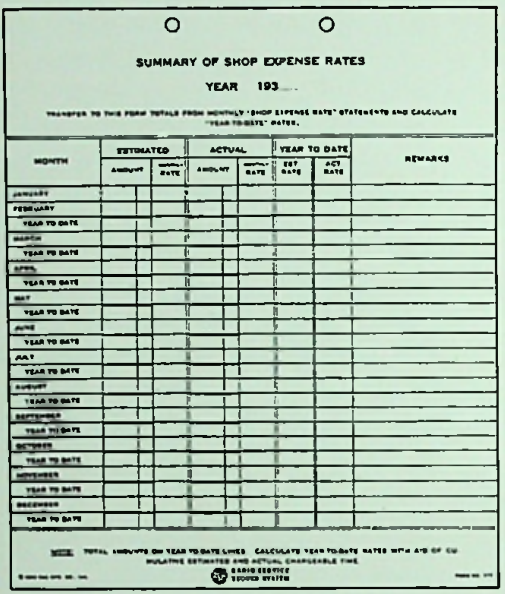
Should your "merchandise cost" be more than your "merchandise sales" instead of deducting from "total shop expense" you would be obliged to add to "total shop expense." The result would be a higher "shop expense rate" and a higher "cost of service."

In fact you would then be loading your service cost burden with the result of merchandise sales at incorrect prices.

The same would be true if the "gross profit on merchandise sales" were too little to cover the portion of "shop expense" applying to merchandise sales and that, as we pointed out in this chapter will, most likely, always be the result when an operator unthinkingly sells parts or tubes at less than wholesale cost plus proper mark up.

Checking the Shop Expense Rate. The operator who has made up his Shop Expense Rate Form completely and with

reasonable accuracy and diligence, will at the month's end be in a position to check his "estimated shop expense rate" against his "actual shop expense rate." That check or comparison will reveal facts to him from which to draw certain conclusions.



SUMMARY OF SHOP EXPENSE RATES

YEAR 193

MONTH	ESTIMATED		ACTUAL		YEAR TO DATE		REMARKS
	AMOUNT	HOURLY RATE	AMOUNT	HOURLY RATE	EST RATE	ACT RATE	
JANUARY							
FEBRUARY							
YEAR TO DATE							
MARCH							
YEAR TO DATE							
APRIL							
YEAR TO DATE							
MAY							
YEAR TO DATE							
JUNE							
YEAR TO DATE							
JULY							
YEAR TO DATE							
AUGUST							
YEAR TO DATE							
SEPTEMBER							
YEAR TO DATE							
OCTOBER							
YEAR TO DATE							
NOVEMBER							
YEAR TO DATE							
DECEMBER							
YEAR TO DATE							

NOTE. TOTAL AMOUNTS ON YEAR TO DATE LINES. CALCULATE YEAR TO DATE RATES WITH AID OF CU MULATIVE ESTIMATED AND ACTUAL CHARGEABLE TIME.

RADIO SERVICE TOOLED WEALTH

FORM 777. SUMMARY OF SHOP EXPENSE RATES.

The two columns will show him where his estimate differed from the actual items. In the first two or three months these differences will probably do much to teach him to estimate more closely.

If his estimates at first are greatly different from the actual figures he should not be unduly discouraged. Every person has to learn to toddle before he can walk and master the ability to walk before he can run.

We believe that the "idle time expense" item will show the greatest variation between estimate and actual.

Although this text does not provide for an internal tie-up of the amounts of the other expense items, because such a tie-up can only be obtained with double entry bookkeeping

methods and records, we feel that the operator who will seriously apply himself to the determination of actual expenses, can, if he reads the text and refers to it when in doubt, state them with reasonable accuracy.

Checking the shop expense rate each month then should enable the operator to improve his estimates. Of equal importance is the orderly accumulation of the monthly rates, because the cumulative shop expense rate covering a sufficiently long period will void the necessity of making a new estimate each month. The period covered should coincide with the complete business cycle and be not less than a year.

Summary of Shop Expense Rates. In order to facilitate the work of obtaining a cumulative rate based on monthly "shop expense rates" we have prepared the form Summary of Shop Expense Rates. It covers a yearly period.

In the first two columns following the "month" column should be entered the last two figures in the "estimate for month" column on the Shop Expense Rate Form, namely the amount of "shop expense applicable" and the "shop expense rate applicable."

In the next two columns headed "actual" should be entered the amount and the percentage shown on the last two lines in the "actual for month" column on the Shop Expense Rate Form.

For the first month that will be all.

When the second month has been entered opposite its name in the same manner, the "year to date" amounts can be obtained by adding the two months together. The percentages in the "monthly rate" columns are never added.

As soon as two months are thus combined, the first entry can be made in the last two columns on the "summary of shop expense rates" form headed "year to date."

In order to calculate the "year to date est. (estimated) rate" you must add together the amounts shown on the line "Less: Chargeable Time" in the "estimate for month" column of the Shop Expense Rate Forms used for the two months. It will probably help you if each month you write in under "remarks" on the Summary of Shop Expense Rates Forms the amount of the estimated "chargeable time."

When you have the total of "estimated chargeable time" for the two months you divide that amount into the "year to

date" amount of "estimated" shop expense on the Summary of Shop Expense Rates Form. The percentage thus obtained you enter under "est. rate" in the "year to date" column.

Your "actual chargeable time" for the two months will be found on the corresponding "year to date" horizontal line on the form Monthly Chargeable Time Summary in Column 3.

This amount of "chargeable time, etc.," you must divide into the amount shown in the "actual" column on the "summary of shop expense rates" form on the "'year to date" line. The percentage thus obtained you enter in the "act. rate" column under "year to date" on the same form.

Having done this you will have obtained the average "estimated shop expense rate" and the average "actual shop expense rate" covering the two months.

At the end of the third month you transcribe the monthly amounts and rates from the Shop Expense Rate form to the Summary of Shop Expense Rates form, add them to the preceding "year to date" amounts and in the manner described in the preceding paragraphs, calculate "year to date" rates covering the three months period.

If you follow this procedure in the succeeding months, it will not be long before the rates in the "year to date" column on the Summary of Shop Expense Rates begin to assume great significance and to approach the true useable averages for your individual business.

The foregoing method of using the Summary of Shop Expense Rates form may be more easily understood if as you read the above text you refer to the specimen figures given on this form on page 209.

Do not be satisfied too soon. Unless the rates thus developed cover a complete business cycle you should not dispense with your estimates.

One characteristic will be of material assistance to you in checking on your own performance. Unless the activity of your shop fluctuates unreasonably you will notice the following: The monthly "actual rates" will be higher than the monthly "estimated rates" in your slack months; in your busy months they will be lower.

The final check on your administrative performance will be when at the end of the completed business cycle you de-

velop your "estimated" and "actual" rates. If they come close together in a natural way, that is, without your doing any fancy figuring to make them come out, you have done well in your monthly "shop expense rate" work.

The result of making up your "summary of shop expense rates" for a period of time, if done with reasonable care and ability will be that you obtain an overall shop expense rate. The accuracy of that overall rate will be in direct ratio to the care with which you have made up your monthly "shop expense rate" forms.

That actual rate can be used on your Service Job Cost Cards and the need of figuring a new rate each month will have disappeared, unless at any time the status of your business undergoes a change noticeably affecting any of the individual expense items which, in total, make up your shop expense. When such a change occurs you must go back to making up your "monthly shop expense" estimates until you have developed a new overall rate based on the changed condition of your business.

When you have come to the point where you have developed an overall shop expense rate and are using it, it will still be necessary to make up your "actual shop expense" and develop the "actual rate" in order to keep track of the monthly result obtained through the use of the overall rate.

Also, with the use of the overall rate the monthly actual rates will be at variance with the overall rate if your business is subject to seasonal fluctuations.

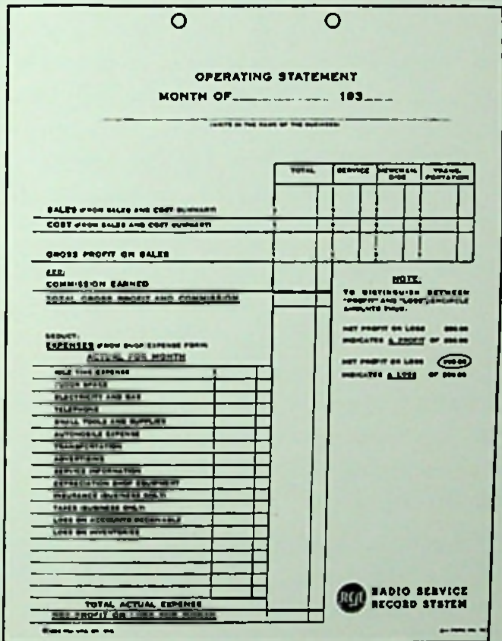
The use of an overall rate in calculating your "cost of service" will enable you to establish a fixed level for your charges to customers and eliminate the perplexing question as to what the charge for a particular job should be.

Chapter VIII.

PREPARING THE MONTHLY AND CUMULATIVE OPERATING STATEMENTS

The monthly Operating Statement summarizes the total activity of the business during the month and sets out the net result.

If the Sales and Cost Summary and the Shop Expense Rate Forms have been made up as suggested, the preparation



Form 782. Operating Statement.

of the Operating Statement will be a simple copying job. The printed matter on the statement form indicates the source of the items to be copied.

Sales. The legend following the word "sales" in parentheses reads "from sales and cost summary." See this form

on page 108. On the left side under "sales" you find that the last column of that section is headed "total sales." The total at the foot of that column is the "sales" figure to be entered on the Operating Statement in the first or "total" column.

Following this "total" column are three short columns headed "service," "merchandise" and "transportation" respectively. These columns have been put there to enable you to show how much of your total sales are service sales, merchandise sales and transportation charges. The figures to enter in these three columns also come from your Sales and Cost Summary.

The "service" total represents the combined total of the first three columns headed "time," "tubes" and "parts" respectively under the sub-heading "service" in the "sales" or left hand side of the Sales and Cost Summary. The "merchandise" total represents the combined total of the next three columns in the "sales" section under the sub-heading "merchandise" which are headed "radio," "tubes" and "parts" respectively. "Transportation" is for the total in the "transportation on materials" column on the Sales and Cost Summary under "sales."

Of course, the totals in the three short columns on the "sales" line must equal the amount in the "total" column which precedes them on the same line.

Cost. The same legend follows the word "cost." Cost is obtained from the right hand section of the Sales and Cost Summary in exactly the same manner in which "sales" are obtained from the left hand section.

The "total" cost in the first column of the Operating Statement must be the amount of the "total cost" column on the Sales and Cost Summary.

The amounts in the three short columns on the "cost" line are obtained by adding the totals of the three "service" columns headed "time," "tubes" and "parts" on the right hand half of the Sales and Cost Summary under the "cost" heading; the three "merchandise" columns following them, headed "radio," "tubes" and "parts" and by transcribing the amount of "transportation on materials" preceding "total cost" to the corresponding short columns on the Operating Statement.

Gross Profit on Sales. The item of "gross profit on sales" is obtained by subtracting the "cost" items on the second line from the "sales" items on the first line.

Commission Earned. The item of "commission earned" will occur in a service organization having an understanding or agreement with a dealer whereby the service organization is paid a commission on all the sales it is instrumental in securing for the dealer.

The item is labeled "commission *earned*" because commissions should appear on the Operating Statement in the month in which they are due the organization, regardless of whether they are actually paid during that month or subsequently.

Only commissions which are really due should be entered on the Operating Statement. Sometimes the service operator may feel that commission is due him on a certain sale and the dealer may not agree that the operator was instrumental in making the sale. In such a case, the commission should not be entered on the Operating Statement until an agreement is reached between the service operator and the dealer and the amount of the "commission earned" has been determined.

You will note that "commission earned" does not appear on the Shop Expense Rate Form, because in the majority of radio service organizations this item occurs infrequently.

Total Gross Profit and Commission. This item is obtained by adding together "gross profit on sales" and "commission earned."

Expenses. The term "expenses" is followed by the legend in parentheses "(from shop expense form)." This legend indicates that the amounts of these "expenses" are found on the Shop Expense Rate Form, which previously has been prepared.

Making up the lower portion of the Operating Statement consists therefore of copying the amounts in the last or "actual for month" column on the Shop Expense Rate Form for the same month.

These amounts should be written in on the short column to the left of the "total" column on the Operating Statement. The total of these amounts or the "total shop expense" on the Shop Expense Rate Form should be entered in the "total"

column on the Operating Statement on the line "total actual expense." The "total" column on the Operating Statement therefore remains blank from the amount representing "total gross profit and commission" down to the amount of the "total actual expense."

Net Profit or Loss for Month. The amount of "net profit or loss for month" will be the difference between the "total gross profit and commission" and the "total actual expense."

There are three possibilities.

(1) The "total gross profit and commission" may be greater than the "total actual expense." If such is the case, a "net profit" will result and you will cross out the words "or loss" on the last line. The caption then will read "net profit for month." The amount following that caption will be a black or positive figure.

(2) The "total actual expense" may be greater than the "total gross profit and commission." In that case a "net loss" will result, and you will cross out the words "profit or." The caption then will read "net loss for month." The amount following that caption will be a negative figure. It is customary to indicate such a negative or "loss" figure either by writing it in red ink or by encircling it as shown in the note printed on the Operating Statement.

(3) The third possibility is that the "total gross profit and commission" equals the "total actual expense." In that case the caption "net profit or loss for month" will remain unchanged and zero will be the result. No changes need to be made when that happens.

Work in Process. At the end of the month it is possible that one or more service jobs will be in the shop, whether completed or not.

Such jobs, as pointed out heretofore in the text, will not be delivered until the next month and therefore will not be entered as a sale during the month in which they were started.

We have recommended for Balance Sheet purposes that the material, labor and shop expense charged to such jobs at the month's end be calculated and set up as "work in process." We made the suggestion in order to enable you to set up a reasonably accurate and complete Balance Sheet.

As far as the Operating Statement is concerned, we have ignored this item of "work in process." This disregard is prompted by our desire not to introduce in this text any complication whose omission, in general, will not cause noticeable inaccuracy.

We will, however, indicate the result of this omission in order to enable those operators who wish to overcome it to do so.

Two facts are clear.

1. That our text and forms are so designed that the "total actual expense" for the month is applied to the Operating Statement for the month.
2. That the portion of the "total actual expense" applicable to service jobs included in "'work in process" at the end of the month should be applied to the "operating statement" to which the sale of these service jobs is applied. That operating statement cannot be other than for a subsequent month.

Three other facts are not so clear, but equally forceful.

1. That while the "total actual expense" on the "operating statement" for the month will include a portion, *not applicable* to "sales" for the month, the "sales" item will include a portion of shop expense which does apply to the Operating Statement for the month but was applied to the Operating Statement *for the preceding month.*
2. That the omission has no effect whatsoever on the accuracy of the "shop expense rate applicable."
3. That the margin of error is not the amount of shop expense applicable to "work in process" jobs at the end of the month, but is limited to the difference between the amount of shop expense applicable to such jobs at the beginning and at the end of the month.

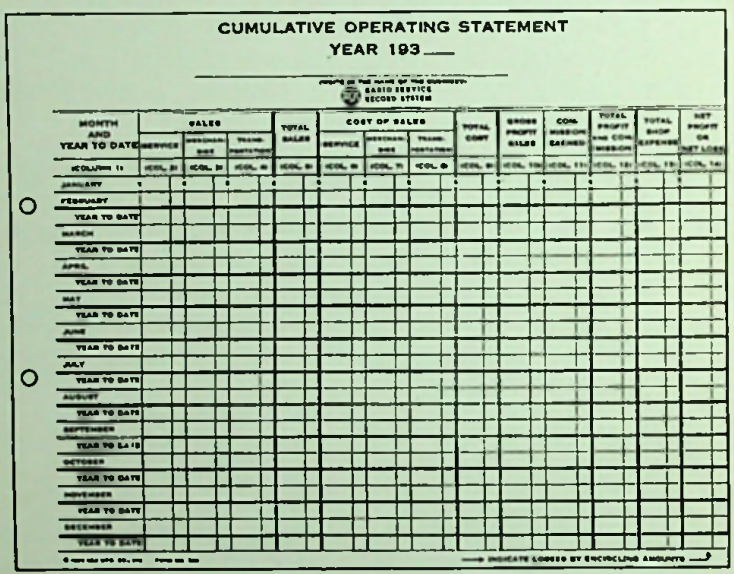
There is therefore a distinct offset and the net monthly effect of the omission, from an operating standpoint, may be negligible.

On the other hand, the effort involved in monthly obtaining the correct net result may be considerable. We have no doubt that it will complicate the construction of the operating statement.

Hence our suggestion not to make the attempt, in the beginning at least, unless your operation has greatly varying "work in process" totals in successive months.

The operator who feels that he must consider shop expense applicable to work in process will find room to do so on the blank lines provided on the Operating Statement.

The Cumulative Operating Statement. This statement is designed to accumulate the amounts on the monthly Operating Statements for the period of a year. Each monthly Operating Statement is transcribed on the Cumulative Operating Statement on the horizontal line indicated by the name of the month of the Operating Statement.


CUMULATIVE OPERATING STATEMENT
YEAR 193___

RADIO SERVICE RECORD SYSTEM

MONTH AND YEAR TO DATE	SALES			TOTAL SALES	COST OF SALES			TOTAL COST	GROSS PROFIT SALES	COM. MISSIONS EARNED	TOTAL PROFIT AND COM. MISSION	TOTAL SHOP EXPENSE	NET PROFIT OR NET LOSS
	SERVICE	MERCHAN-DISE	TRANS-PORTATION		SERVICE	MERCHAN-DISE	TRANS-PORTATION						
	COL. 2	COL. 3	COL. 4	COL. 5	COL. 6	COL. 7	COL. 8	COL. 9	COL. 10	COL. 11	COL. 12	COL. 13	COL. 14
JANUARY													
FEBRUARY													
YEAR TO DATE													
MARCH													
YEAR TO DATE													
APRIL													
YEAR TO DATE													
MAY													
YEAR TO DATE													
JUNE													
YEAR TO DATE													
JULY													
YEAR TO DATE													
AUGUST													
YEAR TO DATE													
SEPTEMBER													
YEAR TO DATE													
OCTOBER													
YEAR TO DATE													
NOVEMBER													
YEAR TO DATE													
DECEMBER													
YEAR TO DATE													

INDICATE LOSSES BY ENCIRCLING AMOUNTS

FORM 783. CUMULATIVE OPERATING STATEMENT.

A little study will make it clear that columns 2 to 5 inclusive serve to enter the sales data shown on the first line of the monthly Operating Statement; columns 6 to 9 inclusive serve to enter the cost data; column 10 the "gross profit on sales"; column 11 "commissions earned"; column 12 "total gross profit and commission"; column 13 "total actual expense" and column 14 the "net profit or loss for month."

All these amounts are merely copied from the monthly Operating Statement for the corresponding month.

As soon as two months have individually been entered on this Cumulative Operating Statement the individual columns should be totaled to obtain the "year to date" figures.

A Cumulative Operating Statement should be very valuable to a radio service organization on account of the possibly seasonal activities of the organization. In a business whose activity is seasonal, monthly operations during the slack period may show losses while during the busy period they should show profits.

Net operating results consequently cannot be authoritative and sufficiently sound as a basis for decisions of policy until they cover a period of time embracing the slack as well as the busy seasons.

In other words, a radio service operator must not decide that he is doing well or poorly on the strength of the operating results shown by his operating statements for two consecutive months. A longer period is necessary because the decision that he does well may be based on the operating statements of two consecutive *busy* months, while the decision that he is doing poorly in a business way, may be based on the operating statements of two consecutive *slack* months. Either decision may therefore be in error because the correct appreciation of his business progress can be derived only from a series of operating statements covering a *business cycle.*

This is more true when his operating statements are constructed in the practical manner suggested by this text, than when they are the result of a theoretically complete, modern, double entry system followed in the correct manner.

The errors and omissions possible in following this text will not be indicated by failure to balance the accounts, because we do not provide for the latter. At the same time we feel that over a period of time they may fairly cancel themselves out.

Therefore in deciding to use our forms in accordance with the suggestions of the text, we recommend strongly that the service engineer also decide to carry on for a period sufficiently long to cover all the seasons in his activity. Be sure to decide that you will make up correctly the Cumulative Oper-

ating Statement to cover your business cycle. If that is not done any conclusions reached and decisions made, which have their origin in the interpretation of the partial information displayed by an abortive Cumulative Operating Statement, may be contrary to your self interest.

Chapter IX.

ORDER OF FORMS USED AND THEIR TREATMENT

To the service engineer who wishes to use the forms and text herein contained, the following order of preparation is suggested:

1. Form 785—Balance Sheet.
2. Form 776—Shop Expense Rate, Estimate for month.
3. Form 775—Service Job Cost Card, Customer's Invoice, Shop Invoice Copy.
4. Form 780—Merchandise Sales Invoice, Customer's and Shop Copy.
5. Form 781—Accounts Receivable Statement.
6. Form 778—Daily Chargeable Time Report.
7. Form 784—Sales and Cost Summary.
8. Form 776—Shop Expense Rate, Actual for month.
9. Form 782—Operating Statement.
10. Form 783—Cumulative Operating Statement.
11. Form 779—Monthly Chargeable Time Summary.
12. Form 777—Summary of Shop Expense Rates.

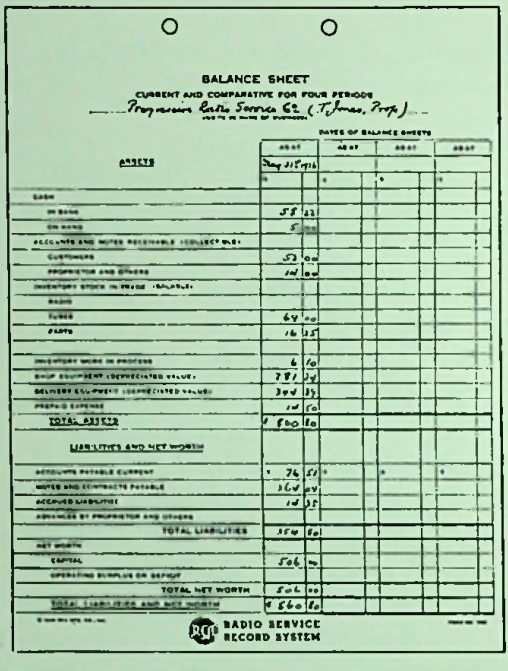
Forms 775, 780, 778 and possibly 781, are for current, daily use; the other forms are summarizations made once a month for the purpose of guidance and control.

In order to facilitate the use of the forms by the service engineer, we reproduce them on the following pages and have filled in some figures. We have taken June 1st, 1936, as the beginning of the administrative work.

These figures are not intended to represent a typical service organization and, therefore, should not be considered as standards for the industry. It is quite possible that they represent anything but actual conditions. That fact will not destroy their value, because we have filled in these figures merely for the purpose of illustrating to the reader the appearance of the forms when used.

The Balance Sheet, Form 785, should be prepared first of all, in order to fix the values involved in your business at the beginning.

By referring to the text in Chapters II and III, you will obtain the necessary information to set up the various balance sheet items shown. Additional comment is not needed here except on the equipment items and prepaid expense.



BALANCE SHEET

CURRENT AND COMPARATIVE FOR FOUR PERIODS

Progressive Radio Service Co. (T. Jones, Prop.)

DATES OF BALANCE SHEETS

ASSETS				
	May 31 '36			
	$	$	$	$
CASH				
IN BANK	58 43			
ON HAND	5 00			
ACCOUNTS AND NOTES RECEIVABLE (COLLECTABLE)				
CUSTOMERS	53 00			
PROPRIETOR AND OTHERS	10 00			
INVENTORY STOCK IN TRADE (SALABLE)				
RADIO				
TUBES	64 00			
PARTS	16 25			
INVENTORY WORK IN PROCESS	6 10			
SHOP EQUIPMENT (DEPRECIATED VALUE)	78 50			
DELIVERY EQUIPMENT (DEPRECIATED VALUE)	300 00			
PREPAID EXPENSE	10 00			
TOTAL ASSETS	$ 580 85			
LIABILITIES AND NET WORTH				
ACCOUNTS PAYABLE CURRENT	$ 74 50	$	$	$
NOTES AND CONTRACTS PAYABLE	360 00			
ACCRUED LIABILITIES	10 00			
ADVANCES BY PROPRIETOR AND OTHERS				
TOTAL LIABILITIES	444 50			
NET WORTH				
CAPITAL	506 00			
OPERATING SURPLUS OR DEFICIT				
TOTAL NET WORTH	506 00			
TOTAL LIABILITIES AND NET WORTH	$ 580 85			

RADIO SERVICE RECORD SYSTEM

FORM 785. A BALANCE SHEET showing condition of the business as of May 31, 1936.

On the equipment items, we show the legend in parentheses, "(depreciated value)." This legend indicates that the balance sheet value of equipment should be the original cost less its depreciation calculated on the expired portion to date of its estimated useful life. This principle has been further discussed in Chapter VI under the sub-heading of "depreciation of shop equipment estimated," on page 152.

The same principle applies to the "delivery equipment." See Chapter VI, under the sub-heading "automobile expense estimated," on page 148.

Before setting up "prepaid expense," be sure to read the text on that item in Chapter II, on pages 77 and 78.

The amounts on the Balance Sheet which is reproduced on this page are, as far as possible, based on averages obtained

from actual figures reported by the radio service industry. The items of "cash," "accounts and notes receivable" and the "inventories" are assumed.

"Shop equipment" is based on the reported average original cost of $422.00 and the reported average estimated life of 3 years. It is assumed that the present age of the equipment is 1 year at May 31st, 1936, and depreciation has or should have been considered for the period of 1 year at $11.72 per month.

"Delivery equipment" is based on the average reported original cost of $491.00 per unit, an average useful life of 3 years, and a trade-in value after 3 years of $100.00, which makes necessary a total depreciation of $391.00 for 36 months or $10.86 per month. The delivery equipment has been owned now for 13½ months, and is depreciated to the extent of 13½ x $10.86 = $146.61. It was bought on an 18 payment plan and the payments are somewhat in arrears, so that 6 payments at $27.28 each must still be made.

"Notes and Contracts Payable" represent $163.68 on the delivery equipment and $100.36 on the shop equipment.

The original capital is not known and it therefore is the difference between total assets and total liabilities.

If, in making up your first Balance Sheet, you cannot determine your "inventory work in process," (which is probably what will happen), you cannot do other than leave it blank.

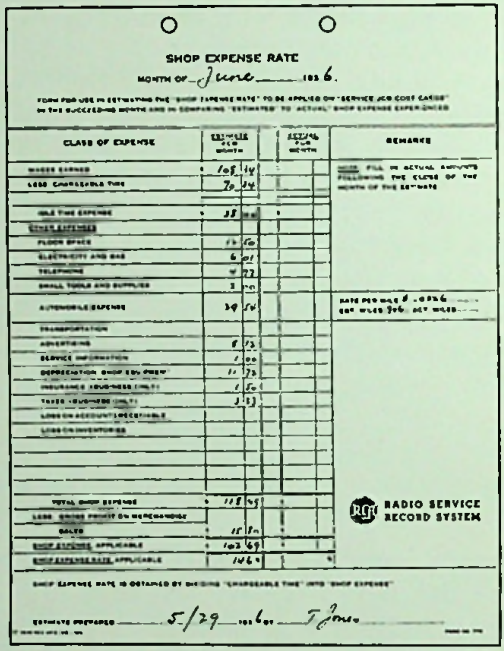
You may not know your "capital" and be unable to segregate "net worth" as to "capital" and "operating surplus or deficit." If you are in that position, leave the "operating surplus or deficit" item blank. Consider your "capital" equivalent to the difference between the "total assets" and "total liabilities" and write that amount in on the "capital" line.

On subsequent Balance Sheets, you will be able to separate "net worth" into its two parts, "capital" and "operating surplus or deficit."

Use the first column for the first Balance Sheet. Use the other three columns for subsequent Balance Sheets. Comparison of the items in the different columns will show the trend of your business if you use reasonable care in making up your Balance Sheets.

Our suggestion is that you make a Balance Sheet at the end of each quarter. Thus if your first Balance Sheet is as of May 31, 1936, the next one would be at June 30th, 1936, thereafter September 30th, 1936, and December 31st, 1936.

Shop Expense Rate, Form 776. The next requirement is that of estimating your "shop expense rate" for the month of June, 1936. You must do that if you expect to make full use of the Service Job Cost Card during that month.



SHOP EXPENSE RATE

MONTH OF June 1936.

CLASS OF EXPENSE	ESTIMATE FOR MONTH	ACTUAL FOR MONTH	REMARKS
WAGES EARNED	108 00		
LESS CHARGEABLE TIME	70 00		
	38 00		
OTHER EXPENSES			
FLOOR SPACE	15 00		
ELECTRICITY AND GAS	6 00		
TELEPHONE	4 00		
SMALL TOOLS AND SUPPLIES	3 00		
AUTOMOBILE EXPENSE	30 00		
TRANSPORTATION			
ADVERTISING	8 00		
SERVICE INFORMATION	1 00		
DEPRECIATION SHOP EQUIPMENT	11 00		
INSURANCE (BUSINESS ONLY)	1 00		
TAXES (BUSINESS ONLY)	3 00		
LOSS ON ACCOUNTS RECEIVABLE			
LOSS ON INVENTORY			
TOTAL SHOP EXPENSE	118 00		
LESS SHOP PROFIT ON MERCHANDISE			
SALES	15 00		
SHOP EXPENSE APPLICABLE	103 00		
SHOP EXPENSE RATE APPLICABLE	100%		

RADIO SERVICE RECORD SYSTEM

ESTIMATE PREPARED 5/29 1936 BY T Jones

FORM 776. SHOP EXPENSE RATE FORM giving estimated amounts only.

On the Shop Expense Rate Form reproduced on this page, we use amounts representing assumed conditions.

The business is an establishment employing the proprietor only, whose weekly drawing account is $25.00. His name is T. Jones.

The month of June, 1936, has 26 working days of 8 hours each or 208 hours, which are equal to 4⅓ weeks of 48 hours

each. Wages earned, therefore, will be 4⅓x$25.00=$108.34. The rate per hour is $.5208 plus, which is expressed as $.521.

You estimate 135 chargeable hours during June, 1936, amounting to $70.34. "Idle time" expense then is $108.34 less $70.34 or $38.00.

If anything is not clear refer to Chapter VI, under the sub-heading "Your First Idle Time Percentage." In estimating "other expenses" also refer to Chapter VI, in which the estimates are fully discussed.

The amounts here used have been mostly obtained by averaging the figures sent us by service engineers over the entire country in a questionnaire recently sent out. Some amounts are assumed.

The rate per mile used is that developed in Chapter VI under the sub-heading of "automobile expense." The number of miles is based on a reported average use of delivery equipment of 68% business use and 32% pleasure use on a yearly mileage of 16,000.

The items which are entirely assumed are "small tools and supplies," and "insurance (business only)."

"Transportation," "loss on accounts receivable" and "loss on inventories" have not been considered in this first estimate.

"Gross profit on merchandise sales" is based on a reported average yearly sale of parts amounting to $169.00 and tubes amounting to $305.00. Equally divided over 12 months, the total merchandise sales per month are $39.50.

We assume these sales made at list and that the average dealer discount enjoyed by service organizations is 40%. The "gross profit" on these sales then would be $15.80.

The resulting estimated "shop expense rate" applicable is 146% for the month of June, 1936, and was obtained by dividing $102.69 (shop expense applicable) by $70.34 (chargeable time).

You have now obtained important knowledge. You had previously realized that the true cost of rendering an hour's service was not the wage cost of one hour but the wage cost of one hour *plus* a proportionate share of what in this text we have called "shop expense" and which is sometimes referred to as "overhead." In all probability, however, you did not know of a simple method of computing the amount of "shop expense" to be added to the wage cost of each job in order to get the complete cost. To enable you to do that is

the entire function of the "shop expense rate" which you have just computed. If you multiply the wage cost of each job by the "shop expense rate," the result will be the amount of "shop expense" to be added to the wage cost to get the complete cost.

Thus, in the case we are discussing, the *hourly cost of rendering service* has been found to be $.521 (hourly wage cost based on a 48-hour week at $25.00 per week) plus 146% of $.521; or, $.521 + (1.46 × $.521) which equals $.521 + .76 which equals $1.28.

When quoting a price to a customer during June you will be in a better position than heretofore. If you can estimate the time for the job fairly closely you need but multiply $1.28 by the number of hours in order to obtain *the estimated service cost.*

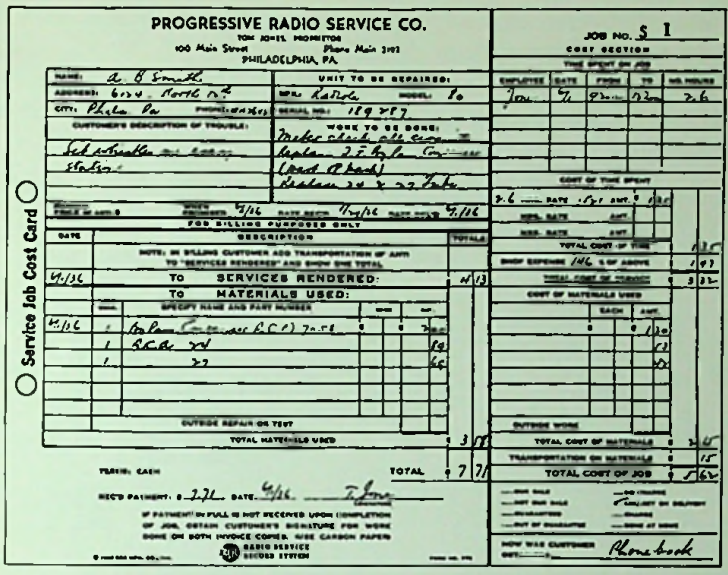
What you will *charge the customer* on the basis of that cost is your affair, in which we cannot advise you any further than to remind you that you are in business to make a profit if at all possible.

Service Job Cost Card, Form 775. The next form to come into use is the Service Job Cost Card.

The Service Job Cost Card pad should be your constant companion, because it must be filled in on each job, whether done in the shop or elsewhere.

The Service Job Cost Card and its two associated forms (Customer's Invoice and Shop Invoice Copy) come in pads of fifty sets. This form, like all the other forms, is punched on the 8½" side to fit standard binders that may be obtained at any stationery store. For carrying with you on calls, suitable binders made of pressboard may be obtained for not over 50 cents. For binding your office forms, binders are available at stationery stores in various qualities and prices. Any of the binders permit you to tear out the customer's copy of invoices without removing the copies you retain for your own use.

Time spent on a job must be filled in as soon as the job is done. If the job is laid aside for a while, because something more pressing must be done immediately, and it is known that more than five or ten minutes will pass before it is taken up again, the time spent up to the interruption should be noted. Provision is made for several interruptions.


PROGRESSIVE RADIO SERVICE CO.
TOM JONES, PROPRIETOR
100 Main Street Phone Main 3193
PHILADELPHIA, PA.

Service Job Cost Card

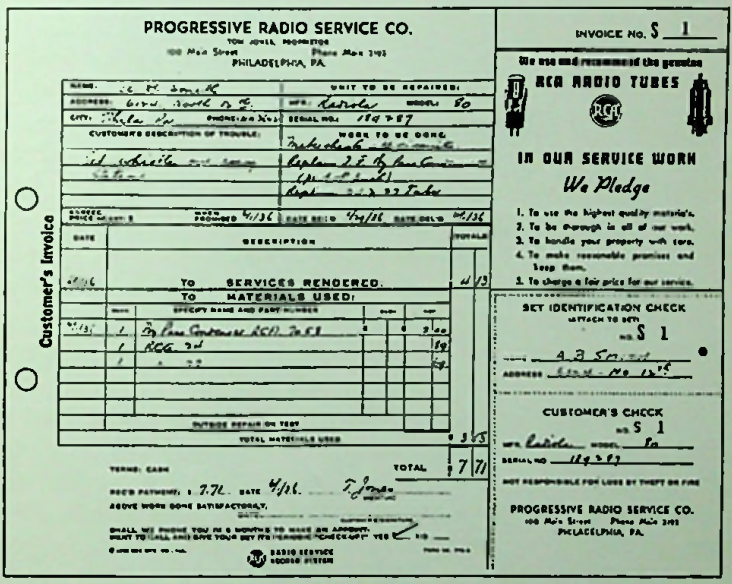
JOB No. S 1
COST SECTION

TO SERVICES RENDERED:
TO MATERIALS USED:

TOTAL 7 71

Phonebook

The first sheet of FORM 775, JOB No. S-1. Note the cost information in right-hand section.


PROGRESSIVE RADIO SERVICE CO.
TOM JONES, PROPRIETOR
100 Main Street Phone Main 3193
PHILADELPHIA, PA.

Customer's Invoice

INVOICE No. S 1

We use and recommend the genuine
RCA RADIO TUBES

IN OUR SERVICE WORN
We Pledge

1. To use the highest quality materials.
2. To be thorough in all of our work.
3. To handle your property with care.
4. To make reasonable promises and keep them.
5. To charge a fair price for our service.

SET IDENTIFICATION CHECK
ATTACH TO SET
No. S 1

CUSTOMER'S CHECK
No. S 1

PROGRESSIVE RADIO SERVICE CO.
100 Main Street Phone Main 3193
PHILADELPHIA, PA.

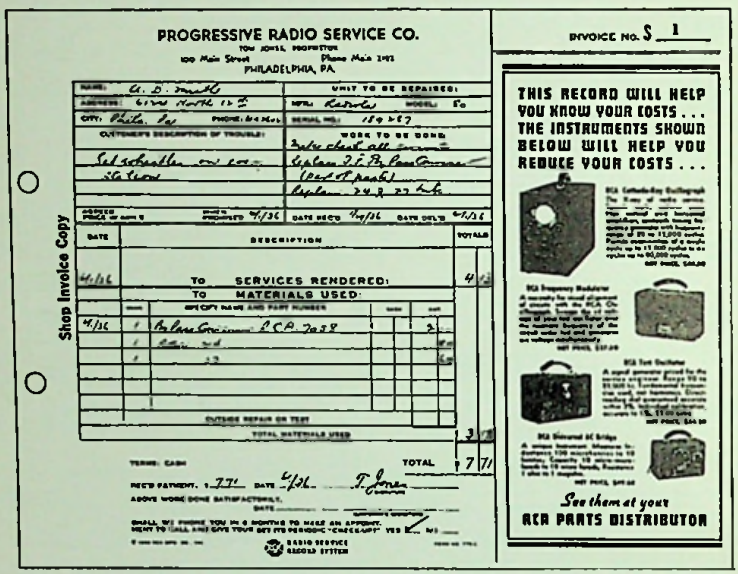
TO SERVICES RENDERED.
TO MATERIALS USED:

TOTAL 7 71

The second sheet of FORM 775, JOB No. S-1. This is the copy given to the customer. The customer's claim check is machine numbered to correspond with the set identification check and invoice number.

We reproduce two Service Job Cost Cards, Nos. 1 and 2, filled in with the necessary data.

Job No. S1 covers locating trouble in the condenser pack, replacing the by pass condenser and also replacing two worn out tubes.



PROGRESSIVE RADIO SERVICE CO.

INVOICE NO. S 1

Shop Invoice Copy

THIS RECORD WILL HELP YOU KNOW YOUR COSTS . . . THE INSTRUMENTS SHOWN BELOW WILL HELP YOU REDUCE YOUR COSTS . . .

See them at your RCA PARTS DISTRIBUTOR

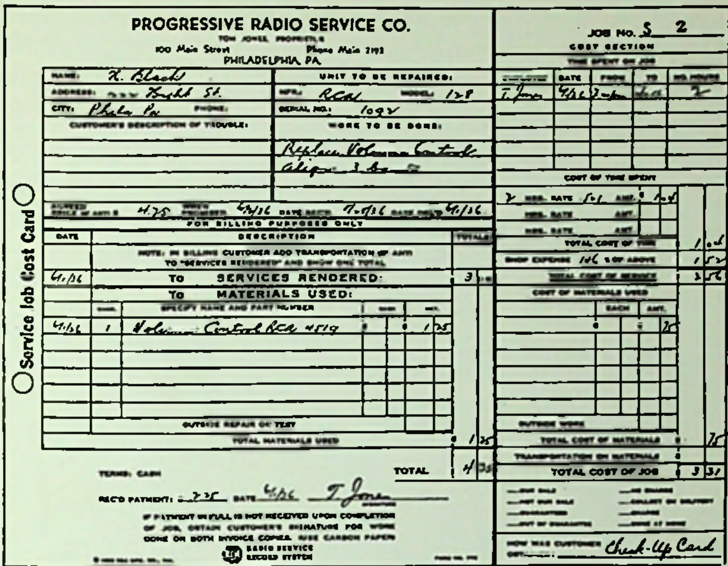
The third sheet of FORM 775, JOB No. S-1. This sheet is retained for bookkeeping purposes.

Notice that the "total cost of service" is $3.32, including "shop expense" at 146%, which rate was developed as the estimated "shop expense rate" for June, 1936.

The parts and tubes used are priced at list on the billing section and at cost on the cost section of the form respectively, while the transportation on the specially ordered by pass condenser is $.15.

The billing price for "services rendered" was obtained by adding 20% to the cost of $3.32 and by including the transportation at cost. 20% of $3.32 is $.66, rendering a total billing price of $3.98; adding $.15 for transportation increases that amount to $4.13.

Total billing price is $7.71 while total cost is $5.62, a difference of $2.09 over cost, of which $1.43 is due to billing parts used at list and $.66 is due to taking a 20% profit on the Cost of Service.


PROGRESSIVE RADIO SERVICE CO.
100 Main Street Phone Main 2193
PHILADELPHIA, PA.

JOB NO. S 2

Service Job Cost Card

TO SERVICES RENDERED:

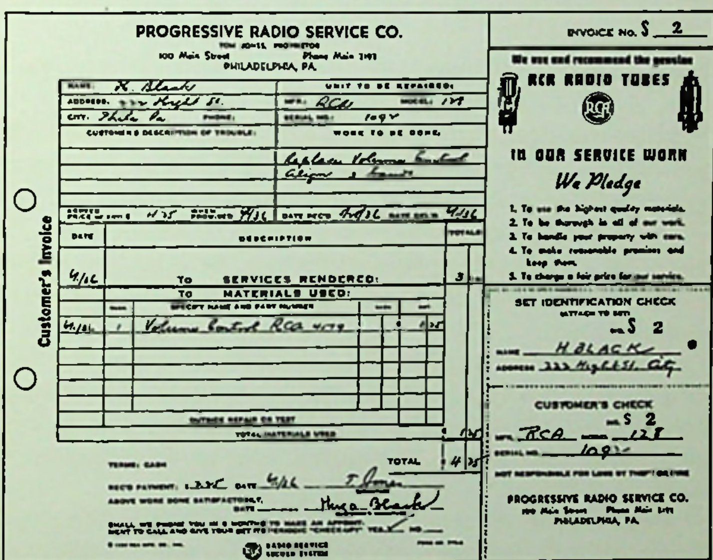
TO MATERIALS USED:

TERMS: CASH

TOTAL

TOTAL COST OF JOB

The first sheet of FORM 775, JOB No. S-2.


PROGRESSIVE RADIO SERVICE CO.
100 Main Street Phone Main 2193
PHILADELPHIA, PA.

INVOICE NO. S 2

Customer's Invoice

TO SERVICES RENDERED:

TO MATERIALS USED:

TERMS: CASH

TOTAL

RCA RADIO TUBES

IN OUR SERVICE WORK

We Pledge

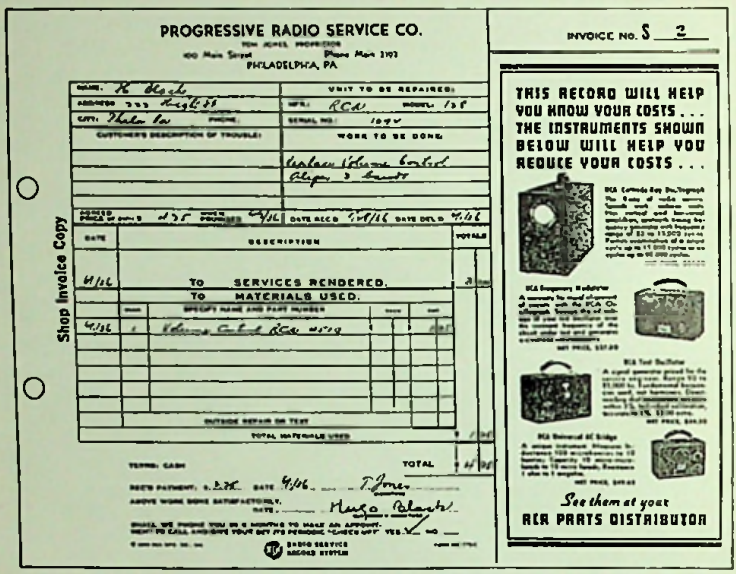
SET IDENTIFICATION CHECK

CUSTOMER'S CHECK

PROGRESSIVE RADIO SERVICE CO.
100 Main Street Phone Main 2193
PHILADELPHIA, PA.

The second sheet of FORM 775, JOB No. S-2. This is the copy given to the customer.

These figures are set up in this manner for the purpose of illustration; we do not intend the "billing" prices to be considered as our instruction or suggestion to the service operator



The third sheet of FORM 775, JOB No. S-2.

in regard to profit he must take or is entitled to. We reiterate that the question of billing prices must be answered by the individual service operator.

Job No. S2 covers the replacement of a volume control and the alignment of a 3 band radio set for an agreed price of $4.25.

Diagnosis, volume control replacement, and alignment account for two hours labor. The cost of the volume control is $1.25 less 40% or $.75 resulting in a total cost of $3.31 against an agreed price of $4.25.

In this case the operator may consider himself to have received list or $1.25 for the part, and $3.00 for services rendered, costing him $2.56. He almost obtains service cost plus 20%.

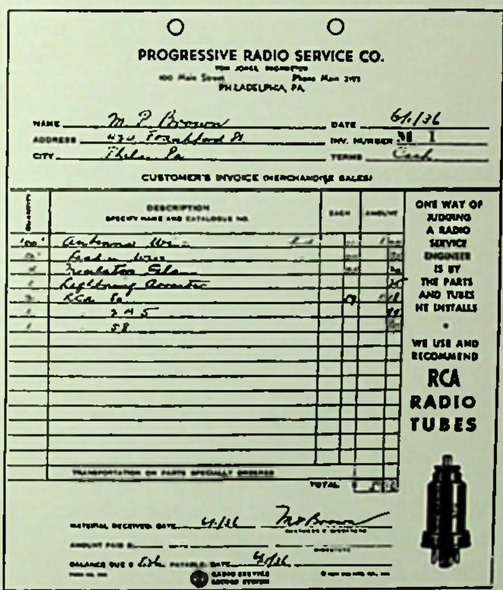
In the case of a job at an agreed price it is optional with the operator to separate the billing for service rendered and materials used, or to bill for one amount in total. In every such case he must, on the Shop Invoice Copy, price out his

materials and service billing. This is required in writing up the Sales and Cost Summary for the month.

Job No. S-1 is paid for on completion. Shop Invoice No. S-1, therefore, goes to the duplicate cash receipt file.

On Job No. S-2 the customer pays $2.25 and owes $2.00. A cash receipt is made out for $2.25, the original thrown away and the duplicate, plainly marked "On account Job No. S-2," goes to the cash receipt file. Shop Invoice Copy No. S-2 is entered on the Accounts Receivable Statement at the first opportunity and filed in the Invoice Copy file.

Be sure to put the job number reference on the Cash Receipt.


PROGRESSIVE RADIO SERVICE CO.
PHILADELPHIA, PA.
NAME
DATE
ADDRESS
INV. NUMBER
CITY
TERMS
CUSTOMER'S INVOICE (MERCHANDISE SALES)
DESCRIPTION
EACH
AMOUNT
ONE WAY OF JUDGING A RADIO SERVICE ENGINEER IS BY THE PARTS AND TUBES HE INSTALLS
WE USE AND RECOMMEND
RCA RADIO TUBES
TOTAL

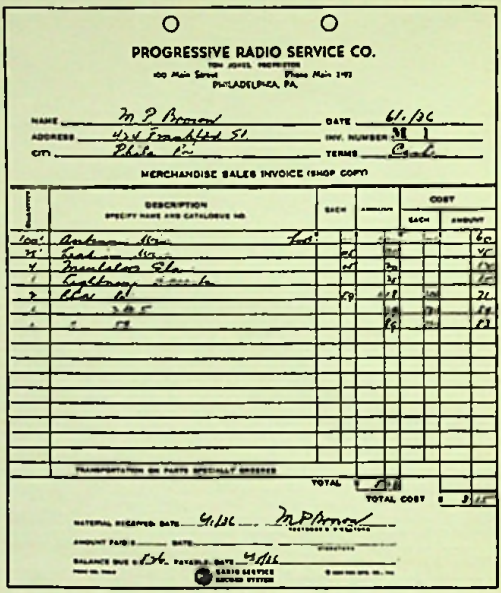
FORM 780. MERCHANDISE SALES INVOICE. This copy is given to the customer.

Merchandise Sales Invoice, Form 780. This form will probably come into use simultaneously with the Service Job Cost Card. In the case of a merchandise sale wholly or partly *on account,* this form must be used. For a merchandise *cash* sale, either the merchandise invoice or the cash receipt may

be used, provided it is marked up as recommended in Chapter IV, "Recording Sales and their Cost."

Invoice No. M-1, reproduced herewith, illustrates a sale of parts and tubes wholly on account. The customer should sign for the material and receive the customer's invoice. The Merchandise Sales Invoice (Shop Copy) should be entered on the Accounts Receivable Statement at the first opportunity and filed in the invoice copy file.

The billing in the illustration is at list, the cost at list less 40%.



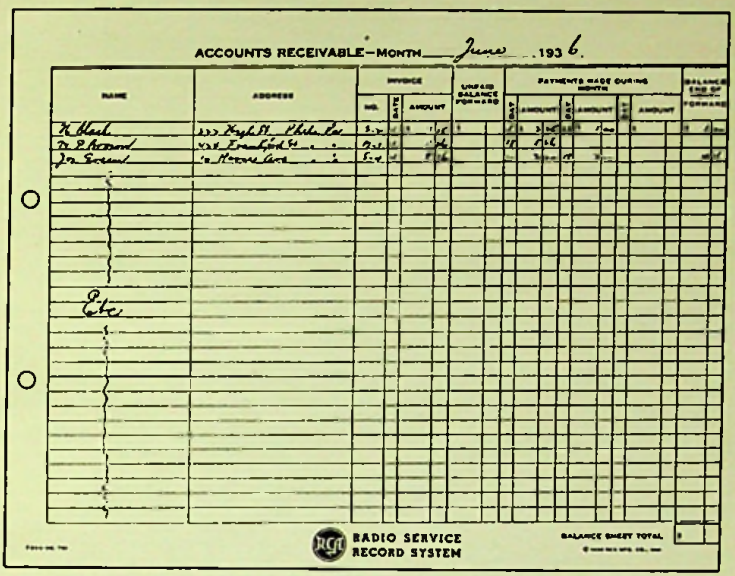
PROGRESSIVE RADIO SERVICE CO.

MERCHANDISE SALES INVOICE (SHOP COPY)

FORM 780. MERCHANDISE SALES INVOICE. This copy, showing costs, is retained.

Accounts Receivable Statement Form 781. This form is next illustrated, because of the advisability of making prompt notation of moneys owing the business. Job No. S-2 was the first receivable created because the customer paid $2.25 and owes $2.00. Invoice M-1 is the next receivable created because customer buys on account, promising to pay on June 15th, 1936. He did pay in full on June 18th, 1936. However, two other customers, Black and Green have a balance owing at the end of June. Those balances and any others created during

June and unpaid on June 30th should be transferred to the July Statement before any receivables created during July are written up. For detailed discussion see Chapter IV, subheading "Accounts Receivable," page 114.

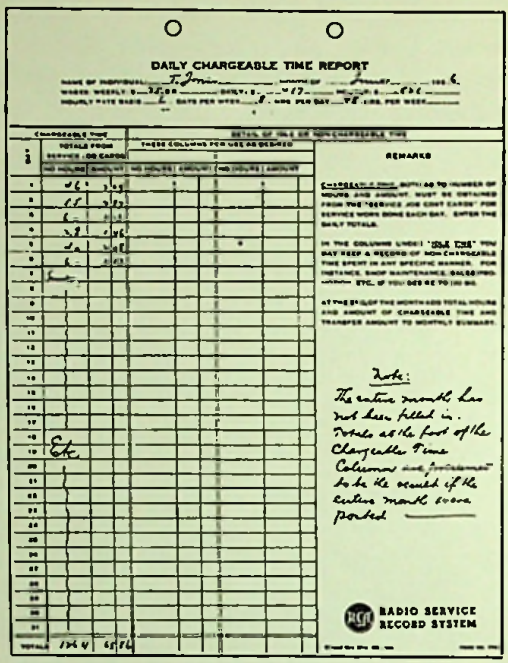


FORM 781. ACCOUNTS RECEIVABLE STATEMENT.

Daily Chargeable Time Report, Form 778. This form has been filled in for June 1, 1936, as if service jobs Nos. 1 and 2 were the only jobs done on that day. We show this form now (on page 202), because it can be filled in each day if desired.

Job No. 1 shows 2.6 hours at $1.35. Job No. 2 shows 2 hours at $1.04. Total for the day is 4.6 hours at $2.39. These figures should be entered on the Daily Chargeable Time Report for the 1st day of June, 1936.

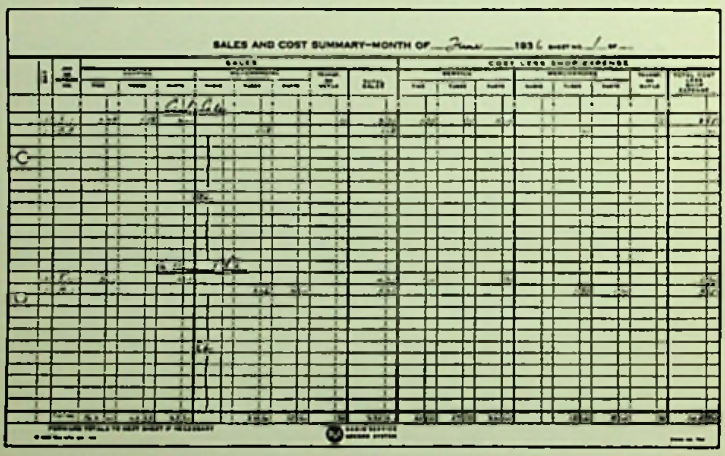
In the illustration, the first week has been filled in and assumed totals for the month are shown at the bottom of the columns of 126.4 hours chargeable time amounting to $65.86. These amounts are shown in order to assist in illustrating the Monthly Chargeable Time Summary.



DAILY CHARGEABLE TIME REPORT

RADIO SERVICE RECORD SYSTEM

FORM 778. DAILY CHARGEABLE TIME REPORT.



SALES AND COST SUMMARY—MONTH OF

FORM 784. SALES AND COST SUMMARY.

Sales and Summary Cost Form 784. This form may be made up whenever it is convenient to do so, as soon as sales of service and merchandise occur. If desired, all sales may be entered at the end of the month. Chapter IV "Recording Sales and their Cost" describes the process in great detail.

In the illustration of this form on the opposite page, the two service jobs and the merchandise sale described in preceding paragraphs of this chapter have been listed.

Billing on Service Job No. S-1 shows $4.13 for services rendered, which amount is made up of $3.98 for 2.6 hours time plus shop expense and $.15 transportation. Tubes are billed at $1.58 and the by-pass condenser at $2.00. The total billing on sale is $7.71. Referring to the illustration you will note these amounts in their proper columns.

Cost on Service Job No. S-1 shows $1.35 as cost of time, $.95 for tubes, $1.20 for parts and $.15 for transportation. The total cost less shop expense is $3.65.

Billing on Service Job No. S-2 is $3.00 for services rendered and $1.25 for one volume control at list. The total billing is $4.25, which is the agreed price for the job. It would be permissible to omit the division of the agreed price between services rendered and materials used, because it was previously agreed between the operator and the customer that the charge would be $4.25. If, in the opinion of the service engineer omission is preferable, no detail of the charge should be entered on the customer's invoice. It will be necessary to make the division for the sales and cost summary, in order to arrive at the correct total of service time sales at the month's end.

The cost less shop expense of service job No. S-2 is $1.04 for service time and $.75 for parts.

On the last line we have entered assumed totals, in order to illustrate the preparation of the Operating Statement.

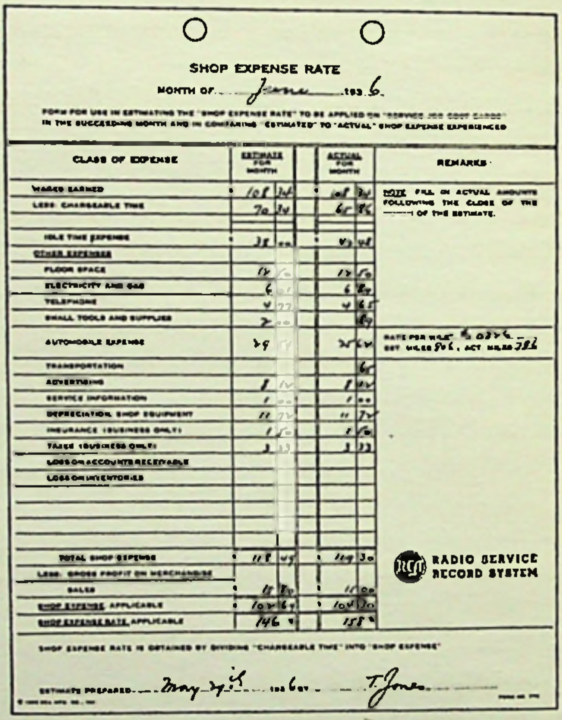
Please note that the "cost less shop expense" of service time is $65.86, which is the amount of the chargeable time for the month of June, as shown on Form 778. This means that neither at the end of May nor at the end of June were there any undelivered service jobs in the shop.

The total of the cost of service time can always be checked against the Daily Chargeable Time Report by adding to the amount of chargeable time for the month, the chargeable time

on Work in Process at the beginning and deducting the chargeable time on Work in Process at the end of the month. The figure so obtained should correspond with the total cost of service time shown on the Sales and Cost Summary.

Shop Expense Rate—Form No. 776. This form is now being used for the second time and the *actual* expense for the month must be entered in the second column.

The chargeable time is obtained from the foot of the third column of the Daily Chargeable Time Report.



SHOP EXPENSE RATE

MONTH OF June 1936

FORM FOR USE IN ESTIMATING THE "SHOP EXPENSE RATE" TO BE APPLIED ON "SERVICE JOB COST CARDS" IN THE SUCCEEDING MONTH AND IN COMPARING "ESTIMATED" TO "ACTUAL" SHOP EXPENSE EXPERIENCED

CLASS OF EXPENSE	ESTIMATE FOR MONTH	ACTUAL FOR MONTH	REMARKS
WAGES EARNED	$ 108 34	$ 108 34	NOTE: FILL IN ACTUAL AMOUNTS FOLLOWING THE CLOSE OF THE ——— OF THE ESTIMATE.
LESS: CHARGEABLE TIME	70 34	65 86	
IDLE TIME EXPENSE	$ 38 00	$ 42 48	
OTHER EXPENSES			
FLOOR SPACE	12 50	12 50	
ELECTRICITY AND GAS	6 [illegible]	6 87	
TELEPHONE	4 77	4 65	
SMALL TOOLS AND SUPPLIES	2 00	89	
AUTOMOBILE EXPENSE	29 [illegible]	25 64	RATE PER MILE $.0326; EST. MILES 906, ACT. MILES 786
TRANSPORTATION		65	
ADVERTISING	1 12	1 12	
SERVICE INFORMATION	1 00	1 00	
DEPRECIATION, SHOP EQUIPMENT	11 72	11 72	
INSURANCE (BUSINESS ONLY)	1 50	1 50	
TAXES (BUSINESS ONLY)	1 33	1 33	
LOSS ON ACCOUNTS RECEIVABLE			
LOSS ON INVENTORIES			
TOTAL SHOP EXPENSE	$ 118 45	$ 119 30	
LESS: GROSS PROFIT ON MERCHANDISE SALES	$ 15 80	$ 15 00	
SHOP EXPENSE APPLICABLE	$ 102 65	$ 104 30	
SHOP EXPENSE RATE APPLICABLE	146 %	158 %	

SHOP EXPENSE RATE IS OBTAINED BY DIVIDING "CHARGEABLE TIME" INTO "SHOP EXPENSE"

ESTIMATE PREPARED May 29th 1936 BY T. Jones

RADIO SERVICE RECORD SYSTEM

FORM 776. SHOP EXPENSE RATE FORM.

The item "wages earned" has not been changed from the estimated figure. Should the amount of this item be greater than the estimate due to the employment of additional help or an increase during the month in wages of personnel employed, or smaller, due to the reverse taking place during the month, the actual for the month figure should reflect these conditions.

Because chargeable time amounts to $65.86 instead of $70.34, "idle time expense" becomes $42.48 actual as against $38.00 estimated, as illustrated on the opposite page.

Other expenses do not differ greatly from the estimate except "automobile expense." Instead of 906 only 786 business miles were run. This you obtained from your mileage record. Automobile expense actual therefore becomes $25.62 as compared to the estimate of $29.54.

The deductible "gross profit on merchandise sales" item is obtained from Sales and Cost Summary. Merchandise sales of tubes were $22.10, of parts $15.40, totaling $37.50. The cost of the tubes was $13.26; the parts $9.24; totaling $22.50. The gross profit therefore, is $37.50 less $22.50 or $15.00.

The actual shop expense applicable becomes $104.30 and the actual rate for the month 158% instead of the 146% estimated and used during the month.

Operating Statement—Form No. 782. At this point you are in a position to combine the figures developed and prepare the Operating Statement for the month.

Transfer the totals on the Sales and Cost Summary as shown in the illustration on the next page.

The total of Service Sales is the combination of the individual amounts of $162.01, $47.33 and $28.31 or $237.65. The total of Merchandise Sales is the combination of the amounts of $22.10 and $15.40 or $37.50.

Service Cost at $126.37 is the combination $65.86, $37.86 and $22.65 on the "cost less shop expense" side, while $13.26 and $9.24 render $22.50 as the cost of merchandise.

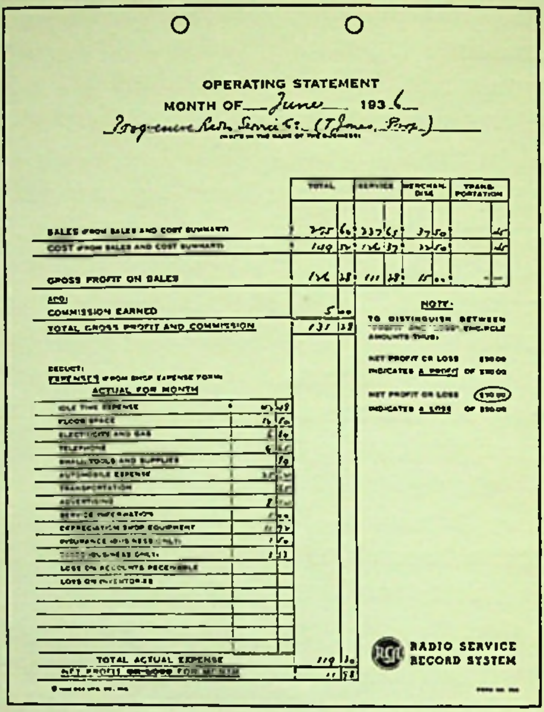
"Gross profit on sales" is the difference between the sales and cost figures and should be at least sufficient to cover actual expenses. Note in this connection the result of selling merchandise at correct prices.

For the purpose of demonstration it is also assumed that $5.00 commission was earned during the month.

The resultant excess of the sales value of service and merchandise over the wage and material costs is $131.28.

The expenses to be deducted are obtained from the "actual for month" column on the Shop Expense Rate form and copied

on the Operating Statement in the spaces provided therefor. Their total is $119.30.


OPERATING STATEMENT

MONTH OF June 1936

SALES

COST

GROSS PROFIT ON SALES

ADD:

COMMISSION EARNED

TOTAL GROSS PROFIT AND COMMISSION

DEDUCT:

ACTUAL FOR MONTH

TOTAL ACTUAL EXPENSE

NOTE:

RADIO SERVICE RECORD SYSTEM

FORM 782. THE OPERATING STATEMENT.

Deducting $119.30 "actual expense" from the total "gross profit and commission" of $131.28 results in a net profit for month of $11.98.

Therefore cross out the words "or loss" on the last line of the Operating Statement.

Cumulative Operating Statement—Form 783. This form as illustrated shows the transfer of the amounts from the monthly operating statement. If made up faithfully, this form will provide a running history of the operation of your business.

The Cumulative Operating Statement gives you your most comprehensive picture of the progress of your business. When the figures from several months' Operating Statements have been transferred to the Cumulative Operating Statement, you are then in a position to make useful comparisons, to observe both the trend of your business from month to

CUMULATIVE OPERATING STATEMENT

YEAR 193 6

Progressive Radio Service Co. (T. Jones, Prop.)

(WRITE IN THE NAME OF THE BUSINESS)

RADIO SERVICE RECORD SYSTEM

MONTH AND YEAR TO DATE	SALES			TOTAL SALES	COST OF SALES			TOTAL COST	GROSS PROFIT SALES	COM-MISSIONS EARNED	TOTAL PROFIT INC. COM-MISSION	TOTAL SHOP EXPENSE	NET PROFIT OR NET LOSS
	SERVICE	MERCHAN-DISE	TRANS-PORTATION		SERVICE	MERCHAN-DISE	TRANS-PORTATION						
(COLUMN 1)	(COL. 2)	(COL. 3)	(COL. 4)	(COL. 5)	(COL. 6)	(COL. 7)	(COL. 8)	(COL. 9)	(COL. 10)	(COL. 11)	(COL. 12)	(COL. 13)	(COL. 14)
JANUARY													
FEBRUARY													
YEAR TO DATE													
MARCH													
YEAR TO DATE													
APRIL													
YEAR TO DATE													
MAY													
YEAR TO DATE													
JUNE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
YEAR TO DATE													
JULY													
YEAR TO DATE													
AUGUST													
YEAR TO DATE													
SEPTEMBER													
YEAR TO DATE													
OCTOBER													
YEAR TO DATE													
NOVEMBER													
YEAR TO DATE													
DECEMBER													
YEAR TO DATE													

→ INDICATE LOSSES BY ENCIRCLING AMOUNTS ←

FORM 783. CUMULATIVE OPERATING STATEMENT.

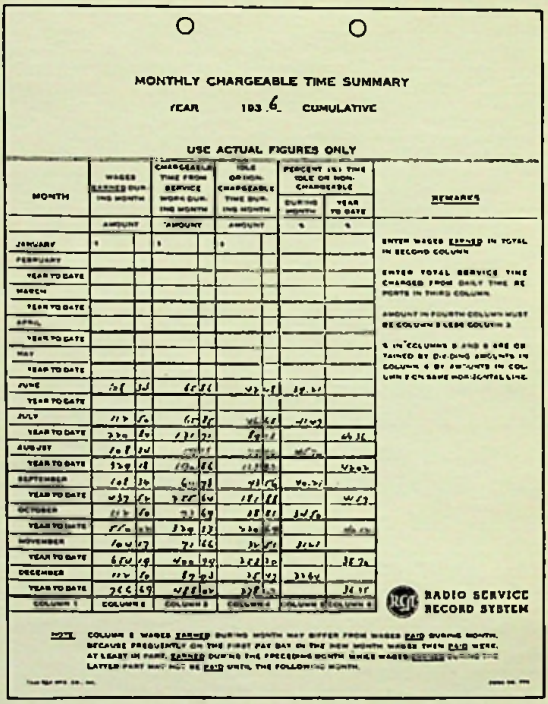
month but also the general trend as indicated by the "year to date" figures. Of course, the "year to date" figures over a twelve month period will concern you most, for you will realize that though the figures for slack months may show little or no profit, the over-all results of a year's operation may still be quite satisfactory.

Monthly Chargeable Time Summary, Form 779. The item "wages earned" is taken from the "actual for month" column on the Shop Expense rate form. The "chargeable time" item should be taken from the Daily Chargeable Time Report form. The "idle or non-chargeable time" item is the result of subtraction. At this point the figures for the month should be checked against the corresponding items on the Shop Expense Rate form as a matter of precaution. Having independently arrived at "idle time" on the monthly chargeable time summary, the other source for this information should be looked up to insure agreement.

The percentage in column 5 is obtained by dividing \$108.34 into \$42.48. The result will be .3921 or 39.21%.

Additional assumed figures have been entered on this form as illustrated below, in order to demonstrate the result obtainable by its use.

Summary of Shop Expense Rates, Form 777. Preparing this form consists of copying the estimated and actual shop expense amounts and rates from the monthly Shop Expense Rate forms and calculating the cumulative estimated and actual shop expense rates. In Chapter VII the purpose and use of this form has been discussed in detail.



MONTHLY CHARGEABLE TIME SUMMARY

YEAR 193 6 CUMULATIVE

USE ACTUAL FIGURES ONLY

MONTH	WAGES EARNED DURING MONTH	CHARGEABLE TIME FROM SERVICE WORK DURING MONTH	IDLE OR NON-CHARGEABLE TIME DURING MONTH	PERCENT IDLE TIME OR NON-CHARGEABLE	REMARKS
	AMOUNT	AMOUNT	AMOUNT	DURING MONTH % / YEAR TO DATE %	
JANUARY					ENTER WAGES EARNED IN TOTAL IN SECOND COLUMN
FEBRUARY					
YEAR TO DATE					ENTER TOTAL SERVICE TIME CHARGED FROM DAILY TIME REPORTS IN THIRD COLUMN
MARCH					
YEAR TO DATE					AMOUNT IN FOURTH COLUMN MUST BE COLUMN 3 ITEM COLUMN 2
APRIL					
YEAR TO DATE					% IN COLUMNS 5 AND 6 ARE OBTAINED BY DIVIDING AMOUNTS IN COLUMN 4 BY AMOUNTS IN COLUMN 2 ON SAME HORIZONTAL LINE
MAY					
YEAR TO DATE					
JUNE					
YEAR TO DATE					
JULY					
YEAR TO DATE					
AUGUST					
YEAR TO DATE					
SEPTEMBER					
YEAR TO DATE					
OCTOBER					
YEAR TO DATE					
NOVEMBER					
YEAR TO DATE					
DECEMBER					
YEAR TO DATE					
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5 COLUMN 6	

RADIO SERVICE RECORD SYSTEM

NOTE COLUMN 2 WAGES EARNED DURING MONTH MAY DIFFER FROM WAGES PAID DURING MONTH, BECAUSE FREQUENTLY ON THE FIRST PAY DAY OF THE NEW MONTH WAGES THEN PAID WERE, AT LEAST IN PART, EARNED DURING THE PRECEDING MONTH WHILE WAGES EARNED DURING THE LATTER PART MAY NOT BE PAID UNTIL THE FOLLOWING MONTH.

FORM 779. MONTHLY CHARGEABLE TIME SUMMARY.

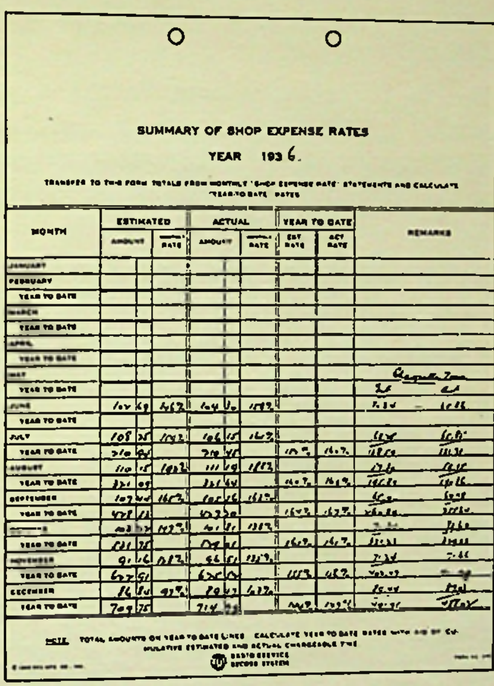
In the illustration of the form on the opposite page the month of June has been copied from the Shop Expense Rate form for that month. Other assumed amounts have been entered to fill out the year and to demonstrate the result obtainable by the use of the form.

The amounts of estimated and actual shop expense have been arranged in keeping with the "idle time" trend on the Monthly Chargeable Time Summary form illustrated in con-

nection with the preceding paragraph. In setting up these figures no great change in "other expenses" has been considered.

In the right hand column headed "Remarks," notation has been made of chargeable time estimated and actual for each month. This has been done to facilitate the calculation of the year-to-date percentages.

The percentages for the month of June were obtained in the preparation of the Monthly Shop Expense Rate Form by dividing estimated chargeable time of $70.34 into estimated amount of shop expense of $102.69, resulting in a rate


SUMMARY OF SHOP EXPENSE RATES

YEAR 1936

FORM 777. SUMMARY OF SHOP EXPENSE RATES.

of 146%. Subsequently the actual chargeable time of $65.86 was divided into the actual shop expense of $104.30, rendering an actual rate of 158%.

Similarly in the preparation of the Summary of Shop Expense Rates form, the "year to date" estimated chargeable time amounting to $138.59 is divided into the "year to date"

amount of estimated shop expense of $210.94, resulting in a "year to date" estimated rate of 152%. The "year to date" actual chargeable time at $131.71 divided into the "year to date" actual shop expense at $210.45 renders a rate of 160%.

The same method has been followed to obtain the rate for the succeeding "year to date" totals.

The figures used demonstrate that it is possible to arrive at an overall shop expense rate which can be applied, with possible minor adjustments, during the entire business cycle. Allowing for the fact that the amounts of shop expense are not obtained from existing operating records, they nevertheless have the virtue of being set up in accordance with seasonal fluctuations of chargeable time combined with a fairly constant level of other expenses.

Noteworthy is the circumstance that the pronounced monthly fluctuation in the shop expense rate between 103% actual and 188% actual is considerably greater than the limit of variation in the year to date column, which is confined between a low of 147% and a high of 169%.

The form prepared for an entire year would very probably not exceed these limits.

The seven months' period illustrated points to an overall shop expense rate for an entire year of about 150%.

The specimen forms shown in this chapter illustrate a one-man business, the proprietor of which, T. Jones, allotted himself $25.00 per week as salary or drawing account.

Comparatively simple though the RCA Radio Service Record System is, T. Jones found it necessary to devote a certain amount of time to it each week. He had to separate his personal affairs from his business affairs, to keep a record of all business transactions, and to enter them on the proper forms. What did T. Jones gain by keeping the records we have described? Some of the chief benefits follow.

When he started using the system, he made up a Balance Sheet. He then knew just where he stood in a business way at that moment.

As a result of keeping the Daily Chargeable Time Report, the Monthly Chargeable Time Summary and the Shop Expense Rate forms, he has learned that his cost of one hour's

service is $.52 plus about 150% shop expense, or $1.30 per hour. Besides providing him with the basis for his cost figures for each job, these forms have indicated to him the trend of his business, have shown him whether additional sales effort was needed to keep the ratio of idle time to chargeable time from becoming dangerously high, and whether there was an urgent need of pruning other expenses.

Finally T. Jones has been enabled to make up Monthly Operating Statements and a Cumulative Operating Statement. These forms have told him of the progress of his business; whether he was making a profit or a loss. Furthermore, without needless redtape and complicated records, he has been able to prepare Operating Statements and Balance Sheets sufficiently reliable to be accepted as such by banks and business houses to whom he might wish to offer a statement of his financial condition.

Through the use of the Merchandise Sales Invoice and the Service Job Cost Card, with their carbon copies, he learned the cost of each job or sale and impressed his customers with his business-like methods. In addition, he received valuable information for his guidance in his advertising and sales promotion program.

In short, he has operated his business in a business-like manner.

RCA RADIO SERVICE RECORD SYSTEM

HOW TO OBTAIN THE FORMS

There are eleven forms for use with the RCA Radio Service Record System. The quantity required of some of these forms will be the same for all radio service businesses, regardless of size or number of transactions. A quantity of these forms sufficient for one year's operations is packed as the Annual Kit.

The quantity required of the other five forms (Forms Nos. 775, 780, 781, 784 and 778) will depend on the number of transactions or, in the case of Daily Chargeable Time Report Form No. 778, on the number of employees. These forms may be purchased separately as required.

The Initial Kit of forms takes care of those businesses just starting the use of the System. This kit is composed of the Annual Kit plus a quantity of the other forms to last the average service business for some time, depending on the size of the business.

All forms are punched to fit standard office binders obtainable at stationery stores. Holes are ¼" in diameter, spaced 2¾" apart. Forms may be ordered from distributors or direct from RCA Manufacturing Company, Camden, N. J., if accompanied by remittance. All prices include transportation charges.

IMPORTANT!

IMPRINTING: Forms Nos. 775 and 780 are imprinted and machine numbered. Print the imprint instructions plainly, not over four lines.

NUMBERING: Be sure to specify starting number when ordering Forms Nos. 775 and 780. For example: "4 pads of Form No. 775, numbering to start with S-1; 3 pads of Form No. 780, numbering to start with M-1."

INITIAL KIT

Item No. 786 Price, $5.00

The Initial Kit contains all forms required for starting the system. The Annual Kit, included in the Initial Kit, provides enough of Forms Nos. 782, 776, 779, 777, 785 and 783 to last one year, regardless of the size of the business. Enough of the other forms are provided in this Initial Kit to last for some time, depending on the size of the business. These forms can be ordered separately thereafter.

Contents:

1 Annual Kit.

4 Pads Form No. 775—Service Job Cost Card.

3 Pads Form No. 780—Merchandise Sales Invoice.

1 Pad Form No. 781—Accounts Receivable Statement.

1 Pad Form No. 784—Sales and Cost Summary.

1 Pad Form No. 788—Daily Chargeable Time Report.

ANNUAL KIT

Item No. 787. Price, 50c

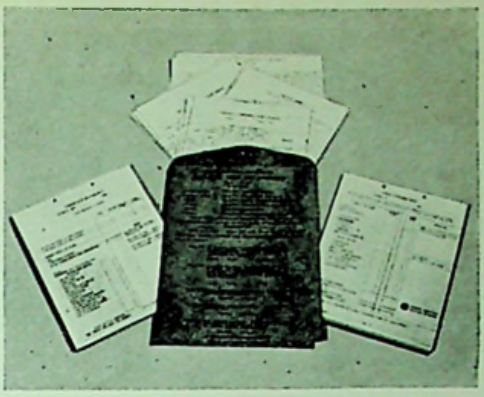
Contents:

25 Sheets (1 Pad) Form No. 782 — Operating Statement.

25 Sheets (1 Pad) Form No. 776 — Shop Expense Rate Form.

4 Sheets Form No. 779 —Monthly Chargeable Time Summary.

4 Sheets Form No. 777 —Summary of Shop Expense Rates.



4 Sheets Form No. 785—Balance Sheet.

4 Sheets Form No. 783—Cumulative Operating Statement.

This kit contains a supply of the above forms sufficient to last a year for any radio service business, regardless of size of business.

Form 780—Merchandise Sales Invoice.—Size 8½ x 10 in. In duplicate—white and canary. One set required for each on-account merchandise sale. 50 sets to a pad. Imprinted and machine numbered. Be sure to give starting number when ordering.

3 Pads, $1.25—6 Pads, $2.00

Form 775—Service Job Cost Card.—The heart of the RCA Radio Service Record System. Impresses your customers. 8½ x 11 in. In triplicate—buff, white and canary. One set required for each service job. 50 sets to a pad. Imprinted and machine numbered. Be sure to give starting number when ordering.

4 Pads, $3.00—10 Pads, $5.00

Form 778—Daily Chargeable Time Report.—Size 8½ x 11 in. One sheet per month required for each worker. One pad enough for proprietor and three employees for a year. 50 sheets to a pad. No imprint.

Per Pad, 50c

Form 784—Sales and Cost Summary.—Gives you an individual and group picture of all transactions. Size 8½ x 11 in. Each sheet handles 27 sales. 100 sheets to a pad. No imprint.

Per Pad, 50c

Form 781 — Accounts Receivable Statement. Size 8½ x 11 in. Each sheet handles 27 accounts receivable. 100 sheets to a pad. No imprint.

Per Pad, 50c

INDEX TO PART II


RCA