How to Make Extra Money FIXING RADIOS

NATIONAL RADIO INSTITUTE, WASHINGTON, D. C.

No. 15 How Much To Charge for Your Work

RADIO SERVICING METHODS

NRI TRAINING

Pays . . .

Dear Mr. Smith:

I am now employed by the FCC and have worked up to the position of a Monitoring Officer. Without the benefits of your Course it would have been tough going, and to this day the lessons and textbooks are proving their worth. Having had the opportunity to look over other Courses before and after graduating, my advice and recommendations are, and always will be, to any person interested in Radio - the NRI.

C.J.G., Rhode Island

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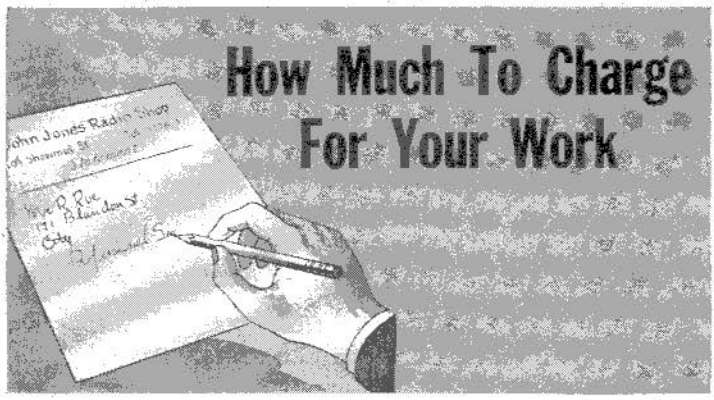


SETTING a fair price for your work is a problem you will meet as soon as you start to service receivers. Determining a fair price is not hard, yet surprisingly few servicemen seem to know how to do it properly. As a result, many a technically competent radio man has not been successful, because he made his prices either too high or too low.

When the price charged is too low, the serviceman gets a reputation for cut prices that attracts a lot of business. However, he will soon give up the business if the return per job is not sufficient to pay the expenses. On the other hand, if the serviceman charges too much, he will drive away business. It is important, therefore, for the serviceman to charge just the right prices—high enough to keep the business prosperous, yet low enough so that his customers are satisfied that his charges are honestly arrived at and reasonable.

There is nothing mysterious about determining what such a fair charge should be, once you know your expenses. Naturally, at the beginning, you can't know just what your expenses will be. Therefore, until such time as you do know your costs, you will be wise to follow a flat-rate schedule like the one described later in this RSM Booklet. In fact, you may find that the flat-rate schedule meets all your business requirements, particularly if you intend to operate a small spare-time business. Once you have established a flat-rate schedule, you should review it from time to time to be sure that it is providing the necessary income. Before you can do this,

you must know how to determine what your charges should be.

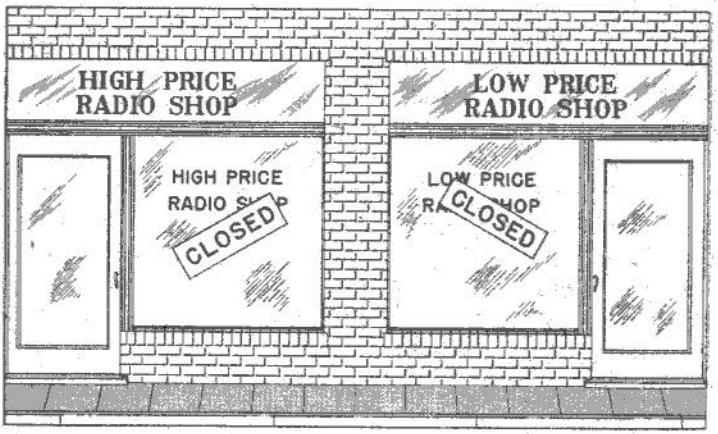
► This RSM Booklet is intended to show you how to charge correctly for your work. It contains a flat-rate charge schedule that should come reasonably close to the charges you should make in the average case. In addition, it shows you how to calculate an hourly rate that will let you work at a fair profit. Before we go into either of these, let's learn a few facts about what determines the cost of staying in business.

WHAT IS PROFIT?

For a business to expand and grow, it must make money over and above the cost of doing business. This extra earning is called a profit.

Perhaps one of the greatest mistakes of a beginner in a radio-servicing business is to consider all the money over and above the cost of a part as profit. Nothing could be further from the truth. For example, suppose that you replace a by-pass condenser and charge $2 for the job. If the condenser costs you twenty-five cents, you may think that you have a profit of $1.75. Actually you have no such thing—the cost of the part may be only a small fraction of the expenses of doing this job. Let's suppose that you spent an hour, and that your salary is $1 an hour. This $1 labor charge added to the twenty-five cent cost of the part leaves only seventy-five cents of the $2. Furthermore, even this seventy-five cents is not all profit. Your business has operating expenses—things like rent, electricity, heat, insurance, car expenses, and supplies such as stationery. A proportionate share of all these costs must be paid for out of the seventy-five cents. What remains will then be profit.

Notice—as we pointed out in an earlier RSM Booklet, your salary is not a part of the profit of your business. On the contrary, it is an expense—part of the cost of doing business. For the purposes of finding out whether or not your business makes a profit, you must consider yourself to be an employee. As such, you are entitled to a salary for your services. Your business makes a profit only when it earns more than enough to pay your salary and all other expenses.



High prices mean a large profit per customer, but very few customers; low prices attract many customers, but the over-all profit is too small. To be successful, a radio serviceman must charge prices that give him a good profit but appear reasonable to his customers.

As a beginner, working in your own home, you may feel that you don't have any operating expenses worth mentioning. This is true while you are doing only one or two service jobs a week. However, if you intend to go after a considerable volume of spare-time business, or intend eventually to operate a full-time business, then you should start right from the beginning to keep track of all expenses. That is the only way for you to get on a firm business basis.

For example, you should charge the business a rent even if you are operating from a room in your house. If you use one room of a five-room house, the business should pay one-fifth the house rent (or, if you own the house, one-fifth the rent you would have to pay for a similar house). By watching your electric bills and comparing them with the bills before you started your service work, you can see how much the electricity used by your business costs. Similarly, by keeping a record of mileage or of car operating expenses, you can determine what proportion of the operating cost of your car can be charged to the business.

► After you have deducted all operating expenses, you still have business costs such as taxes, licenses, and de-

preciation to compute. Your test equipment is a good example of the need for making a depreciation charge. Let us suppose, for simplicity, that you have spent $100 for test equipment. The average life of this kind of equipment is about four years. In other words, you will want to replace the equipment in four years because it will be obsolete (or, even if it is still usable, will probably be so battered or out-of-date in appearance that it does not make a favorable impression on customers). Therefore, each year you should set aside 25% of the cost of replacing the equipment. Then, in four years, the business will have the necessary money to buy new equipment.

Similarly, you should set aside money to pay for lost or broken tools. And, since your business mileage is hastening the end of the life of your car, the business should pay a fair share of the cost of replacing the car.

► Anything that is left over after *all* expenses have been paid may be considered as profit. This is the "salary" earned by the business itself—money that you can use to buy new equipment (not just replacements for present equipment) and to expand your business. When the profit is more than enough to take care of such needs, you can draw some of it out—pay yourself a dividend, in other words. However, unless you are exceptionally fortunate, you will probably be "plowing back" the profit into your business for some time.

DETERMINING AN HOURLY RATE

As we have already said, you can charge for your work by following the flat-rate schedule that we give later in this Booklet. However, you will want to be sure that the flat-rate schedule fits your needs—you may have to adjust some of the charges up or down to meet your own local conditions. Then, you may find other jobs you would like to add to the flat-rate schedule, or you may decide to work more on an hourly rate basis.

To do any of these things, you must work out the actual per-hour cost of doing business. This means you must estimate your expenses for a certain period (a month, three months, or a year), and also the amount

SERVICE GUARANTEE

....., 19....

Your .....receiver, Model ....., is unconditionally guaranteed to operate satisfactorily for three months from the above date PROVIDED no change or adjustment is made on the receiver by anyone other than the undersigned during the period of the guarantee. This guarantee covers tubes only to the extent of the manufacturer's guarantee.

If the receiver does not operate satisfactorily during the guarantee period, it will be repaired FREE OF CHARGE by us.

.....(Signed)

Fairhaven, Virginia DON'S RADIO SERVICE

Many experienced servicemen find it good business to give an unconditional guarantee like this to their customers. However, until you have acquired sufficient experience, you should guarantee only your own work, not the whole set (see FIG. 1, page 15).

of time you will spend on service work in that period. These figures will let you determine the hourly rate charge that will pay expenses and give your business a fair profit.

Of course, you realize that this hourly rate pays all your expenses, including your salary—it is not your salary alone. In other words, if you charge an hourly rate of $2, perhaps only $1 of this amount will go to you as salary.

► To show how to determine the hourly rate, suppose we examine the operating expenses of a full-time radio service shop. (Whether you work full-time or spare-time, you can follow the same general procedure in determining your own costs). Table *1* lists the operating expenses of a typical one-man radio service business. Many of the items are self-explanatory, but the following notes will help you to see how some of the figures are determined. Let's assume that you are working out a table similar to this, and go over the points as we come to them.

To get your figure for fixture depreciation, estimate what your lights, parts cabinets, workbench, etc., were worth (what they would have brought if sold) at the beginning of the year. Estimate their value at the end

of the year. The difference between the two figures is the depreciation.

Since the average piece of test equipment has a useful life of four years, depreciation of service equipment can be figured at 25% of cost per year.

In this case, the owner estimates his salary on a basis of $35 per week (with pay for vacation weeks). The yearly income he desires, then, for direct repair work is 52 x $35, or $1820.

Something should be paid to the person taking your phone calls, even if it is your wife, your mother, or another close relative. A modest $70 per year is allotted by Mr. Jones for this purpose.

Zeros are shown for heat, window decoration, and newspaper advertising because Mr. Jones spent nothing for these items. If you have such expenses, enter the amounts paid for each in the proper places.

Item No. *6* in Table *1* lists a total of zero because in a one-man business you do not have to pay these taxes. However, if there are taxes for business licenses in your community, they should be placed in this column.

The Jones financial investment built up over a period of years is, let us say, $1600. The owner thinks he is entitled to a ten per cent return on that investment, or $160. (At the beginning, when your investment is small, you can choose an arbitrary figure as the desired profit —say $25 or $50).

► Adding together these items, we find that the Jones Radio Service must yield $3445 to meet its operating expenses and pay a profit.

The owner puts in 50 hours per week, but he estimates that only about 35 hours will be directly paid for by the customers or will be actually spent on radio repairs. The rest of his time is non-productive—spent in ordering parts, or in building racks and doing other shop tasks, or just plain wasted when there is nothing to do. A total of 35 hours per week productively used in repair work for 50 weeks (two weeks vacation and holiday time) comes to 1750 hours per year.

The owner subtracts from this figure the total number of hours spent on "call-backs"—say about 2 hours per week, or roughly 100 hours per year. This brings the

Table 1

YEARLY OPERATING EXPENSE, JONES RADIO SERVICE

Shop Expenses

Rent	$600.00
New shop fixtures	20.00
Fixture depreciation	25.00
Redecoration, shop improvement	20.00
Electricity	60.00
Heat	0.00
Sign painting, lettering	5.00
Window decoration	0.00
Stationery supplies	10.00
Telephone	60.00
Fire and theft insurance	10.00
Item No. 1	$810.00

Advertising Expenses

Stickers	$ 2.00
Calling cards	2.00
Newspaper Advertising	0.00
Phone book ads	25.00
Circulars	3.00
Penny post card ads	13.00
Item No. 2	$ 45.00

Car Expenses

Garage	$ 60.00
Gas	55.00
Oil	20.00
Repairs and service	35.00
Tires	20.00
Auto license	10.00
Auto insurance	25.00
Depreciation	60.00
Item No. 3	$285.00

Service Equipment

New instruments	$ 50.00
Instrument repairs	20.00
Instrument depreciation (25% of cost)	75.00
Tools	10.00
Service books and manuals	15.00
Solder, wire, tape, etc.	5.00
Item No. 4	$175.00

Wages

Help for handling phone	$ 70.00
Salary	1820.00
Item No. 5	$1890.00

Taxes (Except income tax)

Workmen's compensation	$ 0.00
Social Security	0.00
Unemployment Insurance	0.00
Item No. 6	$ 0.00

Losses

Bad Debts	$ 10.00
Damage to parts and chassis through carelessness	15.00
Item No. 7	$ 25.00

Parts Replaced Free Under Guarantee

Parts (net cost)	$ 55.00
Item No. 8	$ 55.00

PROFIT (% of investment)	$160.00
Item No. 9	$160.00

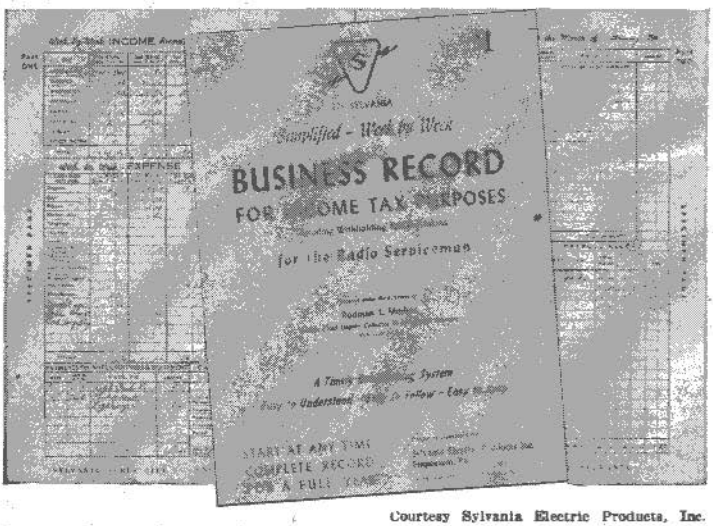
Sum Total of Yearly Expenses (add items 1, 2, 3, 4, 5, 6, 7, 8 and 9)

Item No. 10 ..... $3445.00

Time Input

Total number of hours worked by owner per week	50
Number of hours spent by owner on actual service work	35
Vacations and holidays	2 weeks
Hours spent on "call-back" service work per year	100

Total number of Paid-For Hours spent on Service Work Per Year 35 x 50 = 1750 — 100 hours on call backs = 1650 ... (Item No. 11)



Courtesy Sylvania Electric Products, Inc.

This book gives you a handy, easy way to keep complete business records for one year.

estimated total of paid, productive hours down to 1650 hours per year.

Dividing the required total income by the paid productive hours gives the hourly rate that must be charged to yield this total income. When we divide 3445 by 1650, we get approximately $2.10 as the hourly service rate. ► It should be clear that this is the minimum hourly rate at which the proprietor of the Jones Radio Service can operate profitably on his estimated number of paid hours of operation. If business is poor, so that he doesn't get paid for 1650 hours, he can lose money at this rate. To be safe, he will probably charge $2.25 per hour.

Of course, if the volume of business is considerably smaller than estimated, Mr. Jones will soon find he cannot increase the hourly rate enough, since there is a limit to the amount that customers will pay. Now, to break even, Mr. Jones must go out after more business or must reduce his expenses. On the other hand, if he is swamped with work, he may have to hire an assistant. This may allow him to reduce his rate, or may force him to increase it, depending on how efficient the assistant is and how much business the shop has.

Guarantees. Mr. Jones' losses on call-backs are

worth some attention. Many service shops make no unconditional guarantees of set operation on repaired radios, limiting themselves to guarantees of the specific parts replaced and adjustments performed. However, Mr. Jones unconditionally guarantees repaired sets for three months. He estimates the losses resulting from this policy to amount to $55 in parts and tubes supplied free, and to 100 hours of unpaid service.

Let's see how much of the hourly rate is caused by these losses. In other words, how much less could be charged if he didn't offer an unconditional guarantee policy? One hundred additional hours of paid-for service time would be available per year, making a total of 1750 hours, instead of the previous total of 1650 hours. A reduction of $55 in the operating costs would bring down the total income necessary from $3445 to $3390. The hourly rate, then, would be 3390/1750 or about $1.94.

Comparing this with the original rate of $2.10, we can see that for a difference of only 16 cents in his hourly rate, Mr. Jones can offer his customers an unconditional 3-month guarantee on all repaired sets no matter what type of trouble may develop. Naturally, an unconditional guarantee is a real selling feature—unquestionably worth the small difference it causes in the rate.

Customer's Bills. You may have noticed that Table *1* does not list any costs for the radio parts and tubes used in repairing sets. This expense is paid as each part is used, because Mr. Jones follows the system we recommend of charging separately for parts. In other words, the customer gets a bill for parts and for professional services. The parts are billed at the regular list prices established by the manufacturer. The bill for services is figured out either from the flat-rate schedule (given farther on) or by multiplying the hourly rate by the time consumed on the job. Later in this Booklet we will give some billing examples.

Record Keeping. Mr. Jones can find out whether he is making money, by keeping an accurate but simple record of his expenses and his income. Such simple listings give all the information needed to fix charges and to figure taxes. Special record books, containing complete directions for use, are available for the small busi-

FLAT-RATE SCHEDULE OF PROFES

All charges in this chart are *for professional SERVICES only.* Radio *parts* should be billed at list prices.

Each bill should include one of the three following charges, to cover testing of tubes, check-up of set, and tests needed to determine the nature and extent of the trouble.

I Check-up and test at customer's home $2.50

This covers up to 1 hour of time including trip to and from home; charge for extra time at Hourly Rate specified in schedule.

II Check-up and test at shop, including pick-up and delivery of set 3.50

This includes time and transportation expense for two round trips to a customer located up to 2 miles away from shop; charge for greater distance at Mileage Rate specified in schedule of charges.

III Check-up and test at shop, when customer brings set in and takes it away 1.50

Alphabetical Schedule of Charges

NOTE: The word "install" rather than "replace" is used in describing certain service jobs in which a defective part is replaced, to emphasize that parts are NOT included in the charges.

AERIAL, built-in loop—install $3.75
—repair broken wire 1.00

AERIAL, auto—install complete unit .. 2.25
—install new lead-in wire 1.50

AERIAL, home—simple outdoor installation not requiring ladder or poles ... 5.00
—job requiring installation of poles .. 6.50
—difficult installation: at Hourly Rate, with minimum of 10.00

ALIGNMENT, t.r.f. set 1.00

ALIGNMENT, superheterodyne set:
1-band 2.00
additional bands, per band—add ..... .50
High-fidelity i.f. amplifier—add 1.50
Complete f.m. set 4.50

AUTO RADIO—instal
aerial, with reasonabl
ference elimination
—remove set from
after bench work
(Check-up and
—interference elimin
at Hourly Rate, wi

AUTOMATIC RECO
—clean and oil only
—adjust or replace
Rate, with minimu

COIL installation:
Osc. or r.f.—1-band
—2-band
—multi-b
R.F. choke .....
A.F. choke .....
Filter choke .....

CONDENSER installa
Single paper by-pass
Each additional paper
Trimmer or padder
Gang tuning unit
Single electrolytic
Dual electrolytic
Multi-section electro
Filter block .....

DIAL DRIVE cable o
(easy job) .....
—install (normal)
—install (special job
hours) .....

DIAL DRIVE—repair

DIAL pointer or scale
ment .....

HOURLY RATE ...

INTERFERENCE, ho
power line filter ...
—install and adjust w
—eliminate interferer
at Hourly Rate

INTERMITTENT TR
your estimate on pa
observed symptoms.
the job, be sure to
enough to cover at le

LINE CORD, plain 2-w

SSIONAL RADIO SERVICE CHARGES

allation of set and
le amount of inter-
..... 7.50
car, and re-install
is done 1.50
l test are extra)
nation:
vith minimum of .. 3.00

RD CHANGER:
..... 1.00
part; at Hourly
m of 3.00

..... 3.25
..... 3.50
band 4.00
..... 2.25
..... 2.75
..... 2.75

ation:
..... 3.00
r cond. or fixed res. 1.50
..... 3.00
..... 4.00
..... 2.50
..... 3.00
olytic 4.00
..... 4.00

or belt—install
..... 1.50
..... 2.50
bs taking over 1½
..... 4.50
r friction type 2.25
repair or replace-
..... 1.00
..... 2.50
ome radio—install
..... 1.50
wave trap 1.50
ence at source:

ROUBLE — base
ast experience and
. If you guarantee
make charge high
least one call-back.

-wire—install ..... .75

LINE CORD RESISTOR (Cordohm)
—install 1.50

LOUDSPEAKER—install 2.00
—recenter voice coil 2.00
—replace cone, small 2.50
—replace cone, over 6" 3.50
—replace field coil 3.50

MILEAGE RATE, per extra mile ..... .10

PHONO MOTOR—clean and lubricate . 1.00
—replace 3.00

PHONO PICK-UP—replace 2.50

PUSH-BUTTONS, automatic tuning, reset:
Simple mechanical type, per station .. .20
Telephone dial type, per station ..... .40
Electrical (trimmer) type, per station . .25
Motor-operated type, per station ..... .40

RESISTOR installation:
Single resistor 3.00
Each additional small resistor or paper by-pass condenser 1.50
Voltage divider or bleeder 3.50

SWITCH—install simple on-off type ... 1.50
—band changing, per section or deck .. 2.00
—push-button tuner, install 3.00
—push-button tuner, minor repairs ... 1.50

TONE CONTROL—install 3.00

TRANSFORMER installation:
A.F. transformer 3.00
Antenna coupling transformer:
—at aerial 3.50
—at set 1.00
Antenna coil—same as r.f. coil
I.F. transformer 3.25
Oscillator coil—same as r.f. coil
Output transformer 3.00
Power transformer—mounting charge . 3.00
—connection charge, per lead or terminal ..... .25
R.F. coil (transformer)—1-band 3.25
—2-band 3.50
—multi-band 4.00

TUBE SOCKET—mounting charge 2.75

TUBE TESTS—included in shop or home check-up and test.

VIBRATOR—test ..... .50
—install non-plug-in type 3.00

VOLUME CONTROL—install 3.00

nessman. Some of these books are obtainable from stationery stores, others from radio supply houses.

BEGINNER'S RATES

Many beginners make the mistake of charging too little because they feel they are "learning" or are "taking too much time" on each job. This is a wrong attitude; any repair you make is worth as much as if it were done by an expert. That is, if an expert would charge $5, and you do the same job, then you have done $5 worth of work. True, the expert may have taken only half as long as you did, but this merely means that he has earned more per hour than you. Your *total price* for the job should be the same as his. (How will you know this total price? The flat-rate schedule in this RSM Booklet can again be used as a guide.)

In other words, you should adjust your per-hour *salary* to your ability. When you are starting out, figure your salary rate fairly low to compensate for the length of time it takes you to make repairs. When you have learned enough to work faster, increase your salary rate in proportion; this will keep your total price for any particular job the same at all times. This is fair both to your customers and to yourself.

Understand—when we say that you as a beginner should get the same pay as an expert for a repair job, we are assuming that you will do as good work as the expert. The only difference between your work and his should be that yours took longer—your finished repair should be just as good as his. There is no place for a botched, half-done job in radio repairing. If you can't make the repair perfectly, either return the set without charge, or have an expert do the work for you.

A good business and a good reputation can be built only upon a policy of honesty and fairness. Your charges must be honest ones for services rendered, and your charges must be fair both to yourself and to your customers. When people bring their radio sets to you and say "Fix it up; I'll be back day after tomorrow" without even asking how much the charge will be, then you'll know you have the right kind of reputation.

HOW TO USE THE FLAT-RATE SCHEDULE

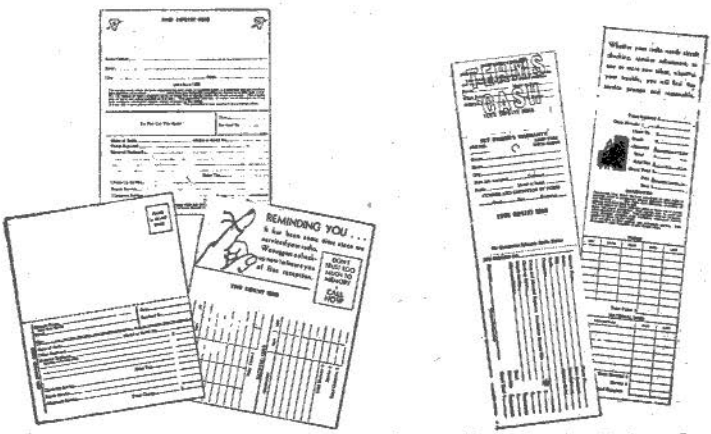
The schedule shown in Table 2, (pages 10 and 11) is based on an hourly rate of $2.50. This may seem high at first thought, but remember that the hourly rate includes all expenses (except the cost of parts), so your actual per-hour earnings may be only about $1 per hour.

The table makes allowances for the following factors:

1. The amount of skill and knowledge required to locate the trouble and figure out the remedy. Thus, automatic-record-changer repairs are higher than other equivalent mechanical repairs.

The hourly rate will pay the expert $1 per hour or more. As a beginner, you will take longer, so your hourly earnings will be somewhat less. However, the flat-rate price is about right for the job, regardless of the hourly salary earned by the serviceman.

2. The average time a competent, fully equipped Radiotrician would need to complete the job. The check-up and test charges cover only the time required to determine enough about the trouble to give an estimate. On jobs usually requiring additional time to isolate the exact trouble, the price takes this into account.



Courtesy Sylvania Electric Products, Inc.

These are back and front views of two kinds of record cards that Sylvania furnishes at low cost. The card on the left gives you a job record and an addressed reminder postcard, as well as a bill and guarantee for your customer. The longer card on the right gives you a job record, a bill and guarantee, and a receipt for the set.

On jobs that require exact duplicate replacement parts, the extra time that may be required to secure the correct part is likewise considered. You are *not* taking a pleasure trip when you drive from one radio jobber to another in search of a part.

3. The possibility of complications that might be encountered on the particular job. Some troubles, particularly squealing, distortion, or too-frequent burn-out of tubes or some other part, require actual changes in circuit designs, and consequently take longer than normal to repair. This possibility was considered in setting the charges for such jobs. Hum is another example of a complaint that may become complicated to fix. Many a customer who complains of hum becomes so hum-conscious that he expects the Radiotrician to eliminate hum that was never noticed when the set was new. Of course, you should charge more than the fixed rates for this or for any other jobs if the customer is unreasonably finicky about the results he wants. In such a case, you should discuss the matter of charges thoroughly with the customer before you get too involved, and make sure he is willing to pay for what he wants.

► The possibility of call-backs has been considered in practically every charge. Rare indeed are the jobs where you can collect extra when the set fails within your guarantee period, and still keep the good will of your customer. The charges in this schedule allow you to handle most call-backs cheerfully without asking for more money, regardless of the reason for the call-back.

Any system of professional charges is based on average conditions. It is intended that you adapt the rates and billing method to special cases whenever necessary, as illustrated by the examples at the end of this Booklet.

All special jobs that do not come up often enough to justify listing in this schedule should be charged at hourly rates, or the rate should be used as a guide for estimating the charge.

Material Prices. All radio parts and materials are to be billed at regular list prices as established by the manufacturer.

► When no list price is known, the easiest way to figure it for billing purposes is to divide your cost price by .6;

Unless otherwise indicated, all repairs and materials listed above are guaranteed for 90 days, just as for a new radio set. Work and materials covered by the guarantee will be replaced without charge within this time limit if defective.

Guarantee starts on: .....

By: .....

YOUR FIRM NAME PRINTED HERE

FIG. 1. This is an example of a guarantee of work and materials. You should offer a guarantee of this sort when you do not feel you are experienced enough to guarantee a whole set, or when a customer will not allow you to replace parts that you believe will eventually become defective. However, it is preferable to offer an unconditional guarantee whenever possible. An example of an unconditional guarantee is shown on page 5.

this is equivalent to the customary 40% discount you get if there is an established list price. If the result is an odd value, make it come to the nearest 5 cents.

When the list price of a part is 50¢ or less, and you are making a separate installation charge for that part, it is usually better business just to list the part without a charge. Thus, you would usually make no charge for small resistors or condensers. This emphasizes the value of your knowledge and skill. On small parts like pilot lamps or replacement control knobs, which have no installation charge, use your own judgment in each case.

Billing parts at list prices will usually take care of the cost of the small parts for which you make no charge, and will pay for the time spent getting parts. There may even be a small amount of extra profit from the parts you sell, over and above your profit on professional service charges.

Guarantees. A suggested guarantee to be printed on your statement of charges is shown in Fig. *1*.

Credit. Here's a factor that has ruined many a serviceman. All radio service work should be on a cash basis, collected at the time you deliver the set, unless you know

Uncalled-for radio sets are subject to a storage charge of 25¢ each per week, starting one month (30 days) after receipt of the set. Storage charges for your set will begin on .....

Radio sets left here over two months after the date storage charges start will be disposed of. Failure to call for your set on or before ..... will constitute permission to sell or junk this set without recourse to its owner.

Type of receiver .....
We are not responsible for sets left over 30 days.

By: .....

FIRM NAME AND ADDRESS HERE

FIG. 2. A notice of overdue charges like this one is sufficient legal notice in many states, but not in all. Be sure that the form you use complies with your state laws—otherwise you may be liable for damages if you sell the set.

definitely that the person has a reputation for paying his bills promptly. It is a sad but true fact that whenever debtors are hard-pressed, bills for radio servicing are usually the last to be paid. You'll be a lot better off to turn down a job politely and let your competitor risk the loss, rather than to do the job on credit and then perhaps make an enemy through attempts to collect for the work.

Storage Charges. When a set is left at your shop beyond a reasonable length of time, you can collect storage charges or dispose of the set, provided you notify the customer in the manner required by the laws in your state. One form of notification used by a large firm is a postcard that reads as in Fig. *2*.

EXAMPLES OF BILLS

Case No. 1. Five-tube table-model t.r.f. in walnut cabinet, brought to shop by customer. Put in new dual electrolytic filter condenser, type 6F6 tube, and pilot lamp. Realign set. Brush out set thoroughly and polish cabinet.

As an example, suppose the 20-20 mfd. filter condenser costs you 91¢. Dividing 91¢ by .6 gives $1.51, so you set its list price at $1.50 as in Fig. *3*. Always bill

BILL

Check-up and test at shop.....	$1.50
Install dual electrolytic filter condenser.....	3.00
20-20 mfd. electrolytic filter condenser.....	1.50
Type 6F6 tube.....	1.05
Pilot lamp.....	.15
Total.....	$7.20

FIG. 3

tubes at list prices. If the pilot lamp costs you 10¢, set its list price at 15¢. No charge is made for cleaning the chassis and polishing the cabinet, or for aligning the set, because all this work should easily be done within the one-hour time allowed for check-up and test.

Case No. 2. Go to nearby home, remove chassis and speaker of 7-tube, 1-band superhet from console cabinet, bring to shop and replace volume control, realign completely and recenter voice coil, return to home and reinstall in cabinet, polish cabinet, and replace antenna lead-in window strip.

The flexibility of this rate schedule is clearly evident in the bill in Fig. 4. The total charge of $11.50 is fully justified on the average job, where the customer wastes a lot of your time in conversation on each call, or you have to make an extra trip because the customer wasn't home when she promised to be ("just dashed over to the store—never thought you'd come when you said you

BILL

Check-up and test at shop, including pick-up and delivery of set	$ 3.50
Install volume control	3.00
Realign 1-band superhet	2.00
Recenter voice coil	2.00
One exact replacement volume control unit	1.00
Total	$11.50

FIG. 4

would," explains the lady!). If things go fine and the job takes considerably less time than usual, however, you could justifiably omit the voice coil recentering charge.

Case No. 3. Go to nearby home, install new 35Z5 rectifier and new pilot lamp (which you happen to have with you), and readjust 6-station mechanical push-button system. The bill is shown in Fig. 5.

Repairs are possible in the home on the first trip only when you have the required repair parts with you, and only when the repair is simple. If the customer refuses to let you take the set to your shop, and you have to make an extra trip to get parts, use the two-trip rate of $3.50 for check-up and test. Whether to do the job in the home or at your shop is a debatable question. Experience will tell you which is best. In the beginning you can work far more efficiently in your shop because you have all data, materials, and test equipment at hand, and a

BILL

Check-up and test at home	$2.50
Readjust push buttons	1.20
New 35Z5 tube	.80
New pilot lamp	.15
Total	$4.65

FIG. 5

bench to work on, with no one to upset you, if you run into a "stickler."

Tubes. Tube sales are an important source of income when a radio shop has store traffic, because customers will bring in tubes to have them tested. In this case the tube tester is a merchandising device and the "good-bad" meter allows the customer to see for himself which tubes should probably be replaced. When you work spare-time, however, customers will seldom if ever visit your shop to have tubes tested or to buy tubes. Any tubes you sell will be in conjunction with your set-servicing jobs and will be added to your total bill.

Incidentally, when you service a low-cost set, the need for new tubes can cut into your profits or even cause you to lose the repair job. Let's take an example. Suppose you have an a.c.-d.c. receiver for repair that originally cost the customer $10.95. You find that three electrolytic condensers must be replaced and that the

BILL

Check-up and test at shop	$1.50
Install multi-section electrolytic filter unit	4.00
30-30-50 mfd. electrolytic filter condenser	2.10
Type 35Z5 tube	.80
Total	$8.40

FIG. 6

defective electrolytics have ruined the rectifier tube, making its replacement necessary. After installing the condenser and new rectifier, you find that the receiver performs satisfactorily on local stations but that distant reception is poor because of loss in emission of the other tubes. Your bill would be as in Fig. *6*.

The customer may consider this charge pretty "healthy," taking into account the original cost of the receiver, but a little "salesmanship" will usually make the average customer realize the fairness of the charge. Point out, for example, the high quality of the electrolytics you installed. The manufacturer of course had to skimp to make the receiver for $10.95, and the cost of the new electrolytics can be considered a good investment against a quick repetition of the trouble.

However, replacing the remaining tubes would add about $4 to the bill, making the total charge approximately $12.50—more than the price of the set. Naturally,