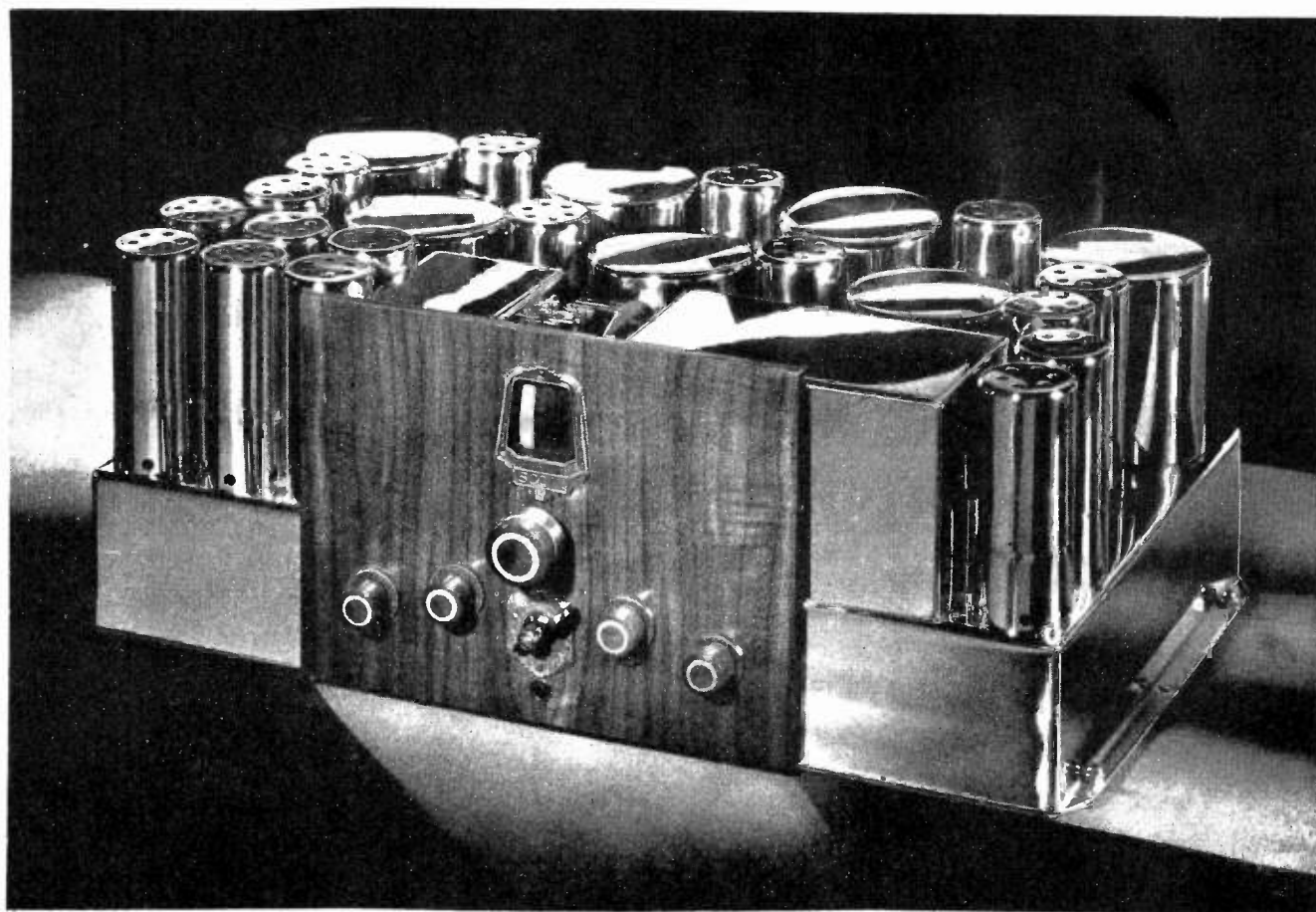


INSTRUCTION MANUAL



HOW TO INSTALL AND OPERATE

Scott Full Range High Fidelity
SUPERHETERODYNE RECEIVER

SOME IMPORTANT INFORMATION YOU SHOULDREAD CAREFULLY BEFORE YOU STARTOPERATING YOUR SCOTT FULL RANGE ALLWAVE

After you have actually examined the SCOTT FULL RANGE ALLWAVE, I believe you will not be disappointed in its appearance, and I can assure you that if you follow carefully the instructions which I am going to give you, you will be as pleased with its performance as you are with its appearance.

This custom-built receiver is unlike any other you have ever operated, and incorporates in its design many exclusive and advanced features that will not be found in any other receiver being built today.

However, in order to get the full benefit of all of its advanced engineering accomplishments, it is necessary that you read carefully the instructions I am going to give in this manual, which I can assure you I have made just as short as possible.

If, for the first few days you will be patient and will follow carefully the directions contained in this manual, then I am sure that you, like all other SCOTT owners, will get from your receiver all that it has to offer you.

You will notice the installation instructions are comparatively simple. If, however, you know nothing about radio, then I would most strongly urge you to allow me to recommend the services of the SCOTT installation representative for your territory. I believe the small fee you will be required to pay for his services will be collected a thousand-fold in the added pleasure and satisfaction you will obtain through his efforts.

He will see that your antenna is properly installed and the receiver set up in the console. (If, however, you have an old console that requires alteration before the chassis can be installed in it, then there will be an extra charge for this over the above installation fee) - and show you how to tune the receiver properly.

If you purchased an expensive automobile, I am sure you would be mighty careful as to the grade of oil you used in the "heart" of it - that is, the engine. Remember, always, that the "heart" of every radio receiver is the tubes. The tubes we furnish were chosen only after we had made many exhaustive tests. The tubes shipped with your receiver have been double-checked, and are the most stable, dependable and lasting tubes I know of. The receiver had its final test with the actual tubes you will find installed in the sockets of your receiver.

I most strongly recommend that you keep on hand, at all times, at least one spare tube of every type used, and if I were you I would have a complete spare set. Tubes now cost very little, and it has been my experience that 90 per cent of all trouble you will ever experience with your receiver will be with a tube that becomes defective.

There is one last thing I wish to say, and that is, if you do not immediately get the reception you think you should get, or if something appears to be wrong, please do not jump to the conclusion that there is something wrong with your receiver. Write me at once, explaining what your trouble is, and you will have a reply back within twenty-four hours.

Reception conditions are not always the same, but vary from day to day; one day you may bring in stations from one side of the earth to the other with good loud speaker volume, yet the next day you may not be able to hear them at all - not because something has happened to the receiver in the meantime, but because weather conditions, over which neither you nor I have any control, affect the transmission of radio signals so that, while they may be perfect for long-distance reception one day, they may be quite poor the following day.

And now I want to welcome you to the world-wide fold of SCOTT owners. I want you to know that at all times, not merely for the five years of your receiver guarantee, but just as long as the receiver is in your possession, my entire staff and I stand ready and eager to lend you every assistance, to the end that your SCOTT FULL RANGE ALLWAVE will bring to you a new thrill, a wider appreciation and a greater depth of enjoyment than you have ever obtained from any radio receiver you have previously owned.



INSTALLING THE CHASSIS, AMPLIFIER AND SPEAKER IN CONSOLE

The SCOTT FULL RANGE ALLWAVE receiver is a finely built precision instrument, and for this reason we do not ship it installed in the console, but in specially designed cushion cartons to assure its reaching you without damage.

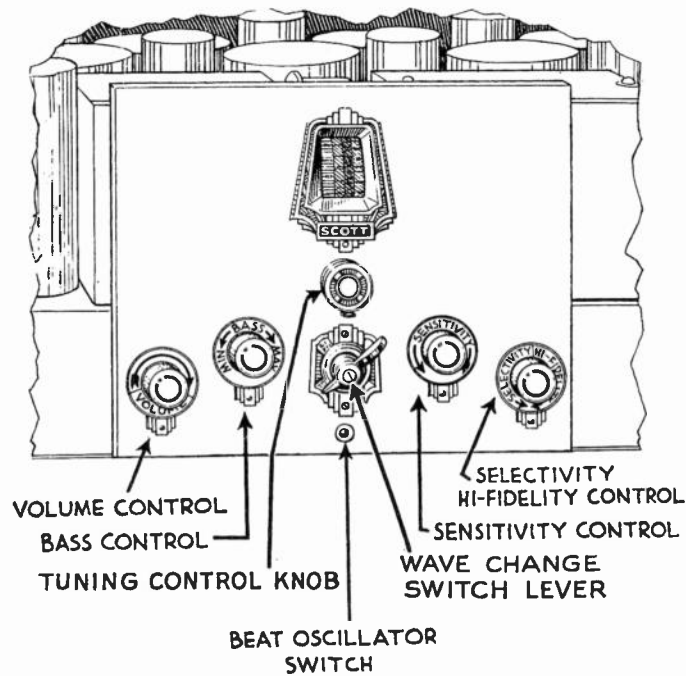


Fig. 1. The Front Panel.

INSTALLING THE CHASSIS IN CONSOLE

You will notice a hole cut in the front panel of the console for the escutcheon, and six holes for the control shafts to go thru, and a hole for the Beat Frequency Oscillator Switch. The following is the exact procedure to take:

- 1 - Remove the five wooden knobs from the front of the panel supplied with the receiver, by unscrewing the set screws.
- 2 - Set the bronze Wave Change Switch Lever so that it points to 540-1530 Kc. position (indicated by the white dot), then remove the screw in center and detach lever.
- 3 - Unscrew the brass nuts holding the Volume, Bass, Sensitivity and Fidelity Control escutcheons, after which the wooden panel can be removed. Do not loosen the nuts that hold these controls to the chassis.
- 4 - Slide the chassis into the cabinet to the front as far as it will go, noting that the shafts clear the holes in the front panel of the console and that the threaded bushing on the Volume, Bass, Sensitivity and Fidelity Control shafts protrude slightly.
- 5 - Make certain that there is sufficient clearance in the hole on the front panel thru which the small black Beat Frequency Oscillator button protrudes. If this button does not pass freely thru the hole in the panel, it may stick, leaving the Beat Frequency Oscillator in operation, causing a loud whistle to occur on each station as it is tuned in.
- 6 - Now you can install the escutcheons you have just removed from the front panel sent with your receiver, and fasten them on the front panel of your cabinet with the small bronze wood screws. After you have the escutcheons screwed in place, tighten the brass nuts.

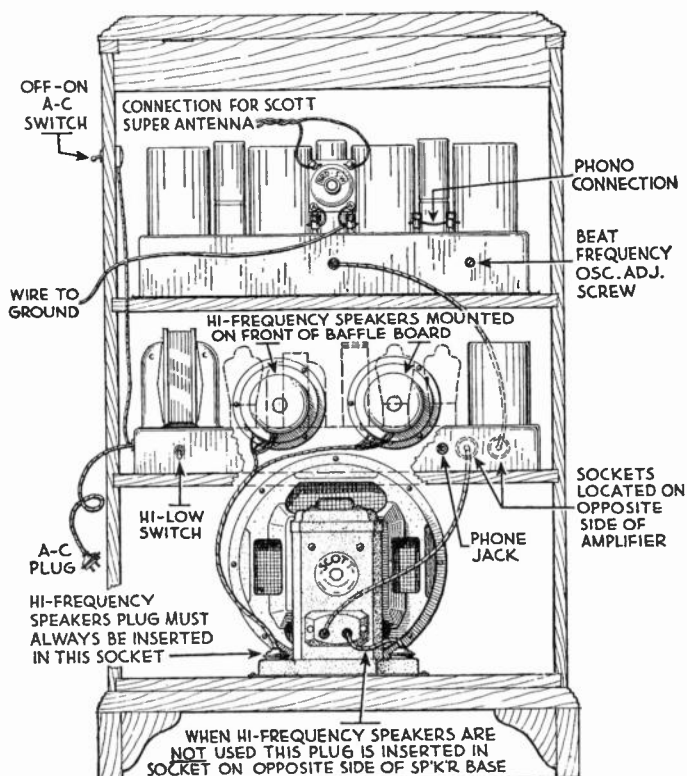


Fig. 2

The dial escutcheon should be left off the panel until you are ready to switch on the receiver, so that it can be located in its proper place. To do this, it is necessary to have the dial light lit so that the color bands can be lined up in their proper relation to the dial calibration.

Note: To start the small bronze wood screws that hold the escutcheons in place, use a sharp pointed instrument, such as a sharp ice pick, punching a very small hole in the panel where the screws are to be inserted.

- 7 - Slide the bronze wave band escutcheon (see Fig. 9), which is marked with the colors, over the shaft below tuning knobs, letting it hang loose; then put on bronze wave change switch pointer and tighten screw on end of shaft.
- 8 - Now locate Wave Band escutcheon so that the sharp end of the bronze lever points to the white dot; then fasten the escutcheon to panel with two small oxidized screws.

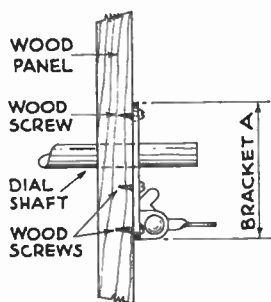


Fig. 3

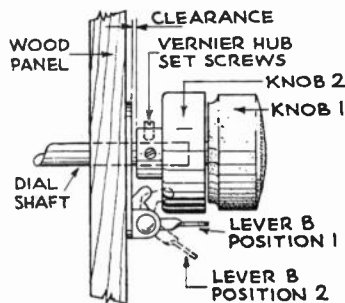


Fig. 4

- 9 - Place bracket (see Fig. 3) in vertical position, with the lever "B" (see Fig. 4) at the bottom. Fasten the lever to the front panel with wood screws furnished, making sure that the shaft hole in bracket clears dial shaft.

Push lever "B" back in position No. 1 (see Fig. 4), then place the metal vernier and wood knobs on shaft, allowing a clearance between back of the knob and bracket of the thickness of a post-card. The easiest way to do this is to place a post-card against the bracket, push metal knob against post-card, then tighten set screws.

Be sure that one of the set screws rests on the flat part of the dial shaft. The second set screw, of course, can be set on round part of shaft.

IMPORTANT: If you find, when you have the vernier installed, that it slips or will not turn the dial when operating in vernier position, it can only be due to the bracket binding on dial shaft on one side.

- 10 - After the chassis, amplifier and speaker are connected, as described on the following pages, and the Alternating Current switched on, the dial escutcheon can be attached. First, turn dial around until it stops. With the set switched on, the thin HORIZONTAL shadow line should cross the center of wording "Kil-Meg" on dial strip. Now locate the escutcheon so that the white, blue, red and green color strips line up with the wave bands properly, then fasten the escutcheon to the wooden panel with the two small oxidized screws supplied.

INSTALLING THE SPEAKER

The Scott Speaker should be screwed securely to the baffle board on the front of the cabinet with four wood screws. If the receiver is not being mounted in a cabinet, the speaker should be mounted on a board about 3 feet square and about 1 or 1-1/2 in. thick; otherwise, the tone quality will be poor, as the speaker requires a sounding or baffle board to secure proper reproduction.

CONNECTIONS ON SPEAKER

You will notice two socket holes, one on each side of the base of the speaker (see Fig. 2). You will also notice one short and one long cable with a plug attached to each. On some speakers the short cable comes out of the left hole instead of position shown. But this makes no difference.

If the High Frequency Speakers are not used, then plug the short cable into the socket in the left hand side of the speaker, looking at it from the rear, the socket on the right being left vacant.

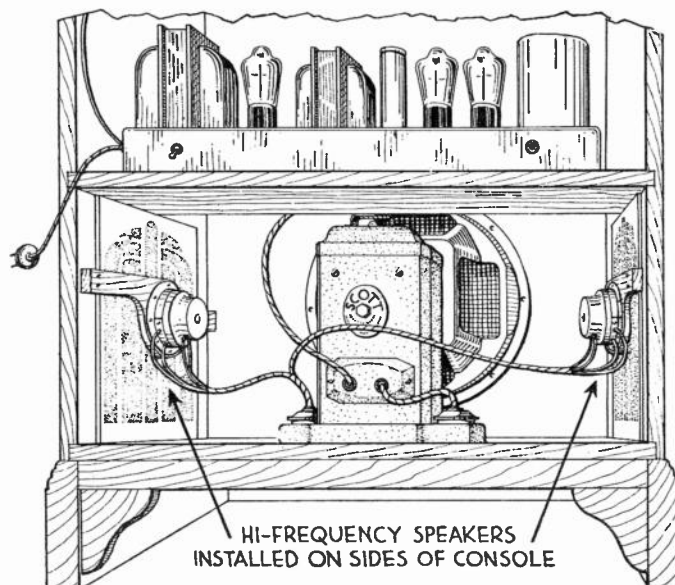


Fig. 5

INSTALLING THE HIGH FREQUENCY SPEAKERS

Where the full frequency range of the SCOTT FULL RANGE ALLWAVE is desired, the two High Frequency speakers are necessary to extend the range out to 16,000 cycles. These speakers are necessary when receiving programs from the new High Fidelity stations. High quality stations on the broadcast band are now transmitting frequencies up to 8500 cycles, and while the large Auditorium speaker has a good response up to this frequency, if the full benefit of this very perfect full range

High Fidelity receiver is to be secured, then the two High Frequency speakers (which can be secured as additional equipment) are strongly recommended.

In all Scott consoles ordered with the FULL RANGE HI-FIDELITY chassis, holes are provided to mount the High Frequency speakers. In some of our consoles they are mounted directly above the large speaker in the front baffle, as shown in Fig. 2. In other consoles where there is not sufficient height above the grille in the front of the console, the speakers are mounted in the "Tone Truth" opening in the side of the console, as shown in Fig. 5.

If the SCOTT FULL RANGE HI-FIDELITY ALLWAVE chassis is installed in a console other than one supplied by the E. H. Scott Radio Laboratories, then the High Frequency speakers can be mounted as shown in either Fig. 2 or Fig. 5. The diameter of the holes for the High Frequency speakers is 4-1/8 in.

In the Laureate Grande, the very latest in radio console design, the High Frequency speakers are mounted behind the special grille just below the instrument panel.

CONNECTING HIGH FREQUENCY SPEAKERS TO AUDITORIUM SPEAKER

After the High Frequency units are mounted on the baffle, they should be connected together by means of the "Y" connector cable supplied. It will be observed that the High Frequency units have sockets for connecting to the cable. One is for the four-prong plug, and the other for the five; the other end of this cable goes to the socket on the left hand side of the main speaker. This socket is marked "No. 1". The plug on the short cable should now be plugged into the socket on the right hand side of speaker which is marked "No. 2".

PLACING OF CONSOLE FOR MOST EFFICIENT SOUND REPRODUCTION

The best reproduction will be secured with the console placed in the corner of a room. If the High Frequency speakers are installed in the sides of the console and the console is placed in the corner of a room, they should face a hard surface wall on either side; that is, there should be no drapery or other soft material on the wall, as this will absorb the high frequencies, which will prevent the full reproduction of the higher tones of such instruments as the violin, piccolo, etc.

INSTALLING THE AMPLIFIER

The amplifier is mounted, in most of our consoles, on a shelf which is placed directly behind and above the speaker, as shown in Fig. 2. In some consoles which are very deep, the amplifier can be placed on the floor of the cabinet.

INSTALLING A.C. SWITCH

The A. C. switch for turning the set "off" and "on" is attached to a pair of wires coming from the power amplifier. This switch should be inserted in the hole at the side of the console. See Fig. 2.

CONNECTING CHASSIS AND SPEAKER

The cable coming from the chassis has a seven-prong plug attached to it which should be plugged into the socket on the right hand end of the amplifier, and the seven-prong plug on the cable attached to the large speaker plugs into the socket toward the middle of the amplifier. See Fig. 2. Be careful to insert the two large prongs into the two large socket holes in each case.

Note: Although each of these plugs has seven prongs, they cannot be interchanged, as the diameter of the circle of the prongs on the end of the chassis cable is larger than that on the speaker cable.

CONNECTING THE ANTENNA TO RECEIVER

If you are using a regular standard single-wire antenna, connect it to the Ant. binding post, connecting your ground wire to the Gnd. binding post.

If, however, you are using the SCOTT SUPER ANTENNA, connect it to the coupler on back of chassis, as shown in Fig. 6. This antenna will enable you to secure maximum reception on both the short waves and broadcast band. Full instructions for installation are enclosed with the antenna.

CONNECTING GROUND WIRE TO RECEIVER

A good ground connection is essential to the most perfect operation of the SCOTT FULL RANGE HI-FIDELITY ALLWAVE receiver with any type antenna, and is connected to the binding post on the rear of chassis marked Gnd. (see Figs. 2 and 6). In most cases, a good ground may be obtained

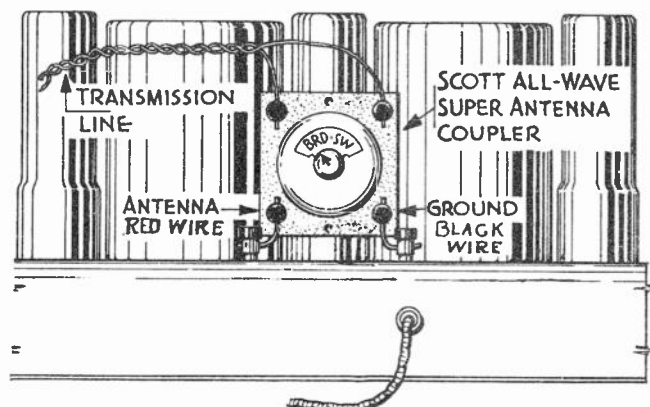


Fig. 6

by running a heavy rubber covered wire from the ground terminal binding post of the receiver to the point on the street side of the water meter where the cold water main enters the house. The ground wire should be attached to this pipe with a good grade ground clamp. In case no such ground connection is available, then the alternative is to drive a 6 ft. galvanized 1/2 in. pipe into moist earth and either solder or clamp the ground wire to it.

Note: If the ground wire is connected to receiver after it has been plugged into the power supply, a small spark may be noticed when the ground wire is brought in contact with the binding post. This is normal and is caused by the discharge of the line filter which is incorporated in the receiver to prevent line noises entering the receiver. However, this filter does not consume any current, whether the receiver is turned on or off.

CONNECTING A.C. PLUG TO LIGHT SOCKET

The SCOTT FULL RANGE ALLWAVE receiver is designed (except on special order) to operate on 110-120 volt, 60 cycle Alternating Current.

If your current is 110-120 volt, 60 cycle A. C., then the A. C. plug coming from the power amplifier can now be plugged into the A. C. light socket.

CAUTION: DO NOT PLUG THE RECEIVER INTO A DIRECT CURRENT LIGHT SOCKET, OR THE AMPLIFIER WILL BE BADLY DAMAGED.

When your A.C. line voltage is 110 volts, or lower, the Hi-Lo switch (see Fig. 2) may be thrown to the "down" position. If your A.C. voltage becomes higher than 120 volts, then the Hi-Lo switch should be operated in the "up" position. It is best to have the switch in the "up" position when installation is first made especially if the exact voltage is not known. This will help prevent blowing of fuses where the line voltage fluctuates.

Note: When your receiver was shipped, tissue paper was put into the top of every tube shield. This was done to prevent the tubes from vibrating, but this paper should be removed before you start operating the set, so that the tubes will get proper ventilation and will not become excessively hot.

BEFORE YOU PLUG INTO THE A.C. LINE AND TURN ON YOUR SET - CHECK BACK ON THESE POINTS

- 1 - Have you removed tissue paper from inside tube shields? Check.
- 2 - Have you inserted speaker plug in the amplifier? Check.
- 3 - Have you inserted the High Frequency speakers plug in the left hand socket, and the short cable plug in the right hand socket of the main speaker, or, if High Frequency speakers are not used, is the short cable plug on the main speaker inserted in the left hand socket facing the speaker from the rear? Check.
- 4 - Have you inserted plug on cable coming from receiver chassis to amplifier? Check.
- 5 - Is Hi-Lo switch on the amplifier in the proper position for your line voltage? Check.
- 6 - Have you made sure all tubes in chassis are pushed down firmly and that grid caps are firmly attached? Check.
- 7 - Are the tubes correctly placed in your amplifier? In other words, are you sure that the 2A3's, 5Z3 and 83-V are in their proper positions? The sockets are plainly marked. However, as the tubes in the amplifier require the same type of socket, it is possible to get

them placed in the wrong position. If this is done, the tubes and the amplifier may be damaged. Check.

- 8 - Is your Volume Control turned about 1/4 way on? Check.
- 9 - Is Bass Control in No. 3, or normal, position? Check.
- 10 - Is Sensitivity Control in normal position (1/2 way on)? Check.
- 11 - When first becoming familiar with the operation of the receiver, the Fidelity Control should be turned nearly all the way to the left, or at maximum Selectivity position, in order to assure correct tuning of a station. When the receiver is tuned correctly, this control can then be advanced to afford best Fidelity. Check.

If you have carefully checked all eleven points, then you can plug into A.C. line and switch current on receiver. The dial escutcheon can now be fastened to front panel as described on page 2.

EXPLANATION OF TUNING CONTROLS ON THE SCOTT FULL RANGE ALLWAVE

THE TUNING CONTROL

All stations are tuned in by operation of the control directly below the tuning dial. This control consists of two knobs - one, the metal knob next to the panel which is used when tuning in stations on the broadcast band, and a slow speed wood knob generally used for tuning stations on the short wave bands.

Referring to the illustration of the Tuning Control, when lever "B" is in position No. 1 (see Fig. 4) it is in the high speed position, and tuning is accomplished by grasping both knobs and turning together.

To use the slow speed position, push lever "B" down to position No. 2 with the left hand, then gently rotate the metal knob marked No. 2 with the right hand until you feel a click, when you will find the lever easily slips into one of the slots at the back of the metal knob. This locks the metal knob in one position, and all tuning is now done with the wooden knob marked No. 1.

We do not believe the vernier control will ever give trouble if it is installed correctly. Should it become defective, however, first remove both knobs and the bracket, then remove wood knob from vernier and place on dial shaft. The receiver can now be tuned in the regular way with the single wood knob. The vernier, or metal part of the knob, can be then returned to the laboratory and, if defective, will be replaced.

THE VOLUME CONTROL

The Volume Control (see Fig. 1) regulates the amount of output or volume from the receiver. When you start tuning, this knob should be turned approximately 1/4 way on.

THE BASS CONTROL

The SCOTT FULL RANGE HI-FIDELITY ALLWAVE is equipped with a Bass Control. (See Fig. 1). The object of this control is to enable you to secure reception that is most pleasurable to your particular ear. You will find there are five degrees of adjustment available, enabling you to regulate the bass or the lower tones. When the control is turned as far as possible to the left, the bass notes are so weakened or softened that they are just barely audible. However, if you turn the Bass Control over the five successive positions to the extreme right position, you will notice the bass or lower tones become increasingly stronger as you pass each position. Normally, the Bass Control is left in No. 3, or the center position, which will give you reproduction of the bass notes or tones exactly as they are transmitted from the broadcast station. However, you may frequently desire a deeper bass or lower tone, say, from an orchestra selection, and this can be secured by setting the Bass Control to the fourth or fifth position to the right.

On the other hand, when listening to voice reproduction, a performer very often stands too close to the microphone, giving the voice a very deep, boomy sound; or you may be listening to reception from a station the quality of which is not very good and has bad station hum. Again, static may be bad, particularly when listening to a distant short wave station. Under these conditions, you will find reception can be improved very considerably if the Bass Control is turned over completely to the left, or to No. 2 position. You will very soon discover that this control enables you to secure much more pleasurable reception from the SCOTT FULL RANGE ALLWAVE than from a receiver that does not have this Bass Control feature. You will be interested to note that this control is unique in that its adjustment does not affect the high frequencies in any way.

THE SENSITIVITY CONTROL

This control is plainly marked and is located below and to the right of the main tuning control knob (see Fig. 1). The function of the Sensitivity Control is to enable you to secure at all times reception as quiet and free from noise as possible.

You have undoubtedly noticed that when tuning sensitive receivers from one end of the dial to the other, any electrical interference or static in the air will cause considerable noise between stations.

Naturally, the more sensitive the receiver, the more noise it will pick up. However, the Sensitivity Control on the SCOTT FULL RANGE ALLWAVE enables you to use the exact degree of Sensitivity required to clearly bring in the desired station.

To understand the operation of this control, rotate it in a clockwise direction (to the extreme right), set Volume Control 1/3 to 1/2 way on, then slowly turn the tuning dial from one end to the other. You will notice, especially if you are in a location at all noisy, that immediately you tune off a station, the noise comes up.

Now turn the Sensitivity Control around to the extreme left, or in a counter clockwise direction again, and once more tune from one end of the dial to the other. You will be surprised to notice that the noise between stations is now practically eliminated, and that nothing is heard from the speaker until you actually tune in the station.

However, when the Sensitivity Control is turned to the extreme left, the Sensitivity of the receiver has been reduced to the point where it will only bring in local and mediumly distant stations. When you wish to tune for distant stations, it is necessary to turn this control around to the right to the point where there is no further increase in volume from the desired station, after which the Volume Control is adjusted for the exact volume required.

After tuning in a few local stations, you can start tuning in some of the mediumly distant stations, say from 500 to 1000 miles away. You will find that if you operate the Sensitivity Control properly, as outlined above, your pleasure from the reception of distant stations will be increased many times. In fact, you will find you are able to secure good reception from DX stations that you have never before received satisfactorily on any other radio.

To operate the SCOTT FULL RANGE ALLWAVE just above the noise level, in your particular location, turn the main tuning control knob to some point between 1000 and 700 Kc., where no station signal is picked up but where noise is present. With the tuning control left in this position, slowly rotate the Sensitivity Control knob to the left until this noise disappears. The receiver is now adjusted so that any station above the noise level at this particular location will be received satisfactorily, and very little noise will be heard as the receiver is tuned from one station to the other. Unless the noise level in your locality is very high (it varies from hour to hour), the full noise suppression range of the Sensitivity Control will not be required. When reception from strong local stations only is desired, the Sensitivity Control should be set for minimum Sensitivity - that is, around to the extreme left. Operated in this manner, the quietness of operation of the new SCOTT FULL RANGE ALLWAVE is a delightful revelation to those accustomed to the operation of extremely sensitive receivers, in which it is not possible to control the Sensitivity.

THE FIDELITY-SELECTIVITY CONTROL

The Fidelity-Selectivity Control is located on the extreme right of the instrument panel (see Fig. 1). This control, excepting only the main tuning control, is, we believe, the most important on the front panel. Music lovers and those who appreciate living realism in tonal reproduction now have at their command the means to secure this reproduction, for it permits the adjustment of the receiver to reproduce everything in tonal fidelity any broadcasting station puts on the air, and at last makes available to you every sound or tone that can be heard by the human ear.

For those whose chief delight is the reception of weak, distant, "DX" stations which are difficult to get, due to interference from other stations, this control makes available a greater degree of Selectivity than has ever before been at the command of the DX broadcast listener.

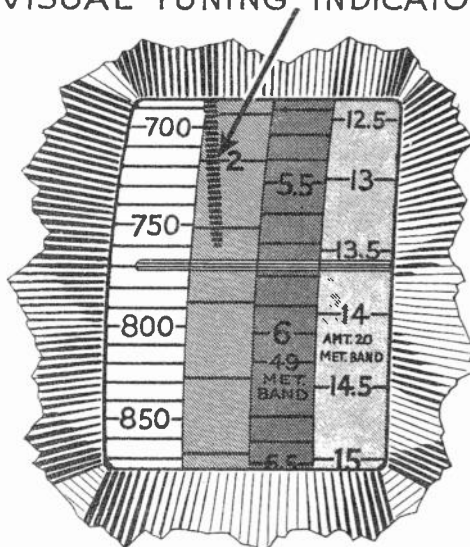
Before describing how to use the Fidelity Control, I will describe another feature of the receiver which is used in connection with it, and that is the Visual Tuner.

H O W V I S U A L T U N E R W O R K S

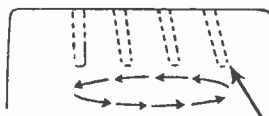
THE VISUAL TUNING INDICATOR

The first thing you probably noticed a few seconds after you switched on the receiver was the vertical line that slowly moved across the face of the dial. This is your Visual Tuning Indicator. (See Fig. 7). You will notice, after the set is warmed up, that as you turn your tuning knob and bring in a station, this pointer will gradually move to the right; then as you keep on turning your tuning knob and tune the station out, the pointer will move back again to the left.

VISUAL TUNING INDICATOR



INDICATOR SWINGS AS SHOWN BELOW



STATION CORRECTLY TUNED IN AT THIS POINT

Fig. 7

HOW TO TELL WHEN STATION IS TUNED IN CORRECTLY

You have the station tuned in correctly when the pointer swings as far over to the right as possible, when it is just on the point of starting to come back. On the signal from a very strong station, the indicator will swing far over to the right, while on weak stations there will be only a slight swing of the pointer over to the right. On extremely weak signals there will only be a very small deflection of the Visual Tuning Indicator to the right.

IMPORTANT:

When tuning in any station, first set the Fidelity-Selectivity Control to Max. selective position at the left, then tune in perfectly by observing the maximum swing on the Visual Tuner. After proper indication on Visual Tuner is obtained, the Fidelity Control may be advanced for best tone. If you always tune in this manner, you will be certain the station is tuned in perfectly.

Do not imagine that there is anything wrong with your Visual Tuner if the indicator swings farther to the right on some stations than it does on others. This only means that the signals from one station are stronger than they are from another station.

For example: On a strong local station the Indicator Pointer may swing over to the green strip, while on a weak distant station it may only swing as far as the blue strip.

If the Indicator Pointer moves farther to the right on some stations than it does on others, it only indicates that one station is stronger than the other.

This explanation is given to avoid confusion, as some owners have imagined that when, for example, they are tuning in stations which come in on the red band the Tuning Indicator Pointer should swing over to the red strip, or, when they are tuning stations on the green band, the Indicator Pointer should swing over to the green strip; but this is not so, for, as previously pointed out, the distance the Indicator Pointer swings over is determined entirely by the strength of the signal being received, and has no connection with the colored strips.

WHEN INDICATOR POINTER FLUTTERS

When the Visual Tuning Indicator Pointer fluctuates backwards and forwards on a distant station, it shows that the signal from the station is fading in and out. Even though your ear is not able to detect very much difference in volume, the fluctuation of the needle indicates that the Automatic Volume Control system in the receiver is operating correctly, by increasing the sensitivity when the signal becomes very weak, or lowering the sensitivity of the receiver when the signal becomes too strong or, in other words, keeping the volume as nearly as possible to the same level at all times.

Sometimes, you may notice your Visual Tuning Indicator Pointer fluttering or fluctuating very quickly on a strong signal, and this may be caused by one or two things:

- 1 - The station you are listening to may not be operating on a "cleared channel"; that is, there are two or more stations operating at the same time on this wave length and are interfering with each other.
- 2 - It might be caused by the station itself being improperly operated and over-modulating the carrier wave. Sometimes stations wish to be heard at great distances, and in this case they overmodulate their carriers, with the result that those living close to the station and listening to the program will hear it with poor tone quality, and the rapid fluctuation of the needle on the dial is an indication of this overmodulation.

So when the tone quality is poor, and the tuning meter fluctuates badly, don't blame the set; blame the station, and tune in another program.

HOW TO SECURE MAXIMUM SELECTIVITY AND FIDELITY

Up to this time it has been considered impossible to design a receiver that can be made extremely selective, yet at the same time secure the finest tonal reproduction. When the receiver is in the maximum selective position, you will not hear frequencies much over 1500 cycles. However, when it is in the position for maximum Fidelity, it tunes so broadly that even a local station spreads over 20 or 30 Kc. on the dial, making it possible for you to secure fine reproduction on all audio frequencies up to 16,000 cycles. In other words, while you can't have both maximum Selectivity and maximum Fidelity at the same time, you can have a receiver that will give you either extreme selectivity or full range High Fidelity, or any combination between these extremes.

When the receiver is in the maximum Selective condition, the reproduction sounds very deep and boomy, as none of the higher frequencies or higher tones in instruments such as the violin, castinets, or tambourine are heard, due to the extremely narrow band width passed thru the receiver. If maximum Selectivity is desired, as when tuning in very weak distant stations on a frequency close to a local station, tonal fidelity is not so important. But you will notice, when you become familiar with the Selectivity-Fidelity Control, that you are able to adjust the SCOTT FULL RANGE ALLWAVE so that it will bring in the station desired without interference from stations on adjacent channels, with the maximum degree of Fidelity possible in your location with reception conditions existing at that time. Although the Selectivity and Fidelity are controlled from one knob, I will explain the Selectivity function first -

HOW TO SECURE MAXIMUM SELECTIVITY

- 1 - Turn the Selectivity-Fidelity Control over to the extreme left to the side of the escutcheon marked "Selectivity".
- 2 - Turn the Sensitivity and Bass Controls to central position.
- 3 - Turn the Volume Control about one-fourth on.

Now, turn the tuning knob and bring in a station. You will immediately notice that it covers only a very small portion of the dial. If it is a distant station, generally much less than 10 Kc. is covered. As previously explained, you will notice that when you tune in the station, the vertical line that moves across the upper part of the dial moves first sharply to the right, then, after the station is tuned out again, goes back to the left. When you have accustomed yourself to the action of the Visual Tuner Indicator, select a distant station on a channel adjacent to your local station. Here in Chicago we use WOR on 710 Kc. in Newark, New Jersey, which is located between WGN on 720 Kc., a 50,000 watt station, and WLW on 700 Kc., a 500,000 watt station. You will find, when reception conditions are normal, that a station like WOR, sandwiched in between two such extremely powerful stations, can be brought in without interference.

Naturally, when tuning in distant stations there is more noise from static and electrical interference than there is when tuning in local stations. If, when a distant station is tuned in, reception is very noisy, first try the Bass Control knob to the extreme left. This will eliminate a considerable amount of noise or the low rumbling static. Next, rotate the Sensitivity Control from the extreme left toward the right until you find a position where there is no further increase in the signal volume.

Now, you can operate the Fidelity-Selectivity knob, by turning it slowly to the right or to the side of the escutcheon marked "High Fidelity". Keep on turning this knob until you begin to receive interference from the stations on the adjacent channels, or until the tone is most agreeable to you.

Naturally, the higher the degree of tonal fidelity you desire, the wider the band of frequencies you are receiving and the more noise you will pick up. If air conditions are quiet and little electrical noise is present, you will be able to use a considerable degree of Fidelity. However, when the air is noisy, the degree of Fidelity may be reduced. We believe the control of the lower frequencies by means of the Bass Control, and the control of the higher frequencies by means of the Selectivity-Fidelity Control, combined with a receiver in which the circuit and tube noises have been reduced to the minimum, enables us to give you a radio receiver which will bring in stations quieter, and with more satisfaction than any other radio available today.

HOW TO USE FIDELITY CONTROL

High Fidelity reception is generally possible only on local or mediumly distant stations or, when air conditions are good, on distant stations on frequencies that are not close to your local station. Before describing the High Fidelity feature of the receiver, I would like to point out a few things about High Fidelity.

SOME POINTERS ON HIGH FIDELITY BROADCASTING

In the first place, not all broadcast stations are High Fidelity stations. Generally, the larger the station, the better the Fidelity. The larger stations are better equipped and, naturally, have more perfect transmitters. You will not have your receiver long before you will begin to notice a very considerable difference in the quality of the various stations. You will find you will tune in a program from one station which may sound very wonderful, then you may tune in another station which will sound rather poor. Remember, when the tone quality sounds bad on a certain program, that it is not the fault of the receiver, but the station, as your receiver can only reproduce what is being transmitted. Many of the smaller stations, in order to secure as great a distance range as possible, overmodulate their carriers badly, causing imperfect reproduction from your receiver. Again, many of the smaller and poorer stations do not have their amplifiers adequately filtered, with the result there is often a considerable degree of hum present. When you tune in a program and a bad hum comes in with the selection, I would suggest you tune to some other stations and notice whether the hum is present on each of these. If it is not, then it is positive proof that the hum is not in the receiver but in the station to which you are listening. The SCOTT FULL RANGE ALLWAVE is probably the most adequately filtered radio receiver that has ever been offered to the general public.

You will not have your SCOTT FULL RANGE ALLWAVE long before you discover the very great difference in the tonal quality of various stations, and your listening will be concentrated on the better class stations. However, sometimes even on the better class stations you will notice a certain amount of difference in reception at various times. When a first class station is transmitting a chain program, the frequency response is limited by the telephone lines of the chain. Although the Fidelity of these lines is being rapidly improved, the tonal Fidelity from a program that is being broadcast over a chain is not generally as good as programs that are transmitted direct from the Studio of a high-grade transmitter. Again, you will soon notice the difference between a program that is transmitted direct from the Studio of the station itself - that is, not a chain program, but one that is picked up, say, from a cafe or restaurant in the town in which the transmitter is located. Owing to the higher degree of Fidelity in the SCOTT FULL RANGE ALLWAVE, you will notice room noises in programs more than you have previously. This again is not due to any defect in the receiver, and can be eliminated, if you desire, simply by reducing the degree of Fidelity until the room noises are not heard.

You will find your greatest pleasure in listening to your local stations with the High Fidelity Control set to cover the maximum Fidelity range of these particular stations. For present high grade broadcast stations which lie within the standard broadcast range (540 to 1500 Kc.), this point is reached when the Fidelity Control is advanced one-half to two-thirds of its range toward the right. Since these stations, at present, broadcast only up to 8500 cycles or less, nothing will be added (except possibly interference) if the control is turned more than two-thirds of its range toward the right.

However, as broadcasting develops, and the demand is felt, the better stations must, and inevitably will, extend their audio ranges to the limit of hearing, which is about 16,000 cycles. Indicative of this trend is the fact that at the present moment there are at least four new full range High Fidelity stations on the air in the new High Fidelity Experimental Channels (1530 to 1550 Kc.), established by the Federal Radio Commission for this purpose. If you are so fortunate as to be located within the good reception range of any of these stations you can, by turning your Fidelity Control to the extreme right, enjoy the full benefit of their perfect quality.

HOW TO ELIMINATE PHONOGRAPH NEEDLE SCRATCH

You will soon become very expert in telling whether a selection is a phonograph record or actually being broadcast directly into the microphone in the studio. When you are listening to a selection that is coming from a phonograph record you will, when the receiver is in the maximum Fidelity position, notice a very decided needle scratch, but at the same time you will hear instruments that you have not previously heard from a radio receiver. Of course, this scratch will be more noticeable on old records which have been nearly worn out than on new high quality records.

Some people don't seem to mind the needle scratch if they can secure a more natural reproduction. However, if the needle scratch is objectionable to you, then it can easily be eliminated by turning your Selectivity-Fidelity Control to the left, or in a counter clockwise direction, until the scratch disappears. Some prefer to reduce the Fidelity until the scratch disappears, believing the reception is more pleasurable at that point, while others don't seem to mind the scratch as long as they can hear the higher frequencies or the higher tones of all instruments. Adjust the Fidelity Control to suit your taste.

HOW TO SECURE THE FINEST TONE FROM ANY STATION

To secure the finest reproduction from any station, the following procedure should be employed:

- 1 - Turn the Selectivity-Fidelity Control over to the extreme left, so that the receiver is in the most selective condition.
- 2 - Set the Bass Control in central position.
- 3 - Turn Sensitivity Control around to extreme left.
- 4 - Tune in local stations desired, and watch the tuning indicator pointer until it is tuned in perfectly, then gradually turn the Selectivity-Fidelity Control around to the right until you reach the point where further turning of the control does not result in further improvement in tone quality. At this point, you are receiving the program with the full degree of Fidelity being broadcast by the station.

You will notice that as you turn the Selectivity-Fidelity Control gradually to the right, additional instruments, or the higher tones in the instruments, become audible. For example, you will notice that in the Max. High Fidelity position, instruments such as castanets, tambourines, or the higher notes of the violin are heard very clearly, but as you turn the control back to the left the tones from these instruments slowly disappear.

Always be sure to turn your Selectivity Control to the left and tune in stations exactly to center or peak of tuning indicator pointer, and after this is done, turn the Fidelity Control around to the right until the tone quality is most pleasing to your ear.

It will be noticed that as the Fidelity Control is turned to the right the tuning meter needle swings to the left, which means that the sensitivity decreases. This is normal and helps cut down back-ground noise and interference.

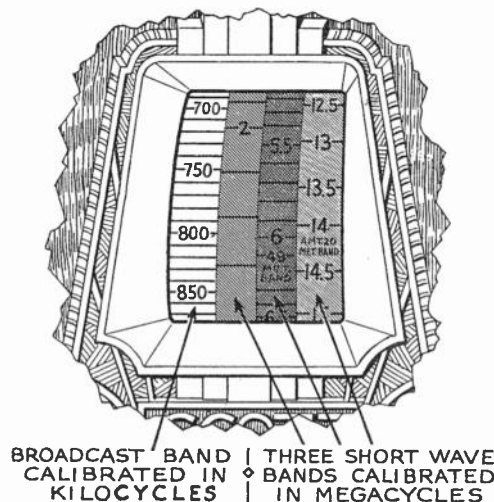


Fig. 8

DIAL CALIBRATION

Each of the different wave bands is directly calibrated on the dial, the broadcast band being calibrated in kilocycles, and the short wave bands being calibrated in megacycles. (See Fig. 8).

THE WAVE BANDS COVERED

Four different wave bands are covered, ranging from 556 to 13 meters, or from 1.53 to 23 megacycles on the short wave band, and from 1530 to 540 Kc. on the broadcast band. These bands are selected by the small Wave Change Switch Lever located directly below the main tuning knob. (See Fig. 9).

With the pointer of the Wave Change Switch Lever opposite the WHITE dot, the receiver will cover the broadcast band from 540 to 1530 Kc., or 556 to 196 meters.

With the pointer of the Wave Change Switch Lever opposite the BLUE dot, the receiver will cover the short wave bands from 1.53 to 4 megs., or from 196 to 75 meters.

With the pointer of the Wave Change Switch Lever opposite the RED dot, the receiver will cover the short wave band from 4 to 10 megs., or from 75 to 30 meters.

With the pointer of the Wave Change Switch Lever opposite the GREEN dot, the receiver will cover the short wave band from 9.5 to 22.6 megs., or from 13.27 to 31.6 meters.

When you have the pointer of the Wave Change Switch Lever opposite any one of these four colors the tuning is effective on that particular colored strip on the dial.

STUDY THESE INSTRUCTIONS CAREFULLY BEFORE YOU START TUNING ON BROADCAST BAND

If you have not had much experience in tuning, I would suggest the first thing you do is secure a good, up-to-date broadcast station log book showing the wave lengths in kilocycles of the various stations on the broadcast band. There are a number of these published, among the best of them being: "Radex", Hanna Building, Cleveland, Ohio, 25 cents monthly, or \$1.75 per year, - or "Keller's Radio Call Book and Log", West 3rd and Exchange Streets, St. Paul, Minnesota, 25 cents a copy, or \$1.25 per year.

You will notice in these log books that there are very few stations occupying what is called a "cleared channel". By "cleared channel" I mean one on which only one station operates. On the majority of channels on the broadcast band you will find anywhere from two to thirty stations operating on the same wave length. They are usually separated some distance and are not supposed to interfere with each other. However, the SCOTT FULL RANGE HI-FIDELITY ALLWAVE is an extremely sensitive receiver that will pick up distant stations never heard on a less sensitive radio. When, therefore, you start to tune the set for the first time, there are a few simple rules to be observed which will enable you to secure maximum results.

HOW TO SET CONTROLS TO START TUNING ON BROADCAST BAND

- 1 - Switch on the set.
- 2 - Set Wave Change Lever to WHITE dot.
- 3 - Turn the Volume Control about one-fourth way on.
- 4 - Set Bass Control to normal or center position. (No. 3)
- 5 - Turn Sensitivity Control half way on.

For quiet reception from nearby powerful local stations, full advantage may be taken of the noise suppression feature which will eliminate all noises and weak stations between the points on the dial where perfect reception is always obtained. Under these conditions the Sensitivity Control may be turned completely to the left.

- 6 - Set the Selectivity-Fidelity Control all the way to the left.
- 7 - Tune in station to "peak" on tuning indicator, then adjust Volume Control, Bass Control and Fidelity Control until tone is most pleasing to your ear.

HOW TO TUNE ON SHORT WAVES

Tuning on the short waves is not difficult once you have had a few hours' experience. However, it is a little more difficult to tune in stations on the short waves than it is on the broadcast band, principally on account of the fact that stations on the short waves tune so very much sharper than those on the broadcast band.

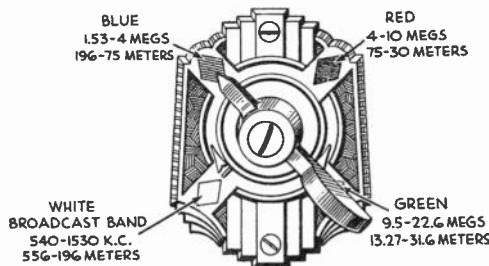


Fig. 9

HOW VARIOUS WAVE BANDS ARE TUNED IN

The short wave bands are generally considered the wave lengths between 13 and 200 meters, or from 1.5 to 23 megacycles.

The short wave bands on the SCOTT FULL RANGE HI-FIDELITY ALLWAVE are divided up as follows:

First Short Wave Band (GREEN) - 9.5 to 22.6 Megacycles (13.27 to 31.6 Meters)

Second Short Wave Band (RED) - 4 to 10 Megacycles (30-75 Meters)

Third Short Wave Band (BLUE) - 1.53 to 4 Megacycles (75-196 Meters)

The different wave bands are indicated by the colors on the small bronze escutcheon below the main tuning knob on the front panel, and are read on the corresponding colors on dial.

EXPLANATION OF DIAL CALIBRATION ON SHORT WAVES

You will notice the Broadcast band is calibrated in Kilocycles, and the Short Wave band in Megacycles. Until recently, the frequencies of short wave stations were always given in Meters, just as at one time broadcast station wave lengths were given in Meters. However, the Meter system for listing broadcast stations is now obsolete, and practically all up-to-date logs now give the frequency of broadcast stations in Kilocycles, and the short wave stations in Megacycles. Therefore, on the dial strip of the SCOTT FULL RANGE HI-FIDELITY ALLWAVE you will find the calibration of the short waves in Megacycles, with the principal short wave bands also indicated in meters.

For example, suppose you wish to tune in a short wave station transmitting on 12 Megacycles. To bring in a station on this frequency, you turn your Wave Change Switch Lever around until the Pointer is opposite the dot on the escutcheon marked "Green", as this is the wave band which covers the wave lengths between 10 and 23 Megacycles.

Suppose you wish to tune in YVIBC on 6.11 Megacycles; you turn your Wave Change Switch Lever to the Red dot, to switch over to the coils covering the wave lengths between 4 and 10 Megacycles, and on turning the dial to the first division below 6 (which should be 6.10 Megacycles) you would soon find this station, if it is on the air.

You will notice the various short wave bands are calibrated in divisions of a 1/10 of a Megacycle. Starting at, say, 6 Megacycles, the first division below 6 is 6.10 Megacycles, the next division 6.20 Megacycles, etc. If you wish to tune in a station on, say, 6.38 Megacycles, you would find it just between the 6.30 and 6.40 Megacycle division.

CAUTION: You will notice the Wave Change Switch Lever does not make a complete revolution, but moves from the WHITE dot, around past the BLUE dot, past the RED dot, to the GREEN dot, and stops there. Do not attempt to switch this lever directly across to the GREEN dot from the WHITE dot, or vice-versa, or you will wreck the coil changing mechanism.

GOOD SHORT WAVE LOG ESSENTIAL

During the six years we have been building receivers to tune broadcast stations on the short waves, we have discovered many reasons why owners often do not, at first, get the results they expect on the short waves.

One of the first necessities for successful short wave tuning is a good short wave log book and authentic information on the days of the week and the hours of the day the different stations transmit.

For example: Some of the foreign short wave stations transmit programs every day in the week, while other stations transmit only one or two days each week.

Then again, many owners do not take into account the difference in time between the various countries. For example, if you wish to tune in the programs transmitted during the evening hours in England, say between 8:00 and 10:00 P. M., and you were located in Chicago, it would be necessary for you to listen in between 2:00 and 4:00 P. M. in the afternoon in Chicago, to hear the evening programs, as English time is six hours ahead of Chicago time.

In the various issues of the "Scott News" you will find a report giving the reception schedules of the principal short wave stations. This report shows you the wave length and generally the time they can be received in U. S. A. in C. S. T. From this report it is a simple matter to find out the various hours the principal foreign short wave stations can be received in U. S. A.

However, this list gives only the principal foreign short wave stations that are received consistently. In addition to these there are a large number of other short wave stations whose programs are quite interesting, and the schedules for these stations will generally be found in a little magazine issued monthly by the International Short Wave Club of East Liverpool, Ohio. This is an organization whose membership is made up of short wave enthusiasts in all parts of the world who send their reports to the Club's headquarters in East Liverpool. These reports are gathered together and are issued monthly in the form of a little magazine.

I would most strongly urge every SCOTT ALLWAVE owner in addition to subscribing for one of the other broadcast station logs, to subscribe also to the magazine of the International Short Wave Club, which costs only \$1.00 per year.

The Club magazine is devoted exclusively to short wave reception, and gives the very latest information on short wave stations all over the world. Address your letter to the International Short Wave Club, East Liverpool, Ohio, and enclose \$1.00, which entitles you to a full year's subscription to the Club's magazine.

SHORT WAVE STATION LOCATOR OR BEAT FREQUENCY OSCILLATOR

Just below the Wave Change Switch Lever will be noticed a small black button coming through the front panel (see Fig. 1). This button, when pressed in, makes the location of a short wave station very easy.

You will notice, when tuning over the short wave bands, that sometimes the signals are very weak and it is a very easy matter to pass right over them on account of the fact that they tune so sharply.

When tuning over a short wave band, just press in the black button. As soon as you have a short wave station tuned in, it will make its presence known by a shrill whistle. As soon as you hear this whistle, release the black button and, if the station is a broadcast station, in will come the music. The station tuned in, however, may be transmitting on code, in which case the signal will come through in the form of dots and dashes.

HOW TO START TUNING ON SHORT WAVES

If you have not had previous experience tuning in short wave stations, I would advise you to begin tuning first on the RED band, as this is the easiest band to tune in and has the best short wave stations within its range.

- 1 - Turn the Volume Control on about half way.
- 2 - Set the Bass Control to the center or normal position.
- 3 - Advance the Selectivity-Fidelity Control about 1/4 of a turn to the right from the maximum selective position.
- 4 - Turn the Sensitivity Control all the way to the right, in the direction of the Sensitivity arrow.
- 5 - Now start rotating your dial VERY SLOWLY around 9.5 megs., and you will find one of the American short wave stations located at Schenectady or Boston.
- 6 - Whether the set is operated on the short wave bands or on the broadcast band, it will be found that if the station is accurately tuned in, the reception can invariably be improved by adjustment of the Bass and Fidelity Controls to suit the particular reception conditions in existence at the time.

As you start tuning in different short wave stations, you will quickly realize how true it is that the short wave stations tune very much sharper than those on the broadcast band, for you will notice if you move the dial slightly the station is gone.

For successful reception on the short waves you must exercise patience. You cannot move your dial rapidly and bring in stations on the short wave band, for if you do this you will pass completely over these stations. You must dial S L O W L Y.

Use the high speed knob until you approach the point where the station should come in, then throw the small lever directly below the knob which reduces the drive to the dial, and there will be little danger of your passing over the station.

Even with the slow speed knob, it is necessary that you turn it SLOWLY, as you must remember short wave stations tune very sharply, and it is quite easy to pass over them. You will notice on the dial strip that we have marked the short wave broadcast 49 met., 31 met., 25 met. and 19 met. channels. In these positions on the dial be sure to turn the dial S L O W L Y, and do not be disappointed if you do not tune in a foreign station the first day, as it requires a little practice in the operation of the controls for maximum efficiency, and also a study of just when the different short wave stations are on the air.

After you have listened to a few American short wave stations, you can start tuning in some of the foreign stations. A very easy one to get, as a rule, is GSC at London, England, on 31.3 meters, or 9.58 Megacycles. This station can be picked up between 5:00 and 7:00 P. M., C.S.T. and will be found just above 10 Megs. on the dial, with the Wave Change Lever set opposite the RED dot.

As short wave stations tune so very sharply, one of the most difficult tasks is to locate their exact place on the dial, and here is where the American and Canadian stations come in to help you.

A TIP THAT MAKES LOCATING FOREIGN STATIONS EASY

Tuning on the short waves is like lots of other things - very easy after you have learned how. When you first start to learn a thing, it appears difficult, but after you have the knack of it you wonder why you found it so hard.

Here's a plan that will enable you to become quite expert at bringing in foreign short wave stations in a comparatively short time:

First, tune in some of the American and Canadian stations shown in your log book, and note the exact position on the tuning dial where you receive them. With this information you will find it comparatively easy to locate the foreign stations.

For example, suppose you wish to tune in VK2ME, on 9.59 Megs. (31.28 meters), in Sydney, on a Sunday morning; you will find it quite easy to locate it if you have spotted WLXAZ at Boston on 9.57 Megs. (31.36 Meters). Once you have located Boston, then you know that VK2ME at Sydney, Australia will be found a fraction of a degree on the dial below them. If it is VK3ME on 9.51 Megs. (31.55 meters) at Melbourne you want to tune in on Wednesday or Saturday morning, then you know that they will be found just about a degree above WLXAZ. Suppose you wish to try for GSC in England on 9.58 Megs. (31.3 meters); you would know that it also will be found a fraction above WLXAZ.

The same idea can be used on each of the other American and Canadian stations, for once you have found their dial settings you can start tuning for the foreign stations just above or below them, as the case may be. In other words, use the American stations as your guide to the foreign stations.

For the first day or two, just operate the set as described above, to become familiar with the way short wave stations come in, how they sound, etc. After this you will be able to fully appreciate the features we have incorporated in the design of the SCOTT FULL RANGE HI-FIDELITY ALLWAVE - at present found in no other receiver.

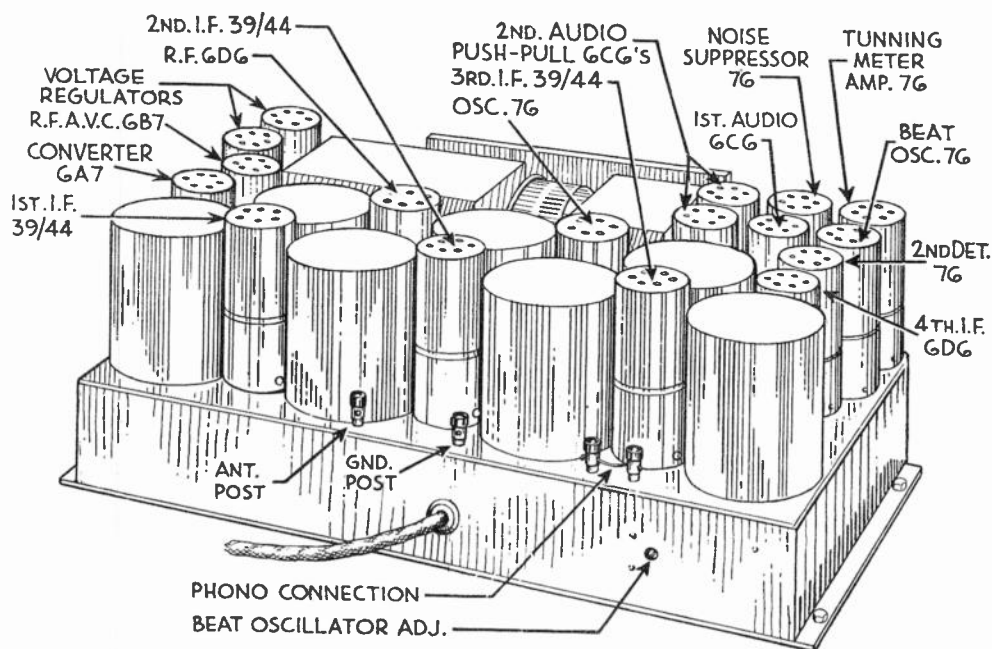


Fig. 10

HOW TO TEST AND CHECK THE TUBES

The efficiency of the SCOTT FULL RANGE HI-FIDELITY ALLWAVE receiver depends a great deal upon your tubes. We have made very extensive tests on tubes and have found a considerable difference in quality in various makes, so do not, if possible, use tubes of a make other than those we have installed in the receiver. Although the receiver will operate with other brands of tubes, it may not give maximum efficiency.

Fig. 10 will tell you the type of tube used in each socket of the chassis. However, each tube socket in the receiver is marked for the type of tube that is to be used in it.

About 90% of the trouble we have experienced in the past with receivers has been traced to defective tubes. Even though the tubes may have been used but a few hours, they may become defective and the results from the receiver are then very poor and unsatisfactory. Of course, you must also remember that weather conditions change from day to day, and stations that you can receive strongly today may be very weak tomorrow. However, if you know for sure that distant stations are coming in well, and you are not getting them, then the trouble is probably caused by a defective tube. You can check the tubes yourself by the substitution method in the receiver. However, tube testing equipment has been improved and can be relied upon to give much more accurate results than the

simple substitution method. So, if you suspect your tubes, it may be well to have our local Installation and Service Representative check them for you. However, if you wish to test them by the substitution method, the following simple procedure may be employed:

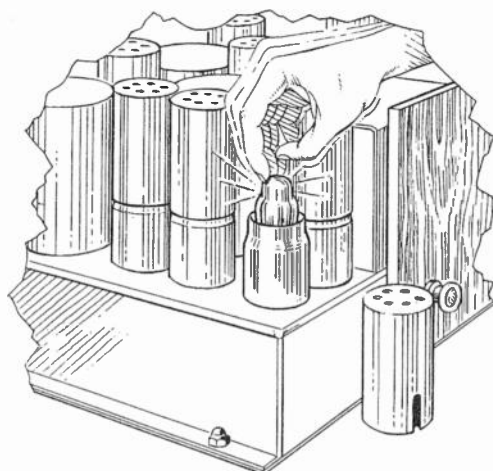


Fig. 11

HOW TO TEST FOR NOISY TUBES

With the receiver turned on test each tube by tapping it with the fingers, as shown in Fig. 11. Loud crackling or grating noises from the speaker indicate a tube that has loose elements or is otherwise defective, causing the receiver to become noisy.

The 6C6 tubes in the 1st and 2nd Audio as shown in Fig. 10 may become microphonic and cause the receiver to howl on certain stations. It may help to interchange these tubes.

HOW TO TEST 76, 6C6, 6D6 and 39/44 TYPE TUBES

Turn the receiver on, allowing the tubes to heat up several minutes, tune in a weak distant station and note carefully the volume. First, replace the 2nd detector with a new 76, then notice if there is any difference in volume. If no difference in volume is noted, replace the old tube in the socket, removing the new one, as this test indicates the old tube is in good condition, and test the 76 type tube in Oscillator in the same manner.

Next, remove the 6C6 from the 1st Audio stage, replacing it with a new one, then test as described for 76 type tubes. If no difference in volume is noted, replace the old tube, then test each of the 6C6 tubes in the push-pull audio stages.

Now test the 39/44 tube in the first I.F. stage, replacing it with a new one and testing as described for the 76 type tubes. If no difference in volume is noted, remove the new tube and replace it with one you removed, then test the 39/44's in the 2nd and 3rd I.F. stages.

The 6D6 type tubes are tested in the same way as the 39/44's, except to be sure to test them in their proper sockets, which are the R.F. and 4th I.F. stages.

HOW TO TEST 6B7 TYPE TUBES

It is very difficult to test this type tube by the substitution method, as its purpose is to supply A.V.C. voltage to the R.F. and converter tubes. Would suggest that you have this tube tested by our local Installation and Service Representative on his test equipment.

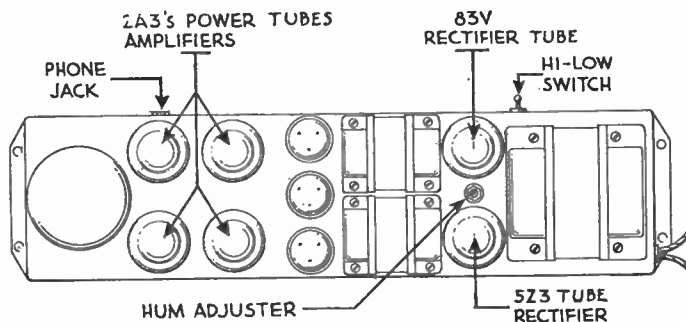


Fig. 12

HOW TO TEST 2A3 TYPE TUBES

The four type 2A3 tubes in the power amplifier cannot ordinarily be tested by noting the change in volume, unless they are in very bad condition. Therefore, it is strongly recommended that they be tested on a reliable tube checker by our local Installation and Service

representative. In this connection, it is very much more important that the tubes indicate as nearly alike as possible than that they read high on the tube checker, though, of course, they should not indicate they are very weak.

However, the substitution method can be used to locate certain defects in these tubes which may show up as loud "squawks", particularly when the receiver is first turned on, or as crackling sounds during high volume reproduction. It is merely necessary to substitute a spare tube for each of the 2A3's in the receiver in turn until the defective tube or tubes are found and the trouble remedied.

NOTE: When the receiver is operated in a darkened room, a blue glow may be observed on the inside of the glass bulbs, which frequently dances in time with the music. While under some circumstances this phenomenon may indicate a defective tube, it may generally be considered normal, unless the blue glow fills a considerable portion of the evacuated space within the bulb, in which case the presence of gas is indicated, and the tube should be replaced.

HOW TO TEST 5Z3 TYPE TUBE

IMPORTANT NOTICE:

NEVER REMOVE THE 5Z3 TUBE FROM ITS SOCKET WHEN THE RECEIVER IS TURNED ON - OTHERWISE, THE TWO AMPLIFIER FUSES WILL BE BLOWN ON THE RECEIVER, AND THE OUTPUT TUBES WILL BE DAMAGED.

To test this tube, tune in a very weak distant station, and note volume. The receiver should now be switched off and a new 5Z3 substituted, after which the receiver may then be switched on. Allow time for the tubes to reheat, then compare the volume from the weak station. The tube which produces the greatest volume should be left in the receiver. (See Fig. 12).

HOW TO TEST VOLTAGE REGULATOR TUBES

Ordinarily, these tubes will give no trouble and should last as long as the receiver. After a year or two of operation it may be noted that the inner surface of the glass bulbs may become somewhat blackened, but this in no way affects their operation in the receiver.

Occasionally, however, one of these tubes may develop a faint singing note which will be audible from the loud speaker when no other sound is being reproduced. If such a sound is heard and found objectionable, remove one of the regulator tubes and insert the spare. (The Voltage regulator tubes have bayonet lock bases similar to automobile lamps, and may be removed by pressing down, rotating to the left, then pulling up. Replacement, naturally, requires the reverse operation.) When either of the voltage regulator tubes are removed, the other will be extinguished, but this is O.K., as these tubes are connected in series. If you find the singing note is still coming thru the speaker, then test other tube. If, when testing, only the under-side of the tube is illuminated, this indicates that tube is reversed. Remove it, turning half around, then try again. If the singing note or noise is now absent, leave the replacement tube in place. But if it reappears, replace the first voltage tube, then test other one with spare.

CAUTION: Do not operate the receiver for any considerable length of time without the voltage regulator tubes in place, as this places a high voltage on the oscillator tube.

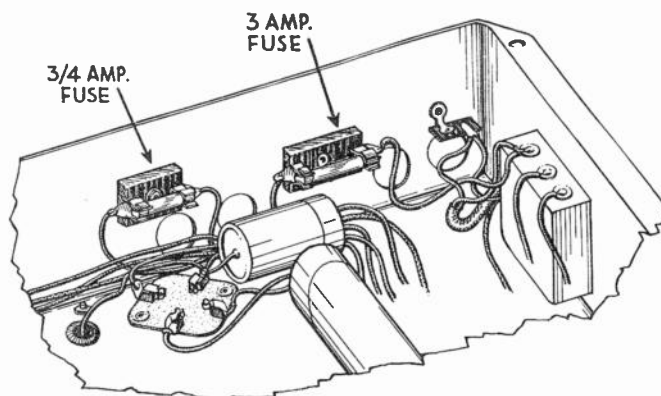


Fig. 13

HOW TO CHANGE FUSES IN THE AMPLIFIER

The 4 amp. fuse and the 3/4 amp. fuse in the amplifier are plainly marked in Fig. 13. The 4 amp. fuse is in series with the primary of the power transformer, and protects it from burning out if overloaded. The 3/4 amp. fuse is in series with the "B" voltage supplying the plates of the 2A3's, and protects them from damage in case the bias is removed, as would happen if the 5Z3 were removed from the receiver when it is not turned off.

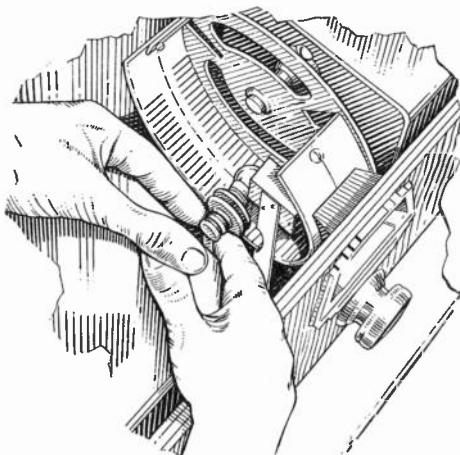


Fig. 14

HOW TO CHANGE THE DIAL LIGHT

Changing the dial light is quite simple by studying Fig. 14. Note that a standard 6.3 volt dial light is used.

WHAT TO DO IF RECEIVER DEVELOPS HUM

The hum control is located between the 5Z3 and 83-V tubes in the Power Amplifier. (See Fig. 12). While this control is adjusted for correct operation at the laboratory, small variations in the 2A3 output tubes may require readjustment after the receiver has been installed in your home. This can be done very simply, by detuning the receiver from any powerful broadcast station, turning the Volume Control completely off, then rotating the hum control back and forth with a screw driver until minimum hum is produced by the receiver. In case the hum is still objectionably high, the 2A3 tubes should be changed around in their sockets and the above procedure repeated. If every possible combination of 2A3 tube location and hum adjustment fails to produce a satisfactorily low hum level, one or more defective 2A3 tubes is indicated and will require replacement.

WHAT TO DO IF RECEIVER STOPS OPERATING

First note whether the dial light and tubes are lit when the receiver is turned on. If these tubes are lit and the receiver is otherwise completely dead, the 3/4 amp. fuses in the power amplifier will have to be replaced according to the instructions in the foregoing paragraph entitled "How To Change Fuses in The Amplifier".

However, if the dial light and tubes fail to light when the receiver is turned on, a lamp should be plugged into the power socket normally used for the radio, to determine whether voltage is present. If this lamp fails to light, a fuse is undoubtedly blown in the lighting circuit, and either an electrician or electric serviceman should be called. However, if your test indicates that normal voltage is present, the 3 amp. fuse in the power amplifier is probably blown and should be replaced, as noted in an earlier paragraph. In case this fuse blows as soon as the current is turned on, we would suggest that you get in touch with our local Service and Installation Representative.

HOW TO REPLACE TUNING METER

If the tuning meter fails to operate, or at times sticks to one side or the other, and if this cannot be corrected by lightly tapping the top of meter, it should be returned to the Laboratory and a replacement meter will be sent you immediately.

To remove the meter, loosen the two screws holding wire leading to meter on the terminal strip, then loosen the screw at bottom of meter bracket, but do not remove screw, as it holds the foot of the meter to the chassis base. By pushing the meter to one side, it can now be removed from the chassis and should then be very carefully packed and returned to us. To install the new meter, just reverse the above procedure. Removing the tuning meter will not affect the operation of the receiver in any way, excepting you will have no visual indicator.

INSTRUCTIONS FOR CONNECTING EXTRA SPEAKER

Provision has been made in the design of the SCOTT FULL RANGE HI-FIDELITY ALLWAVE receiver for connection of one or more Special Scott Auditorium speakers, if desired at any time. These speakers can be very easily attached to your receiver. However, it is very important that you specify exactly what you desire and what type of electric power supply you have available. Prices and complete instructions will be gladly sent on request.

HOW TO OPERATE PHONOGRAPH

In case the receiver has been purchased from us without phonograph accessories, and it is desired to add phonograph reproduction, it will be necessary to obtain a special pick-up matching transformer from the Scott Laboratory which has been especially designed for operation with your receiver. It is recommended that for the highest quality reproduction, the complete phonograph equipment which has been developed by us, for use with your receiver, be obtained from us. However, in case you already have high quality phonograph equipment, furnish us with the make and model number of your pick-up so that we can supply the correct matching transformer. Complete instructions will be furnished for your particular installation.

HOW TO CONNECT HEADPHONES

Near one end of the power amplifier you will find a headphone jack (see Fig. 2). When a standard headphone plug is inserted in this jack the speakers are cut off, so that the receiver can be operated late at night or early in the morning. The jack is a dual purpose type so that if the phones are pushed in the first notch which is about half way in then both speaker and phones will operate. If pushed all the way in only phones will operate.

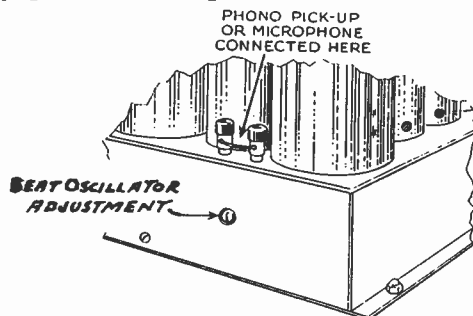


Fig. 15

HOW TO ADJUST THE BEAT OSCILLATOR

Tune in a station on the short waves, then depress the Beat Oscillator button and adjust the screw in the back of the chassis (see Fig. 15) indicated as the "Beat Oscillator Adjustment" - until a whistle is heard from the speaker. Now, by turning the screw driver one way or the other, the pitch of the whistle can be adjusted to suit your ear.

SPEAKER RATTLES

If the speaker seems to rattle at times when played at heavy volume, you will generally find it is caused by the cone of the speaker vibrating against the large ring or support for the cone. If you will screw the speaker securely against the wooden baffle in the cabinet, the speaker cone will automatically be held tight against the rim and the rattle will disappear. Generally, however, when you hear a rattle it is caused by something loose in the console, either a door top or hinge. The rattling part can generally be located if you will tune in a fairly strong station and turn the volume up quite high, then place your hand on various parts of the console when the part rattling will soon make its presence felt.

SET NOISY

If the receiver is noisy, remove the antenna and ground wire from the receiver and connect a small jumper wire between ant. and gnd. posts. If the noise now stops, then it is coming in thru your antenna and is not in the set itself. If, however, the set is still noisy, with the antenna and ground disconnected, then check each of the tubes.

If the tubes check O. K., then check your antenna installation thoroughly to see that it is not grounded to any part of the building.

Check your A. C. connections at wall socket to see that a positive contact is made.

ELECTROLYTIC CONDENSERS LEAKING

Sometimes a small amount of liquid will ooze out of the electrolytic condensers and many owners write in and think that there is a defect in the condenser. This, however, is not so, and a small amount of liquid leaking from the condenser will not materially affect the operation of the receiver.

TUBES LIGHT, BUT SET DOES NOT OPERATE

- 1 - Be sure your Wave Band lever is pointed opposite 196-556 meter position, or on WHITE dot.
- 2 - Occasionally the contacts on the switch become slightly corroded, and this can be removed by turning the lever backwards and forwards several times.
- 3 - Check your antenna installation thoroughly.
- 4 - Be sure the little jumper wire is connected across the phono binding posts on the rear of chassis. (See Fig. 15).
- 5 - After the above points are checked and found to be O. K. and the trouble still persists, it is practically a certainty that one or more of your tubes have become defective. Test each one of them, as previously described.

DO NOT ALLOW AN UNAUTHORIZED PERSON
TO TAMPER WITH YOUR RECEIVER

The SCOTT FULL RANGE HI-FIDELITY ALLWAVE receiver is a delicately adjusted instrument, and we have had considerable trouble in the past with radio servicemen who do not understand our receiver attempting to alter the adjustments, with the result that they have thrown the whole receiver out of alignment.

When this happens the only way the receiver can be brought back to its original condition is to ship it back to the laboratory and have it rebalanced and rechecked. In cases where an unauthorized person has tampered with the receiver, this will be charged for at the rate of \$2.50 per hour. If, however, anything goes wrong with your receiver and it has not been tampered with, it will be rebalanced and adjusted, and any defective parts will be replaced free of charge.

IMPORTANT - When writing for replacement of defective parts, please be sure to give the serial number on name-plate on chassis.

A FEW PARTING "DON'TS"

- DON'T - Remove the speaker plug or cable from the receiver while the receiver is turned on, as this may do considerable damage to the amplifier.
- DON'T - Remove any tube from the receiver without first turning the power off; otherwise, damage may be done to that tube as it is being removed, or to the receiver itself. This is especially true of the tubes with the grid cap on the top and the rectifier tubes in the power pack.
- DON'T - Try to force the plugs into the sockets when connecting the receiver or speaker to amplifier. If they do not go together easily, DO NOT attempt to force them into place, as these connections can ONLY BE PLUGGED IN ONE WAY.
- DON'T - Try to remove any of the several cable plugs from the amplifier or speaker by pulling on the cord. These plugs are made to fit tight, to assure good contact, and should be removed by pulling with both hands on the edge of the plug.
- DON'T - Operate the receiver with inferior tubes and expect good reception.
- DON'T - Try to operate the receiver without the inner tube shields in place; otherwise, oscillation and instability will result. These inner shields are required only for the first, second, third and fourth I.F. stages. (See Fig. 10).
- DON'T - Try to operate the speaker without a baffle, or operate it in some flimsy cabinet. If you do, not only will the tone be very poor, but you will probably be troubled with a loud howl when you turn up the volume and also considerable rattle will be heard from the cabinet, which may sound as though the speaker is defective.
- DON'T - Turn the wave band selector switch too fast or try to force it around in a complete circle, for if you do it will be badly damaged.
- DON'T - Expect to pick up foreign short wave stations unless you follow all directions carefully in making good antenna installation, and tune for them when they are on the air. Also remember climatic conditions cause great variations in short wave reception.
- DON'T - Tamper with the adjustments on the receiver, as adjusting the SCOTT FULL RANGE HI-FIDELITY ALLWAVE receiver is somewhat complicated and should be done only by persons recommended by us. If we find that the adjustments have been tampered with, without our permission, the Five Year Guarantee is void.

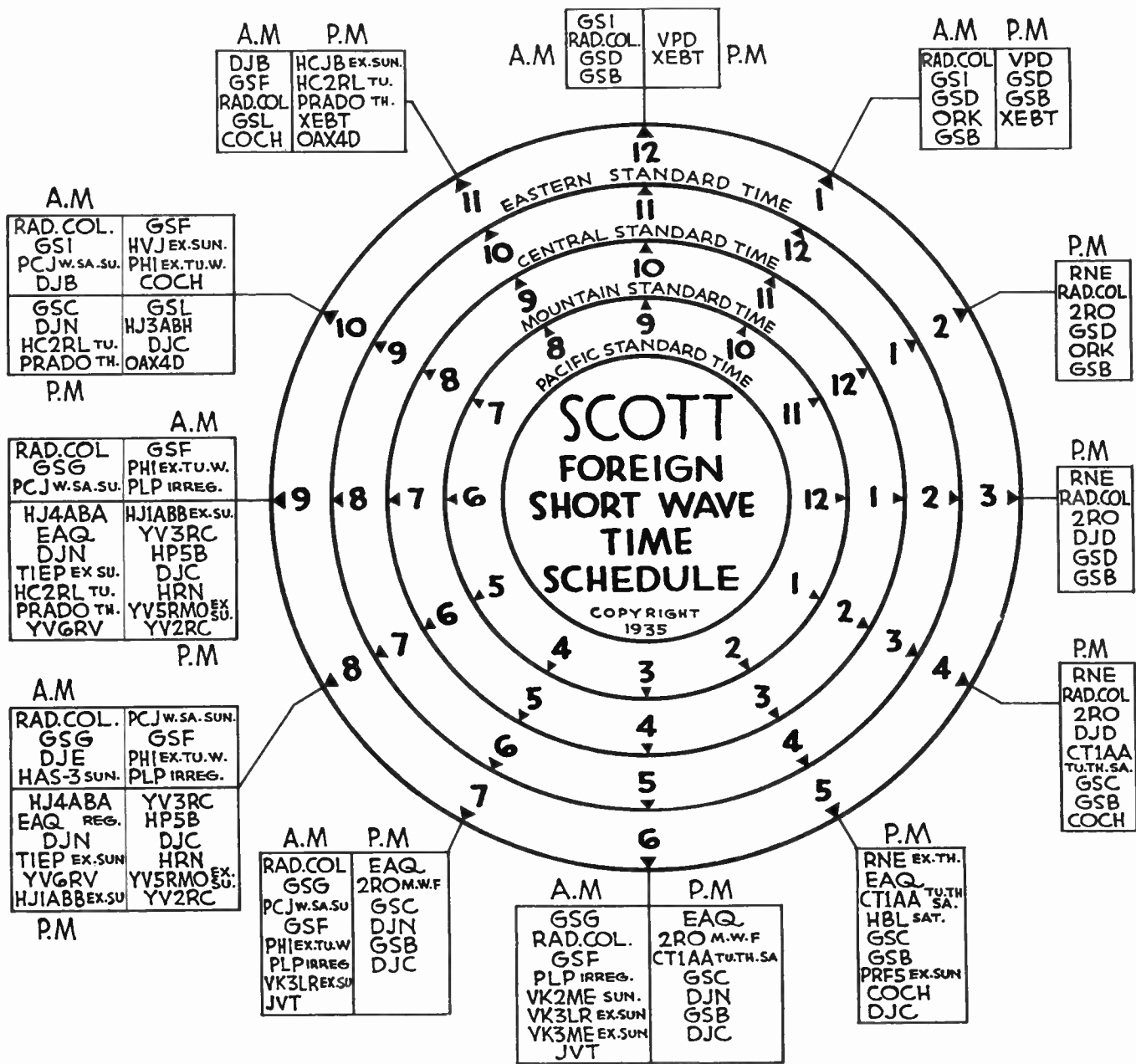
CHROMIUM FINISH ON THE SCOTT FULL RANGE ALLWAVE

The SCOTT FULL RANGE HI-FIDELITY ALLWAVE receiver is finished thruout in the most durable and finest finish known - Chromium. In most climates it will not tarnish or peel off, and will maintain its luster indefinitely. If dust accumulates, it can be wiped off with a soft cloth.

IMPORTANT - In some tropical climates or on the sea coast, however, I have found that the salt air, together with the dampness, seems to get under the chromium plating. To prevent this, it is suggested that the set be wiped off with an oily cloth every two weeks or so. This removes the accumulation of the chemicals that may have developed on the surface. If this is done regularly, the receiver and amplifier will maintain their beautiful luster for years.

E. H. SCOTT RADIO LABORATORIES, INCORPORATED
4450 RAVENSWOOD AVENUE
CHICAGO, ILL.

GUIDE TO FOREIGN SHORT WAVE STATIONS HEARD REGULARLY BY SCOTT ALLWAVE OWNERS



Station	Country	Met.	Meg.	Station	Country	Met.	Meg.	Station	Country	Met.	Meg.
GSJ	England	13.93	21.53	PHI	Holland	25.57	11.73	HCJB	Ecuador	36.52	8.21
GSG	England	16.86	17.79	HJ4ABA	Colombia	25.63	11.70	JVT	Japan	44.40	6.75
DJE	Germany	16.89	17.76	PLP	Java	27.26	11.00	TIEP	Costa Rica	44.71	6.71
HAS-3	Hungary	19.52	15.37	ORK	Belgium	29.04	10.33	HC2RL	Ecuador	45.00	6.66
GSI	England	19.66	15.26	EAQ	Spain	30.40	9.87	PRADO	Ecuador	45.31	6.62
Rad. Col.	France	19.68	15.24	2RO	Italy, M.W.F.	31.13	9.64	YV6RV	Venezuela	46.01	6.52
PCJ	Holland	19.71	15.22	CT1AA	Portugal	31.19	9.62	HJ1ABB	Colombia	46.60	6.44
DJB	Germany	19.74	15.20	VK2ME	Australia	31.28	9.59	YV3RC	Venezuela	48.78	6.15
GSF	England	19.82	15.14	HBL	Switzerland	31.27	9.59	YV2RC	Venezuela	49.08	6.11
HVJ	Vatican City	19.84	15.12	GSC	England	31.30	9.58	GSL	England	49.10	6.11
VPD	Fiji Isles	22.95	12.07	VK3LR	Australia	31.32	9.58	HP5B	Panama	49.75	6.03
RNE	Russia	25.00	12.00	DJN	Germany	31.45	9.54	HJ3ABH	Colombia	49.85	6.02
Rad. Col.	France	25.23	11.90	VK3ME	Australia	31.55	9.51	DJC	Germany	49.83	6.02
GSE	England	25.29	11.86	GSB	England	31.55	9.51	XEBT	Mexico	50.00	6.00
2RO	Italy	25.40	11.81	PRF5	Brazil	31.58	9.50	OAX4D	Peru	51.90	5.78
DJD	Germany	25.49	11.77	COCH	Cuba	31.80	9.43	YV5RMO	Venezuela	51.28	5.85
GSD	England	25.53	11.75					HRN	Honduras	51.11	5.87

To find what foreign stations are on the air at any hour—simply look opposite the hour on your time zone. For example at 2 P. M. EST station 2RO and RAD Col. are on the air. At 11 A. M. EST DJB, GSF, and

COCH can be tuned in. The time schedule above lists only the more important foreign short wave stations whose signals are heard with good volume in most parts of the U. S. A.

