

Read Page 3 **BEFORE** Unpacking

INSTALLATION
and OPERATION
of the **MASTERPIECE V**



Truly Custom Built by McMURDO SILVER

FOR _____

DATE _____



I WELCOME YOU to MASTERPIECE OWNERSHIP

**AND OFFER YOU THIS HELP
TOWARD ITS FULLEST ENJOY-
MENT OVER THE YEARS**

In the following pages I explain how to set up and operate your MASTERPIECE V receiver. If you will read these pages carefully, and thoroughly apply the instructions they contain, you will obtain the really marvelous reception of which your receiver is capable.

I offer no apologies for the results you will secure knowing full well that you will do everything in your power to absorb the aid I can give you. If you do, you cannot help but obtain satisfactory results, barring only weather conditions and possible location noise - and I don't think you will expect the utterly impossible.

As a MASTERPIECE owner I am ever at your service, and if there is any way at all in which I can aid you, now or years from now, to obtain the full measure of satisfaction from your MASTERPIECE V, you have only to call on me, for our laboratories are now yours to help you whenever you wish.

I want you to learn through the MASTERPIECE V what radio reception really can be - and I'm here to help when needed.

Cordially yours,

McMurdo Silver

McMURDO SILVER.

UNPACKING

Your MASTERPIECE V has been most carefully packed in strong, well cushioned cases for shipment to you, bringing it to you with its polished chromium finish unmarred, and in the same condition in which it is passed final meter and air tests.

TO UNPACK IT

1. Slit the paper seals only on the labelled side of the large tuner carton. Turn up the cover flaps, and lift out the pad protecting the tuner top.

2. Carefully pull out the four pads, one at each corner of the tuner, then lift the oil paper wrapped tuner out onto a table by lifting it from the bottom of both ends with both hands.

3. Cut the sealing paper only of the tuner wrapping, and unwrap the tuner without tearing the oil paper, which must be saved for future shipment as this paper alone will prevent marring of the chromium in shipment.

4. Fold the oil paper and place it and the packing pads inside the carton, to be saved for future use, if ever needed.

5. Slit the paper seal on the labelled side of the

smaller carton, open flaps, and remove the amplifier. Replace its packing pads in the carton and save this carton.

6. By carefully removing nails from the labelled cover of the Super-Giant Speaker case, remove the cover and the two internal cross bars holding the speaker in place.

7. Remove tubes or accessories packed in with the speaker, unwrap and inspect them, and then lift the speaker out of its case by its handle.

8. Place the cover, nails and cross bars in the speaker box for future use, and store all cases where convenient. Do not throw them away for you will need them if you ever want to reship the radio. If you do, repack it exactly as it came to you.

9. CAUTION. If you see any evidence of damage to any part, now or after your first tests, call the Carrier's claim Agent, and immediately file claim for visible damage and two way shipping charges to Chicago and back. If after first tests, results cause you to fear invisible internal damage, file your claim similarly for concealed damage to be determined by us. This shipment has been fully insured for your full protection.

I SUGGEST THIS PRELIMINARY TEST BEFORE PERMANENT INSTALLATION

You can unpack your MASTERPIECE V and immediately install it in its cabinet. It is a wise precaution, however, to give it a preliminary test on a table or bench before so doing. To do this you should proceed as follows:

1. Unpack tuner, amplifier and speaker and amplifier tubes as explained on page 3.

2. Examine all units to make sure no damage has been suffered in transit. If damage is evident, immediately call in the carrier's claim agent, as the entire shipment has been insured for your protection.

3. Make sure that all tuner knobs turn easily, and that dial pointer rotates easily.

4. Lift off the tuner cover, noting how it fits on the tuner. Make sure all tuner tubes are in proper positions by removing tube shield caps and pressing tubes firmly down into their sockets. Replace tube shields, allowing screen grid tube top clip leads to fall in the slots provided for them in the detachable tube shield caps.

5. Insert the 6G5 tube in the cable socket found near the dial. Then insert the bulb into the hole in the dial intended for it, gently squeeze the tube base down into the clip on the gang condenser shield, and slide the tube fully forward into the dial.

6. Place the tuner on a table, with its control knobs to the front.

7. Its full cable length away from the tuner, place the power amplifier, with its AC power cord and on-off switch at the right rear. Insert the six tubes for the amplifier in their properly marked sockets.

8. Place the speaker on the table or on the floor at the left of the tuner, facing forward. One socket will be found on one side of the amplifier. Insert the six-pin speaker plug into the six-pin socket of the amplifier.

9. Insert the plug of the tuner inter-connecting cable into the single five-pin socket found on one end of the power amplifier.

10. If the two "tweeter" speakers are used (needed only for very wide treble tone diffusion) insert their four-pin plug in the socket on the rear of the Super-Giant speaker.

11. Connect the antenna and ground wires to the marked binding posts on the right rear of the tuner as follows:

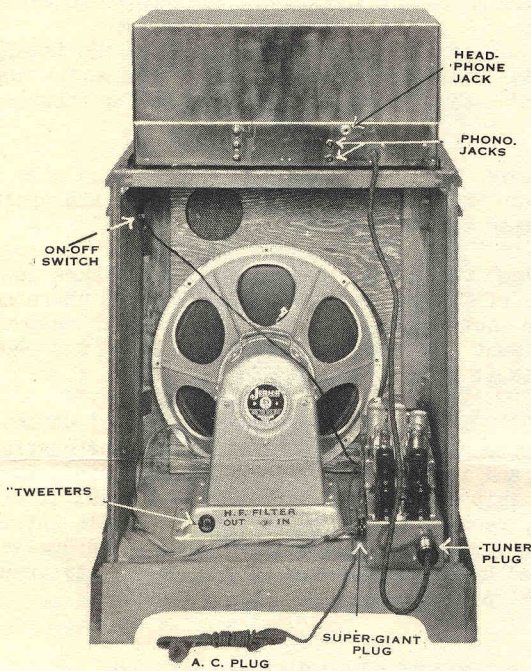
(a) If a single wire antenna and lead-in is used, connect it to the SHORT ANT. post, and connect the ground wire to the GND. and to the LONG ANT. binding posts.

(b) If a transposed or other noise reducing two-wire lead-in is used, connect its two lead-in wires, one to the LONG ANT. and one to the SHORT ANT. binding posts. Remove the connecting wire between the LONG ANT. and GND. posts, and connect a good water pipe ground lead to the ground post.

12. The MASTERPIECE V may now be tested, following the operating instructions on page 8 to 9.

13. CAUTION! In testing the speaker outside of a cabinet or with no baffle, never turn the volume up any louder than is needed, for if volume is turned full on, the speaker can be seriously damaged or even ruined if it has no baffle or cabinet. Do not turn on AC power until both tuner and speaker cable plugs have been inserted in the amplifier sockets, and all tubes are in place.

HOW TO INSTALL THE MASTERPIECE V IN ITS CABINET



position (keep its open back at least 3 inches away from any wall). Face it toward the position you will usually occupy when listening.

6. If a combination Phono-Radio cabinet is used, place the record changer in its compartment as seen on page 5, insert its two pickup tip-leads into the two tip-jacks found on the left rear of the tuner, and connect its motor to a nearby wall outlet or lamp socket. Ground the motor frame. For phonograph operation, turn the FIDELITY knob to "phono", the dial pointer to a dead channel, and regulate volume and tone with VOLUME and TONE knobs.

7. With a screwdriver and the wood screws packed with each tweeter speaker, screw these speakers directly over two 4½ inch round holes cut in the top rear of the cabinet baffle board. Insert the screws through the holes in the metal ring of the speaker, first starting their holes into the baffle board with an ice-pick or similar pointed instrument. Screw these speakers tightly up against the baffle, being very careful not to let the screwdriver slip and injure the speaker cones. Insert their plug into the socket on the Super-Giant speaker. These are the only units of the receiver which should be permanently fastened in the cabinet. The other units are placed, not fastened, in their proper positions.

All of the above operations are illustrated at left as they should appear when finished.

If the MASTERPIECE V is to be installed in a cabinet already pierced for older receivers, its units should be installed as directed. First, however, the front panel will have to be cut out in accordance with the drawing below, to allow access to the control knobs and dial. This can easily be done by a local cabinet maker who can refinish the edges of the cutout so made. In some cases it may even be necessary to have him install a new and properly cut panel in the cabinet, which, however, should not cost over a couple of dollars at most. If an old console with walls 3/8" or less thick is used, the side walls of the speaker compartment should be padded with 1/2" thick Celotex to eliminate vibration and "boomy" cabinet resonance.

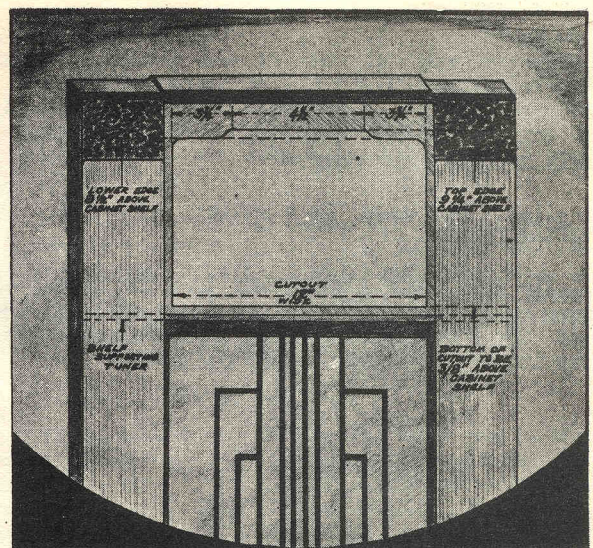
1. Having unpacked the receiver units and the cabinet, the tuner should be lifted, not pushed, into the cabinet in such a manner that when it rests on the large cabinet shelf its panel just covers the cut-out in the front of the cabinet intended for it. It should rest on the shelf only through the rubber cushions on its bottom shield, and should not touch the cabinet at any point. To insure this, the tuner should have about 1/16 of an inch of space left between its panel and the front of the cabinet, just enough space so that if its lower knobs (not tuning knob), which is also rubber cushioned are lifted up, or pressed down or sideways, the tuner chassis can be felt to be floating freely upon its cushions. This is important, for it will howl if it comes in contact with the cabinet and volume is turned up.

2. Place the Super-Giant speaker upon the lower cabinet shelf so that its cone frame covers the large round hole in the baffle intended for it.

3. Place the amplifier at the right of the Super-Giant speaker on the cabinet shelf provided for it below the tuner shelf, with its AC cord and on-off switch leads toward the front and its tubes toward the open cabinet back. Remove the nuts from this switch, insert it in the small hole in the left side of the cabinet just below the tuner shelf, and tighten the round knurled nut up on the threaded switch shank on the outside of the cabinet.

4. Insert the six-pin Super-Giant speaker plug in the six-pin socket now on the inside of the amplifier. Insert the five-pin tuner cable plug into the five-pin socket now found on the rear of the amplifier. Insert the AC power cord plug into the nearest 110 volt (105 to 125 volt, 50 to 60 cycle) wall outlet or lamp socket, but not until the other connecting cables are all inserted!

5. Connect the antenna and ground leads to the marked binding posts on the tuner, and the installation is completed upon moving the cabinet into the desired

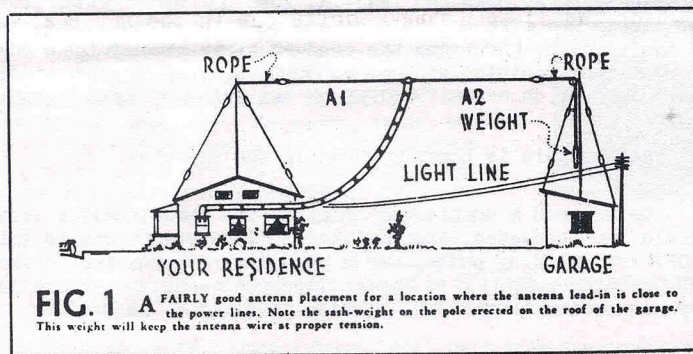


A GOOD ANTENNA IS ESSENTIAL

While the MASTERPIECE V is so sensitive that it will actually bring in distant stations using only a few inches of wire for an antenna, it must have a good antenna in order to give the fine results of which it is capable.

Remember that a radio receiver does not "reach out". It simply sits ready to respond to any signal delivered to it. Remember that without a signal fed to it, this, the world's finest radio, is useless.

The purpose of your antenna is to collect signals for the radio set. Obviously, the better a signal collector it is, the better will your MASTERPIECE V operate. In order that your antenna will pick up the maximum of signals for the receiver and the minimum of noise, it should be as high above and far away from nearby houses, trees and other objects as possible.



For really good long distance reception, it should be outdoors. If you live in a modern steel frame apartment house, this is absolutely essential, and under no circumstances should a "community antenna", or one already installed in such a building, be used if good foreign reception is desired. Likewise, an old antenna you have had up for a year or more should not be used, as its insulators are unquestionably dirty and leaky, which will lose signals your antenna may itself pick up, and also introduce unnecessary noise in reception.

THE TYPES OF ANTENNA TO USE

Antennae fall into three general classes, and you should erect the one best suited to your particular location.

TYPE 1 is a single wire running between two insulators, with a single lead-in wire going to the radio spliced to the convenient end. This is the simplest antenna, and is ideal for a country or rural installation where there are few nearby houses containing noise-producing electric motors. It should be from 75 to 200 feet long, the longer the better, and have a lead-in no longer than necessary. This antenna receives best from the direction of its lead-in end. Direction is of secondary importance compared to erecting it well away from local electrical noise sources.

TYPE 2 is the doublet antenna (see sketches herewith). It is not as good for 200 meter and longer wave reception as the longer single wire TYPE 1, but its transposed lead-in will reject local noise. It is good for city installation, or where local electrical noise is bothersome. With lead-in taken from one end, it receives best from the direction of this end. With lead-in taken from center, it is a poorer long wave antenna, but receives best from the two directions broadside to its length.

TYPE 3 covers any of the commercial noise reducing short wave antennae. These are not as good long wave antennae as

the TYPE 1 long single wire, but are to be preferred in noisy or congested city locations. They usually have lead-ins taken off the center of a 50 to 60 ft. "flat-top", and so receive best from the two directions broadside to their length. Their great advantage is noise rejection by their twisted pair lead-ins, and the fact that lead-ins can be long enough to get the "flat-top" well away from local noise sources. They generally have two lead-in wires connecting to a "receiver coupling transformer", with two wires from the transformer leading to the two "ANT." binding posts of the radio.

The simplest of these antennae are the RCA double-doublet and G.E. "V-doublet", both good. If an extra non-critical tuning knob is not objected to, by far the best is our R9+ tuned antenna, which is ideal for noisy city locations, since it amplifies received signals quite a bit before feeding them to the radio.

General instructions for antenna erection follow:

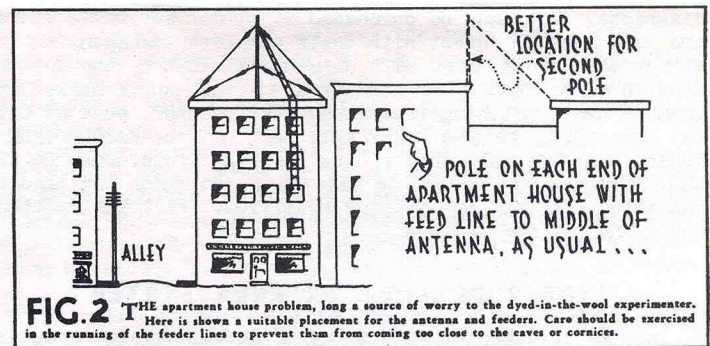
A GOOD "TYPE 1" ANTENNA

In Figure 1 is a sketch of doublet antenna (conventional single wire antenna looks the same except that it has only one lead-in wire taken off one end of the flat-top wire). It consists of fifty to two hundred feet of number 12 to 16 enameled copper wire, one end twisted tightly to an insulator, through the other hole of which is tied a rope, not wire, in turn fastened to a tree, house, garage or pole, at as high a point as is possible.

At the other end, the antenna wire is looped through an insulator, twisted back on itself for a few inches and the same wire continued on down as the lead-in. This avoids splices in the wire, for if joints are made, they must be soldered for good connection.

Here are the rules for this antenna:

1. Flat-top to be 50 to 200 feet long, as high and clear above surrounding objects as possible (ten to twenty feet above houses, or as close to tree tops as possible).
2. Flat-top to be supported by one or more good insulators (use only Pyrex glass or glazed porcelain) at each end.
3. Insulators to be fastened to supports with rope, not wire.



4. Lead-in to be a part of antenna flat-top, obtained by using a continuous length of wire for both, and twisting a small loop of it through insulator eyelet at the end (not middle) where lead-in is to come down.

5. Antenna insulators to be fifteen or twenty feet away from supporting objects (maybe even fifty feet away, if sup-

A GOOD ANTENNA IS ESSENTIAL - Continued

porting object is a building housing much electrical machinery.

6. Lead-in to be pulled down to point of building entry at an angle, if possible, which will keep it a foot or two away from building. ALWAYS TAKE LEAD-IN OFF ONE END, NOT OFF CENTER OF ANTENNA FLAT-TOP (except in case of doublets).

7. Lead-in to enter house under window (if enameled wire is used) or through a porcelain tube, obtainable at any hardware store.

8. Lead-in to be as short and direct as possible, particularly inside house, which it should enter, if possible, at a point close to the radio receiver, to which it is connected after all insulation at the wire end has been scrapped away.

9. If any splices are made in antenna or lead-in, they must be soldered.

10. Keep antenna away from street car lines, main automobile or other noise sources as much as possible.

11. After satisfying requirements 10 above, point antenna northeast to southwest, with lead-in at northeast end, for best European reception anywhere in North America.

12. Use, or do not use, a ground connection, whichever gives best results. A ground connection can be made to a water or steam pipe, or to a six-foot piece of iron pipe driven into moist ground. Connection to the pipe should be through a ground clamp, fastened to a portion of the pipe first scrapped bright and clean. Use any wire (antenna wire is satisfactory) for connection to radio receiver.

13. Using this type of antenna, connect lead-in to SHORT ANT. binding post of MASTERPIECE V tuner, and connect LONG ANT. and GND. posts together, and to ground if using a ground gives best results.

TYPE 3 NOISE REDUCING ANTENNA CONNECTIONS

The popular noise reducing antenna usually have a twisted-pair noise eliminating lead-in with matching transformer. Their cost will be well repaid in noise elimination and improved short wave reception in business or noisy residential districts. They can be purchased at almost any radio store, and are easy to erect with their complete accompanying instructions. When used with the MASTERPIECE V, the twisted lead-in wires should be connected to the posts marked for them on their matching transformer box, the ANT. post of this box connecting to the SHORT ANT. post of the MASTERPIECE V tuner, and the GND. post of the coupling transformer to the LONG ANT. and GND. posts of the tuner, to which may also be connected a ground if it helps reception. Full instructions accompany our R9+ antenna.

TYPE 2 DOUBLET ANTENNA SYSTEM

In the sketches are pictured a doublet noise reducing antenna system in several typical forms, which is good in noisy locations, such as business or manufacturing districts.

It consists of really two flat-tops placed end to end, and two lead-ins. These lead-ins are taken off the center of the total antenna flat-top, and are separated by two insulators placed at this point in the flat-top. They may, however, be taken off one end (preferable for broadcast band reception). In this case one lead-in wire simply goes up to

the joint between two insulators in series and ends there, while the other is connected to the flat-top wire.

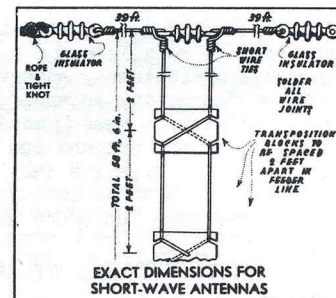
This antenna may be erected using wire and transposition blocks available at almost any radio store. It is erected by measuring off EXACTLY 39 ft. from each of two 100 ft. coils of wire, and fastening an insulator at the free end, and one between the 39 ft. points of both wires. The remaining 61 ft. of wire in each coil is the lead-in, which is brought down right to the set by means of thirty transposition blocks. One block is spaced every two feet down the lead-in and the lead-in wires made EXACTLY 58½ ft. long from flat-top to radio set. This lead-in must not be shortened or lengthened, and if it is longer than necessary, it may not be coiled up, but may be stretched between insulators on the house to take up the excess length.

In bringing down the lead-in, keep it untwisted, but put first one wire on one side and then the other. This is accomplished by threading the lead-in wires through the slots in the transposition blocks, so that they cross each other every two feet, on OPPOSITE SIDES OF THE TRANSPOSITION BLOCKS.

All of this is clearly shown in the sketches.

Using such a doublet antenna, the two lead-in wires only should be connected, one to the LONG ANT. and one to the SHORT ANT. binding posts, and a ground wire connected to the GND. binding post if it gives improved results - otherwise any connection to the GND. binding post may be omitted.

They should also be shifted from one post to the other and also tried both connected to the SHORT ANT. binding post, with the LONG ANT. and GND. posts connected together and to ground (this may prove best for broadcast band reception and if so a double pole, double throw switch can be placed inside the cabinet to shift the extra lead-in wire from the LONG ANT. to the SHORT ANT. posts, and at the same time connect the GND. to the LONG ANT. post).



KEEP ANTENNA TAUT

If the flat-top is pulled tight between its supports, this is satisfactory. If one support be a tree, which may sway in the wind, the antenna is kept taut by pulling one of its supporting ropes through a pulley, and hanging a window sash weight on the end of the rope. This will keep the antenna taut even though its support sways.

DIRECTIONS AND LEAD-IN

The direction of your antenna is secondary to the matter of keeping it away from local noise sources, such as houses containing electrical equipment, power wires, street car lines, or heavily traveled automobile roads.

Remember, you've got to have a signal before your MASTERPIECE V will really perform, and a little time and trouble taken to get a good antenna will pay you in results and consistent reception of foreign signals, for no receiver at all can overcome the handicap of a poor antenna.

THE MASTERPIECE V KNOBS AND WHAT THEY DO

Illustrated above is the control panel of the MASTERPIECE V, with the seven knobs that give you its remarkable flexibility and completeness of control. As you learn what each of these knobs do, you can actually do tricks with reception to delight your friends. From left to right these knobs and their functions are as follows:

1. **VOLUME.** This knob enables you to adjust volume to any desired level from a whisper to very loud, all without distortion, and with tone quality constant from soft to loud. Test this point by comparing with your present radio, and note how the MASTERPIECE V tone remains full and rich even at very low "whisper" volume. Its scale is graduated for easy resetting from day to day.

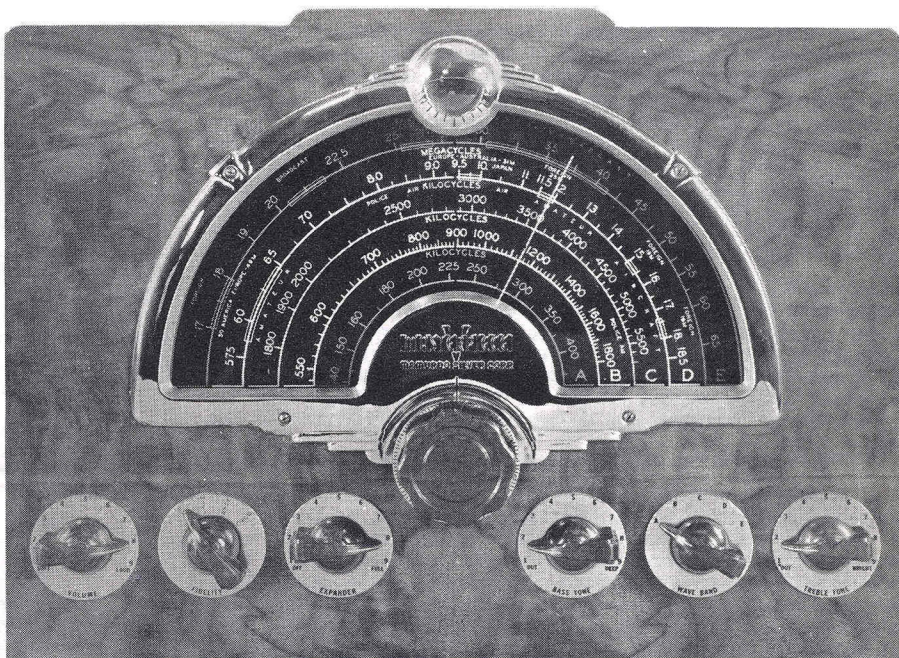
2. **FIDELITY.** This knob gives you two broad choices of selectivity or fidelity, operates the phono-radio switch, and turns the beat oscillator on and off. Its positions are, left to right, PHONO for phonograph operation when a good pick-up and phono motor are available, HI.FI. for high fidelity local reception or broad easy initial short wave tuning, SHARP for selective distance reception, and B.OSC. which turns on the beat oscillator with sharp tuning for easy initial location of short wave stations by their whistles or squeals.

3. **EXPANDER.** When turned "off" this knob cuts out the electronic volume expander. As it is turned to the right, it "clicks" the expander into circuit, and drops the average volume so that the now much louder signal peaks will not exceed the 30 watt undistorted power output of the amplifier. As this knob is turned toward "full" the volume expansion range is increased from nothing to 19 db., enough to more than compensate for broadcast station compression of even very wide range symphonic music. As it is turned toward "full" the average volume will remain lowered (you can increase it by the VOLUME knob) while the peaks will be much louder and the soft passages much softer, which is the expansion that restores life to fine music. Speech will sound strange at first when expanded, and you can tell when a speaker moves or turns his head as never before. The shift of instruments in an orchestra thru their different microphones will also be tremendously more apparent. Don't set the EXPANDER knob above 8 except on very weak stations.

4. **BASS TONE.** With this knob set at 5 music will be absolutely as broadcast—and you won't like it. As you turn it toward "deep", the full richness you've always dreamed of will enter into music. When this knob is set at "deep" the bass viol will almost "grunt" at you, and deep organ notes shake your walls. As you turn this knob down below 5½, bass will soften, and be completely cut out at "out". This will help greatly in cutting out local noise on very weak stations, while still maintaining full speech intelligibility. With this knob you can adjust tone quality to exactly what you want, and the return to it by simply jotting down the scale reading that gave you what you want.

5. **WAVE BAND.** This knob selects any one of the five wave bands, or tuning ranges of the MASTERPIECE V. Its letters correspond to the letters A, B, C, D and E at the lower right of the dial, and tell you the band you are tuning on.

6. **TREBLE TONE.** With this knob you can vary the brilliance of program tone. At "bright" it will restore treble tones lost in broadcasting and room absorption to their full life-like clarity. As you turn it down, it will gradually soften tone, and at "out" it will let you cut all treble from



reproduction. With this knob you can adjust tone to suit your taste, cut out local noise in receiving weak signals, and clean up station programs which the "Magic Eye" shows you are distorting. Set at 5, you get the exact tone quality broadcast by all stations you listen to.

7. **TUNING KNOB AND DIALS.** The large comfortable tuning knob at the lower center of dial does all tuning over the five wave bands, moving the lance pointer smoothly and easily across the five dial scales which are calibrated in kilocycles and megacycles as indicated. The scale in use is shown by the setting of the WAVE BAND knob, whose identifying letters correspond with those at the right of the dial scales.

As you turn the tuning knob, the dial pointer will travel very slowly (50 to 1 ratio) for one turn, and then faster (10 to 1 ratio). It does this in either direction, so that you approach and pass over the desired station rapidly, and then slowly tune back to it for final fine tuning for maximum "Magic Eye" closure. This automatic two-speed "free wheeling" works in both directions, so that you simply tune past a station and then back up to it with the fine ratio.

Behind the knob you will see the small band spread dial of 0 to 200 degrees which you read against the graduation mark above it. You can ignore this small dial, or use it on short waves. Thus when you want to log GSD, London, on 11.75 megacycles on the D band, you tune GSD in by slowly rocking the pointer between 11.7 and 11.8 on the D band, and then noting down the reading of the band spread dial. Thus your log will read "GSD - 11.7 on D dial, 51 on band spread" for example. This band spread dial lets you read the very sharp short wave stations apart, and return to them easily, something difficult upon the main dial because they are so sharp.

8. **HIGH FIDELITY FILTER.** On the rear of the Super-Giant speaker is the 6000 cycle high fidelity filter switch. On fine high fidelity programs of local, not network, origin this switch should be turned to the right. On network programs it should be turned to the left (from the front) when it cuts off at 6000 cycles, the upper limit of network wire lines. This switch can be set to give you best tone after your first tests and then forgotten, if you wish. The general rule is, if you live in a large city or close to good high fidelity stations, leave it to the right. If you live in the country, or away from high fidelity stations, turn it to the left.

HOW TO OPERATE Y

Assuming you have now installed your MASTERPIECE V, you are ready to learn to operate it. If you will spend a few hours learning how to tune it, you will get all it is ready to give you.

Start by setting the VOLUME knob "off", FIDELITY knob "sharp", EXPANDER knob "off", BASE TONE knob at "5", WAVE BAND at "B" (broadcast band) and TREBLE TONE knob at "5". Now turn on AC power with the on-off switch on the amplifier cable, when the dial will light up, and wait for the "Magic Eye" to light up green. Now you are ready to tune.

Looking at the white dial scale marked "B", set the dial pointer to some known local station's frequency and adjust the tuning knob for maximum closure of the "Magic Eye" beam. Turn the "Magic Eye" tube so full closure lines up with the vertical graduation at the bottom center of its dial window. Turn the VOLUME knob up to give the volume you want, and listen to the tone.

Now tune in several more local or strong stations the same way, turning volume off when tuning if you wish, or leaving it on. Note how all stations come in equally loud for the same VOLUME knob setting, proof of how the A.V.C. is working. Tune in some good program of dance or classical music, set VOLUME where you like it and listen to tone. Now turn VOLUME down, and notice how the tone remains unchanged, still rich and full even at a whisper. Turn VOLUME up, and see the tremendous reserve power you have at your finger tips.

Tone quality so far has been exactly as it was transmitted. Now turn the BASS TONE knob down, and notice how the low tones gradually soften and disappear. Turn this knob up, and see the fullness and richness you can add to music - how you can now actually listen to organs that really sound like organs. Finally set this knob where you like tone best, and go on.

Turn the TREBLE TONE knob toward "out", and notice how it mutes and softens the high treble tones. Then turn it "bright" and see how it adds to their brilliancy. Both tone knobs give natural tone when set at 5.

Now you can test high-fidelity (you've had quite a taste of it so far) by tuning in a good local high fidelity station broadcasting (preferably at night) a good program from its own studio. When it is tuned in, listen to it carefully with the TREBLE TONE set at 5 or higher. Turn the FIDELITY knob to "HI.FI" and retune the slight amount needed to now give maximum "Magic Eye" closure. Listen carefully and notice the increased brilliance and clarity of the music. Set the TREBLE TONE knob at "bright" and turn the switch on the Super-Giant speaker to the right. Notice the brilliance of tone, then turn this switch to the left and notice how the notes above 6000 cycles are cut out, but how tone is still clear and brilliant.

Now tune in a local station with a chain program that it is not originating, and notice how the switch on the speaker makes little difference. This station, not modulating above 6000 cycles, will sound about the same in both positions of the speaker switch. Leave this switch where you like tone best, or if tone rasped at all (station over-modulation and distortion), turn it to the left and leave it there.

VOLUME EXPANDER

You now know what the MASTERPIECE V will give you in tone quality, so it's time to test the EXPANDER. Tune in a good local program, preferably of symphonic or classical music. Turn the EXPANDER knob until it clicks, and notice how volume drops. Now turn it all the way to "8". Listen to the new volume range of the music, how it is expanded so loud passages are naturally loud, and soft passages soft. This is real music from radio at last - full, natural and complete. If you want more volume, turn up the volume knob, which will bring up average volume, but make loud passages still louder.

At first, voices will sound strange with the EXPANDER knob set at "8", and the EXPANDER should not be used on "full" except on weak signals where the EXPANDER'S reduction of noise is more beneficial than its alteration of speech.

RECHECKING

If you will now go back and repeat all the above tuning operations, you will get the knack of operation in a few days, and learn how to get the most out of your MASTERPIECE V. You will see how you can adjust tone with the BASE TONE and TREBLE TONE knobs to give you the very utmost on every program, how with the FIDELITY knob set "sharp" you can get station after station every 10 kc. across the dial, how on weak stations you can cut down local noise by turning the BASS TONE knob toward "out", and by listening with the EXPANDER knob set at "full".

Only after you have thoroughly mastered broadcast band operation of your MASTERPIECE V should you even begin to think about short wave tuning, which, however, will be quite easy if you have followed instructions so far.

SHORT WAVE TUNING

Tuning in short wave stations differs from broadcast band tuning in only two main ways. Short wave stations are not found all over the short wave dial scales at all hours of the day and night, and they tune much sharper and are sometimes quite weak, and down in local noise.

Before tuning for short wave stations it is necessary to know what ones are on the air, and on what frequency (wavelength). The FORUM accompanying this instruction book gives a list of stations, with times and frequencies in megacycles.

Suppose we start by looking for WIXK of Boston, who is usually on the air day and night on 9.57 megacycles. Looking at band D on the dial, you see a portion blocked off with thin lines between the 9.5 and 10.0 megacycle marks. This blocking on the dial indicated the 31 meter (9.5 megacycle) short wave broadcast band, just as other dial blocking indicates other short wave bands.

First set the FIDELITY knob to "sharp", EXPANDER knob to "off", and BASS and TREBLE TONE knobs each to 5. Now turn the tuning knob so the dial pointer moves from right toward the left to the 9.5 graduation on the D band. Turn VOLUME up until some local noise is heard, and with the fine tuning knob ratio tune slowly from 9.5 to 10.0 on the D band. Tune in the first station you hear for maximum "Magic Eye" closure, and wait for its announcement. Don't be surprised if it turns out to be London or Berlin instead of Boston, for they're often equally loud. Note down the coarse main dial reading on the D band, followed by the reading of the band spread dial behind the tuning knob, and you are all set to go back to this station quickly and easily next time you want it.

Now tune slowly, listening on each degree on the band spread dial as you tune, over the range of 9.5 to 10.0 megacycles on the D band, and see how many stations you can log. Listen for each station announcement, and write down the main dial reading followed by the band spread dial reading, and presto, you have a good start to a log for the 31 meter band already made, with each station listed and ready to go back to quickly later on.

Let's suppose you did this about 7:00 P.M. (EST) on a Monday early in June, for example. If so, you've probably heard DJN of Berlin on 9.54 megacycles, DJA of Berlin on 9.56 megacycles, GSC London on 9.58 megacycles, 2R0, Rome, on 9.64 megacycles, Managua, Nicaragua on 9.65 megacycles, and EAQ, Madrid, on 9.87 megacycles. It's just that easy, and we haven't even counted the Americans. Now by checking the stations and times on your station list, you can do the same thing on the other short wave broadcast bands marked by light line blocks on the D band. If it's daylight, and the right time, try the 11.7 mega-

OUR MASTERPIECE V

cycle (25 meter), 15.0 megacycle (19 meter), 17.5 megacycle (16 meter) bands, and see what you can log. And just because a station may be loud is no proof it's just an American. It may easily be TOKIO.

So far you've learned how easy short wave tuning is on a fine receiver. If you look for different foreign stations you desire at the times their programs are listed in an up-to-date Call Book, you have only to proceed as above with one precaution. Now that you know how sharp every station is on the main dial, tune up over a band with the fast tuning ratio, and then come back over the band with the fine ratio, listening carefully as you move slowly over each degree of the small band spread dial. If you do this, you will not skip over stations and miss them.

On good strong stations, you will not be bothered with noise of fading, and can adjust the TONE and EXPANDER knobs to give just the tone quality you desire. On weaker stations you will have to cut down local noise by turning the BASS, TONE knob toward or to "out", and maybe even turn down the TREBLE TONE knob too.

In tuning for a weak or new station, start with the BASS TONE knob at "out" to prevent missing the station in local noise, if noise is loud.

BEAT OSCILLATOR

When first tuning for a weak or new short wave station, turn the FIDELITY knob to "B.OSC.", then as you tune, it will be heard as a whistle. Tune the whistle to lowest pitch, turn the FIDELITY knob to "sharp" (or to "HI.FI") for high fidelity on a strong station, and there your program is, maybe needing just a hair of retuning.

REMEMBER THIS

If you get stations that are sometimes weak and noisy, or that fade badly as shown by "Magic Eye" flicker, remember that short wave reception varies from day to day. On some days foreigners will be loud and clear like locals, while on other days they may be very weak, fade badly, or not be heard at all. Remember that this is short wave reception, and is no fault of your MASTERPIECE V, but mother nature changing reception from day to day.

If you get so much noise that foreign reception is poor for as long as two weeks at a time, this means your antenna is dirty or leaky, or is so placed that it picks up too much local electrical noise. Cleaning it, checking soldered joints, and moving it away from local noise sources such as electric motors, oil burners, or auto roads will cure the trouble. It is to be remembered that you will sometimes strike periods of poor short wave reception, but they will seldom last more than a few days.

FINDING NEW SHORT WAVE STATIONS

Your dial is marked at the positions you will find short wave broadcasts by light block lines, and by being marked to show you where you can find different stations. On the D band you will find not only the megacycle figures, but each band marked in meters as well, such as 49 M, 31 M, 25 M, 19 M, 16 M. The location of some foreign stations is also marked quite closely, and if you tune slowly over these marked bands, you can't help but hear plenty of foreign stations. Some you will hear better than others, some you may not hear at all. Remember that any station must put its signal into your antenna before you can hear it. A good antenna is the best assurance of good clear signals.

THE NEW "APEX" BAND

The E band on your dial should be used for the 13 meter (21.0 megacycle) band, which is not very active, for the 26. megacycle band which will soon be active with stations, and the 31.1 and 40.0 megacycle "Apex" band. In tuning over the "Apex" band it is easiest if you at first set the FIDELITY knob to "HI.FI", for stations in this band are very sharp in tuning.

This "Apex" band is primarily a local, not long distance, high fidelity band. Detroit, Buffalo, Philadelphia and Kansas City now have ultra-high fidelity stations operating in it, and hundreds of new stations will soon be opening up in it. When stations open up near you, you will get your finest high fidelity programs on the "Apex" band, but it's not awfully "Live" at present.

RULES

If you will carefully read the instructions above, putting each step into practice as you read and tune, it will take you only a few days to learn how to get the superb results your MASTERPIECE V will give you out of it. Here are a few helpful rules governing short wave reception.

Short wave reception is best before, during and after the full moon, and poorest for about a week midway between full moons.

49 meters is best after dark and in winter. This band today is badly crowded with stations, and will remain so until international government action clears it up by not putting two stations on the same frequency, or so close that no radio at all can avoid squeal interference. This band is mostly occupied by South Americans, with Berlin and London on it in winter.

31 meters is good all year long, day or night. It is not badly crowded now, but may be soon. On it will be found America, London, Berlin, Rome, Madrid, Australia (early in the morning) and some South American stations.

25 meters is best in summer and daylight, but is usually good after dark and in winter. In this band are America, London, Berlin, Paris, Russia and other foreigners.

19 meters is best in daytime and summer, but is fair after dark and in winter. America, London, Berlin, Holland, Paris, Russia and other stations are on this band from time to time.

16 meters is good in daytime and summer, for very long distance, being poor for nearby stations. America, London, Berlin and Holland are on it at different times.

13 meters is good in daytime and summer, for long distances only. London, New York and Pittsburgh are on it, but you probably won't hear any station closer than 2000 miles on this band.

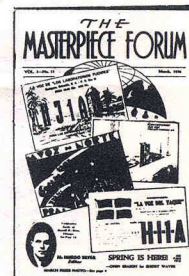
26.0 megacycles (11.5 meters) is a new band just opening up. It is medium distance, and will be occupied at least by Americans, soon.

31-40 megacycles (10 to 7.5 meters) is for local and medium distance ultra high fidelity stations now rapidly going on the air, but occupied by only a few stations at present.

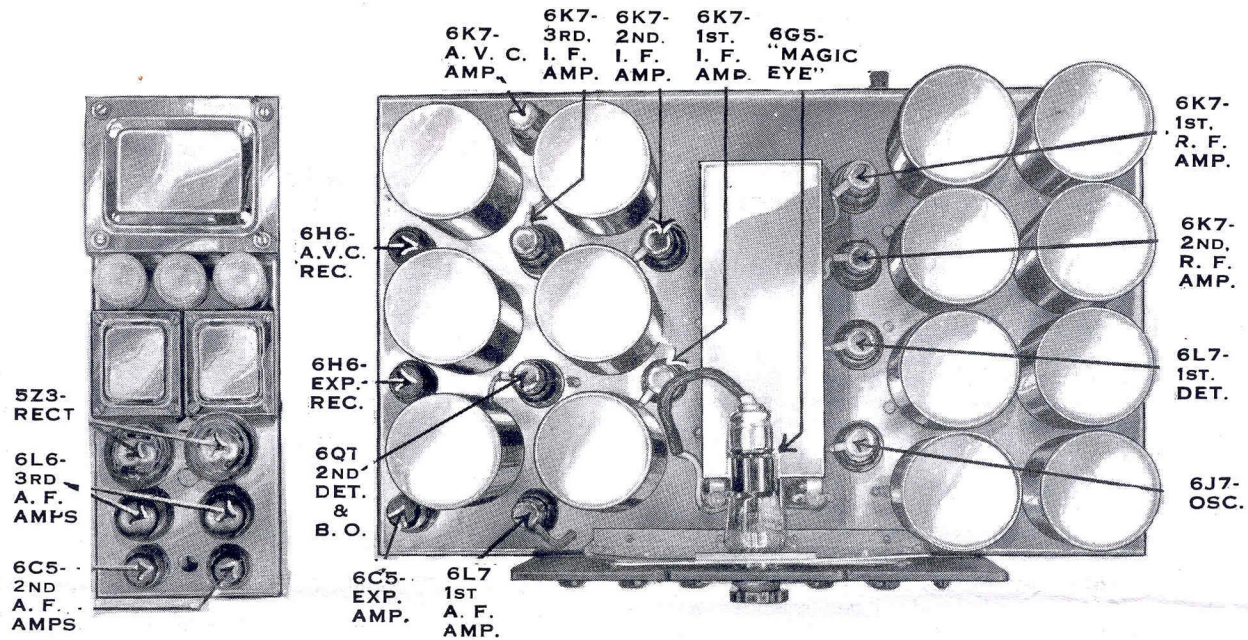
Any new station you want will be found close to its megacycle frequency on the proper dial band, and in relation to stations already logged at close to its frequency.

"RULE OF THUMB"

If you know the wavelength of a station you want, you can quickly find its frequency by dividing its wavelength into the figure 300, and using the obviously sensible decimal point. Thus, 25 meters into 300 gives 12 megacycles as the answer, or again, 31 meters divided into 300 gives 9.67 megacycles. This quick "rule of thumb" will show you about where the wanted station will be, and you then need only tune within 1/4 inch on either side of this point on the proper dial scale to find it. After finding it, you can note the exact main dial and band spread dial settings down in your log book so as to find it easily next time you tune for it.



WHAT TO DO IN



Your MASTERPIECE V has been most carefully built of the finest parts to be had today, and most carefully meter and air tested to insure you many years of trouble free enjoyment.

There are a few points upon which trouble may develop, which are fully covered here. As you will see, these troubles practically all trace to tubes, which will slowly deteriorate with use, and not to the radio itself. Remember that of all radio troubles, 99% are traceable to aging tubes. If anything strange develops in operation, always check all tubes first. The instructions herewith localize possible abnormal troubles, and tell you how to locate and correct them if they should ever occur.

CHECKING TUBES

As tubes will age and deteriorate with time, it is well to have on hand a set of spare tubes, one of each of the nine types used in your MASTERPIECE V.

With these spares, you can test the tubes in your MASTERPIECE V by tuning it to a weak station and then inserting the spares one at a time, in place of the original tubes in the set. If a spare replacing any particular tube gives more volume, better tone or quieter reception, the original tube should be replaced with a new one.

In making this test, only one tube at a time should be removed and replaced with its spare, going over all tubes in the tuner and amplifier in this way.

If you have no spare tubes, you can take the tubes from your MASTERPIECE V to any radio dealer for test, replacing those that test weak or poor. This test should be made every six months if you want to maintain peak results at all times, even though tubes will ordinarily last a year or more in ordinary use.

DIAL LAMPS

Two small mazda 6 volt, T3½ lamps illuminate the dial. They are located in two sockets easily accessible behind the dial for replacement if they ever burn out. If they flicker, check cable plug contacts, remove the lamps, and clean their bases.

FUSE

A standard 5 amp. automobile fuse (available from any auto supply store or garage) is located beneath the amplifier chassis in a clip. If it burns out, first check tubes for the cause, and then re-

place the fuse with a new one.

A.C. HUM Even with the BASS TONE knob set at "deep", no A.C. hum will interfere with reception if tubes are good and if the power amplifier is spaced its full cable length away from the tuner.

If hum develops at any time, it will unquestionably trace to non-uniform aging of either the two 6C5 or the two 6L6 tubes in the power amplifier. To eliminate it, try spares in each socket. If this does not help, have these tubes tested, and replace them with pairs of new tubes of each type that test exactly alike in a dealers tube tester. Unmatched or unbalanced 6C5 or 6L6 tubes in the amplifier will be the only ordinary cause of hum.

It is well also to check the 6Q7, 6L7, 6C5 and 6H6 tubes in the tuner marked "6Q7 2nd Det. B.O.", "6L7 1st a.f. amp.", "6C5 expander amp." and "6H6 expander rectifier", as they can cause hum. A ground connection to the tuner binding post marked "GND" should also be tried if you are not regularly using one.

If in testing, hum disappears when VOLUME is turned "off", it is in the above tuner tubes. If it continues, it is in the power amplifier tubes.

DIAL DRIFT

Drift or slow detuning of stations on the dial can be caused only by a "drifting" 6J7 oscillator tube. The usual circuit drift is completely eliminated in the MASTERPIECE V, and a very special extra-stable oscillator circuit used. If dial drift is ever noticed, replacing the 6J7 tube in the right front unmarked white socket in the tuner with a new 6J7 tube will eliminate it.

If dial calibration is uniformly off on all bands, this indicates shift of the gang condenser and its rubber cushions. Firmly moving the tuning knob in the direction necessary to correct the dial error will do so by shifting the whole gang condenser back into its proper position.

WEAK E BAND

If the E Band on the dial seems weak (you do not hear any stations on it and local noise seems too low) change the 6J7 oscillator for a tube testing extra good, and this trouble will disappear. The "skip-distance" of the stations on this band should be allowed for, and local noise used at the best guide as to whether the E Band is weak or properly alive.

CASE OF TROUBLE

MAGIC EYE INACTIVE OR DEAD

If the "Magic Eye" does not register stations by closing as usual, put in a new 6G5 tube, being sure to turn it after it is in place so that when it is fully closed on a strong station, its closure line coincides with the lower vertical mark on the window. Remember that it will "over-close" for strong stations, close less than fully to weaker stations, and maybe not even start to close for very weak ones. Remember, also, that it will flicker to indicate station over-modulation and distortion, will swing slowly on fading stations, and will flicker without closing to register local noise picked up by your antenna on very weak stations.

USING HEADPHONES

The loud speaker can automatically be cut out, and headphones used if you wish. Use a good pair of 2000 ohm phones (Trimm Featherweight recommended) with their tips attached to a standard two-circuit phone plug. Inserting this plug into the jack at the left rear of the tuner will cut in the phones and cut out the loud speaker.

PHONOGRAPH

If hum is heard in using a phonograph pickup and motor, first make sure the pickup leads are kept well away from the phono motor and are as short as possible. Try reversing them at the tuner tip jacks. Make sure the phono motor frame is grounded, and try reversing its A.C. cord plug at your light socket.

Needle scratch will unquestionably be heard if the TREBLE TONE knob is turned to "bright". It can be eliminated by turning the high-fidelity switch on the Super-Giant Speaker to the left and by turning down the TREBLE TONE knob. For best results, use only new, electrically cut high fidelity records.

MICROPHONICS

Howling on short-wave stations will not occur if they are properly tuned "on the nose". If it should develop, make sure the tuner rests only on its rubber cushions, and does not touch its speaker cabinet at any point. Make sure the speaker cabinet is not "boxed in" by being too close to a wall, it should have its open back two to four inches away from any wall. Finally, install a new 6J7 oscillator tube. Dealers cannot test these tubes for microphonics, so you may have to try several to get a non-microphonic one.

If you notice a "pinging" or ringing microphonism, turn VOLUME "off" and tap the 6L7 tube at the left front of the tuner with your fingers. If it rings more than very slightly, replace it with a new and quiet tube.

Microphonism when using a phonograph motor and pickup for playing records can be eliminated by cush-

ioning the record changer or motor plate carrying the pick-up on soft rubber cushions, one at each corner.

CONTROL NOISE

If you listen carefully you will hear a slight scratch as you turn VOLUME, EXPANDER, BASS TONE or TREBLE TONE knobs. This scratch occurs only as these controls are tuned and is a normal characteristic of even the finest controls that money can buy, specially tapered for use in the MASTERPIECE V. If this noise scratch should become very bad, the controls will have to be cleaned or replaced. But remember that this scratching disappears once you set the controls, and is only a function of movement that does not impair reception.

TUBES LIGHT BUT NO SOUND

Make sure cable plugs and tubes are tightly in their sockets. Make sure that metal grid clips to screen grid tube caps are not touching their chromium top shields. Make sure control knobs are properly adjusted. Make sure no tubes are bad, and AC power is on, as indicated by dial illumination. If "Magic Eye" registers in tuning stations, but no programs are heard, check amplifier tubes and speaker switch and connections.

TONE DISTORTION

Distorted tone will be due to improper tuning and knob adjustment, to reception-distorting stations, or to bad tubes in the tuner and amplifier.

EXCESSIVE FADING

Fading will be noticed only on very weak stations, usually only on short waves, and will be indicated by "Magic Eye" beam variation with the volume change. The automatic volume control of your MASTERPIECE V is the very best that can be built today, and eliminates fading so far as in humanly possible. No A.V.C. completely eliminates fading when a station fades down to nothing. Normally on a badly fading station, the A.V.C. holds volume constant, but noise will rise and fall behind the program as the station fades up and down.

Some types of fading will appear as a tone quality change as well as a volume change. If this does not occur on other stations at the same time, it is due to bad weather conditions that day. If it does occur on quite a few stations, both weak or strong, check tubes.

IF IN DOUBT

If you are in doubt as to results, test your MASTERPIECE V again against a borrowed radio at the same time using the same antenna. If the MASTERPIECE V is not better in all ways, check all of the remedies above and write the lab. for help.

WHAT TO EXPECT

That your MASTERPIECE V will give you immeasurable finer tone, more power, greater distance range, more consistent reception of foreign stations (if you listen for them when they are on the air) less interference and less inherent noise than any other radio you can buy today, if you operate it with reasonable care.

What Not To Expect

1. That you can get fine results before you learn correct operation by carefully reading this book. You wouldn't expect good pictures from a fine camera until you knew how to use it, and had some practise. Read this book carefully, and your MASTERPIECE V is your faithful servant, ignore these instructions and you'll miss all that this superb instrument is ready to give you.

2. That you will get as good broadcast band reception in summer as in winter. You won't - simply because broadcast band frequencies do not travel as well or as far in summer as in winter, and static (atmospheric noise no radio at all can completely eliminate) is worse in summer than in winter.

3. That you will get good reception with an old and dirty or poor antenna. You won't. The remedy is to erect a good antenna as outlined on pages 5 and 6.

4. That the MASTERPIECE V will eliminate all noise on very weak stations. It won't, nor will any other radio, but it will give clearer reception of very weak signals than any other radio you can buy today.

5. That you can separate two or more stations transmitting on the same frequency or wave length, as in the range of 1,000 to 1,500 kilocycles (called the "broadcast graveyard" because in this range many stations are put on the same channels, and will cause interference on any sensitive receiver at all). This also applies to the 49 meter (6.0 megacycle) fearfully crowded short wave broadcast band.

6. That very weak stations will not fade. Fading is due to atmospheric conditions, and is no fault of the receiver. Every possible effort to eliminate it has been made in providing the MASTERPIECE V with the most perfect automatic volume control system today known.

7. That you can get any station that may be on the air at any time. You won't get much distance on the broadcast band in summer, or until after dark. Foreign stations will come in

better on some days than on others, and some foreign stations will not come in at all. Remember that the desired station must send some signal into your antenna before you can hear it at all. The receiver does not "reach out" - it merely responds to signals, weak or strong, that your antenna picks up after the station has transmitted them. The MASTERPIECE V will respond to signals of a small fraction of a millionth of a volt, but your antenna must collect this signal before you can hear it.

8. That you can hear short wave stations listed in out-of-date call books. Short wave transmission still being primarily experimental today, stations change time schedules and transmitting frequencies very often. Use the call lists in current issues of radio magazines, or better yet, the MASTERPIECE FORUM, which is mailed to you regularly at no charge.

Do's and Don'ts

1. Don't remove speaker or tuner cable plugs from their amplifier sockets until you have FIRST turned off A.C. power to the receiver

2. Don't be disturbed if the round electrolytic condensers on amplifier should ooze a little crystalline substance (boric solution) at their top edges. This is not harmful, and can be wiped off or not as desired.

3. If in a tropical climate, wiping the chromium finish with an oiled cloth about once a month will help to preserve it. In ordinary climates, it may be polished by rubbing with a dry cloth only.

4. A 5-ampere auto fuse (obtainable at any auto or hardware store) is in a clip on the underside of the amplifier to protect the receiver. If it "blows", replace it. If it continues to "blow", check amplifier tubes, cable connections and remove ground wire from tuner.

If In Doubt As To Results

If you believe that you are not getting maximum results from your MASTERPIECE V, borrow a receiver of known performance from a friend and check it side by side against your MASTERPIECE V, using your antenna on first one and then the other receiver. The MASTERPIECE V will give far better results unless it is improperly operated or has been damaged in shipment. If you believe that it has been damaged, but can see no visible signs of damage, file a claim for concealed damage with the carrier's claim agent for two-way transportation charges and repair costs to be determined by us.

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