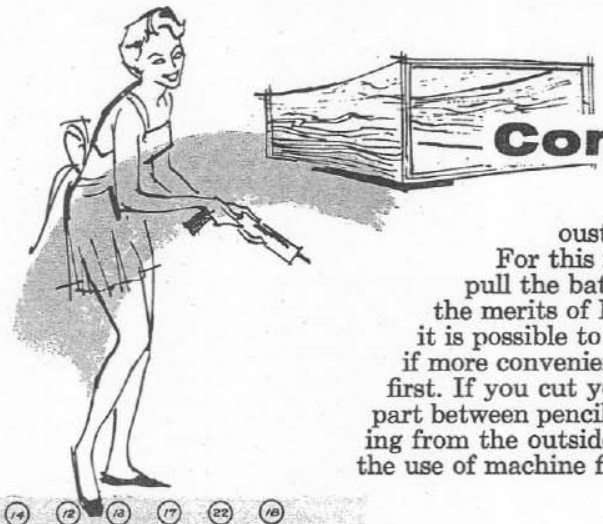


Completing 200-cycle horn

The purpose of the battens is to stiffen the horn walls acoustically so they will not resonate and vibrate like a boat whistle. For this reason, use extreme care and as many screws as are required to pull the battens into positive contact their ENTIRE length. It is now that the merits of Phillips screws become apparent. By using a stubby screwdriver it is possible to seat the batten from the inside of the horn, using the left hand if more convenient. Now, and in all like instances, drill pilot holes for the screws first. If you cut your own parts and the screwholes are not indicated, line up the part between pencil marks and drill for screws as shown further on in Fig. 15, working from the outside. If assembling the kit, you will notice slight variations due to the use of machine fixtures in parts fabrication.

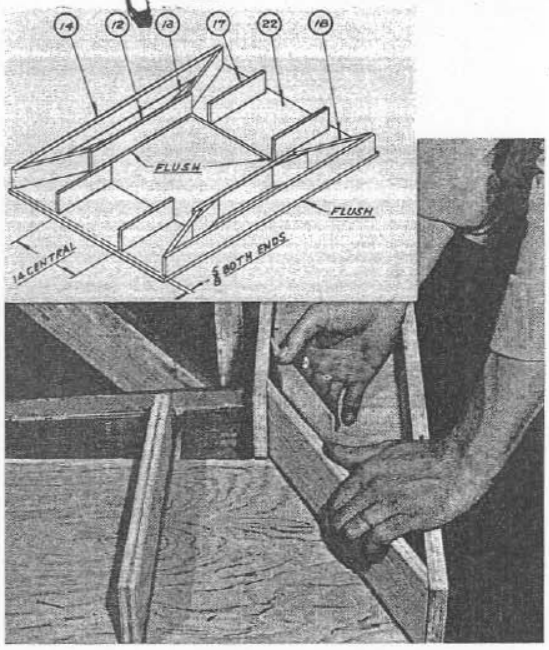


Fig. 14—Laying out parts for marking.

CALKING AIR LEAKS

Bass, or long Sound waves will go through a crack which is watertight and almost air tight. Ordinarily this wouldn't be of much importance, but in the Patrician the special acoustic design requires good seals for perfection, and you will come mighty close to getting perfection by following instructions. The generous use of glue will take care of the smaller cracks. An additional calking with gummed tape, marine seam-compound or shellac filler will reduce leakage to an unmeasurable point. It is better to go too far than to stop too soon because the Patrician is VERY heavy. If lightly built, it may open up when moved in the usual ordeal of housecleaning. Once open, resealing is not easy. It practically means rebuilding the unit.

THE BASS HORN

While larger and heavier, work goes faster than on the 200-cycle horn, or at least appears to go faster because every piece installed adds considerably to the bulk of the assembly.

You start by laying piece 22, the front panel, across a pair of sawhorses and then position pieces 12, 13, 14, 17 and 18. You will notice there are two or four of most of these, so your stock pile goes down fast right from the start. If you cut them out yourself, position as shown in Fig. 14, mark the outlines with a pencil, Fig. 15 and drill screw holes. Pieces 14 are flush with the edges and can be screwed down first. Glue is smeared on the mating surfaces and the screws are driven up from the bottom. Pieces 12 are flush with the panel opening, and are glued and screwed on next. 13 and 18 are used to complete the assembly. Which goes on first depends upon how you work. 13 can be nailed in place after gluing as it supports no weight, only provides a bearing surface. These "boomerangs" are dead air cavities which increase the enclosed area behind the speaker cone and MUST be calked with extreme care. It is best to calk the lower surfaces from the inside, then finish the outside after speaker mounting panel 21 is in place. As usual, use plenty of glue, and don't be in a hurry.

Pieces 17 are positioned with the ends flush against the center opening and are each seven inches out from the centerline of the panel. That is, they are 14 inches apart from each other.

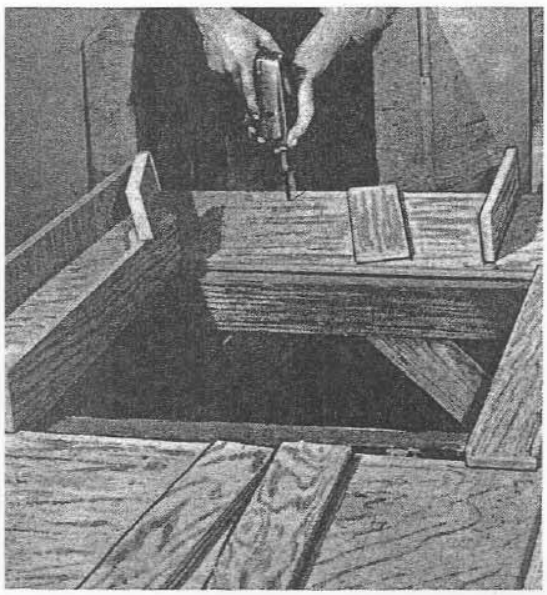


Fig. 15—Drilling for Assembly.

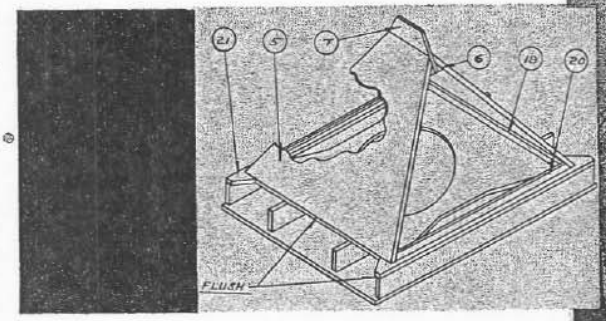


Fig. 16—Constructing the sealed cavity requires all the skill and ability you can muster. Work slowly—carefully and accurately.

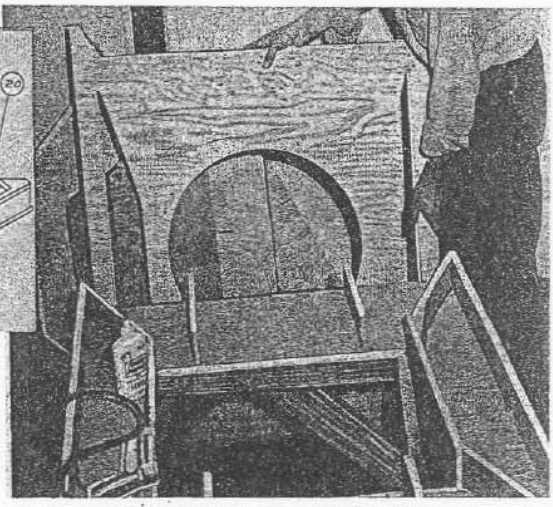


Fig. 17—Panel 21 goes in place first.

DEAD AIR CAVITY

Now you start getting into the dynamics of sound propogation. Behind the speaker cone is a sealed cavity, Fig. 16 which acts exactly the same as the dashpot on a Corliss engine. It is tuned, balanced and regulated to give the exact response desired. Basically it takes the backwash of the speaker cone, stores the shockwave in the form of undissipated energy like a spring, and then uses it to push the cone back to zero position. This becomes an actual visible impulse, because a deep note of sufficient amplitude can pull the cone better than an inch. The return thrust snaps up the cycling and in terms of the hi-fi, puts "soup" into the speaker. Right now all you have to do is create that cavity, and it *HAS* to be AIR TIGHT.

YOU START by gluing and screwing part 21 in place, Fig. 17, making certain the two boomerang cavities are WELL calked. Part 17 requires no calking as it does not separate, only stiffens.

Parts 6, 7 and 5 go together in an unorthodox manner Fig. 18. They could be built up from the bottom, like pitching a roof, but it is easier to put them together from the top, Fig. 19 and lower the assembly in place as a unit. In the kit the edges all have the proper bevel and only need to be matched. If you cut the parts yourself, they may require hand fitting. Start with piece 7. Glue and screw pieces 6 to it, flush with the wide edge. Parts 5 must be matched air tight to the unit 6-7. Let the glue dry before handling the assembly. If in doubt, as you have good reason to be, screw parts 5 on dry, and position on part 21. Edges of 5 should be flush top and bottom. Parts 19 and 20 are sealing battens to which 5 are secured. Lay these in place and clamp; then position 5, tack lightly with casing nails and mark locations of 19 and 20. Remove 5 and clamps and glue and screw 19 and 20 into position. Now position 5, secure with the casing nails and screw down before the glue dries. Calk ALL of the seams, inside and out, as far as possible.

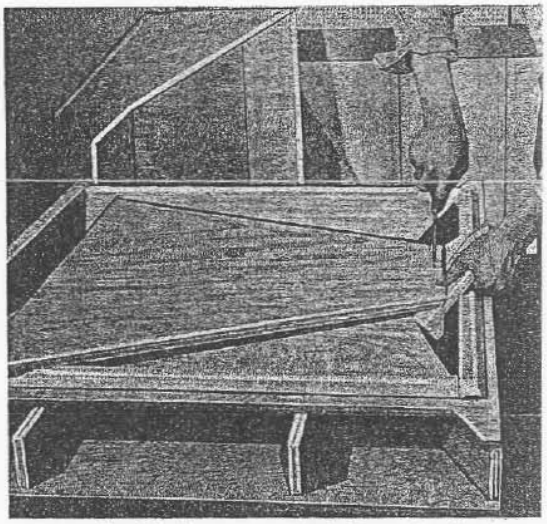


Fig. 18—Screw parts 5, 6, 7 together for a "Dry Fit" check before gluing.

SEALING THE CAVITY is accomplished by installing panels 4. These must first be lightly nailed, Fig. 20 and the joints inside tested with a spatula or feeler gage for angle and tightness. If satisfied they can be drawn up snugly, go ahead and glue and screw, lining up top and bottom ends. Seal and calk to the best of your ability, Fig. 21.

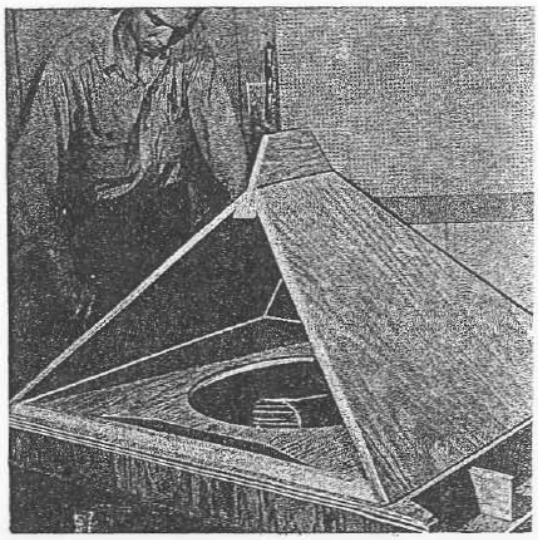
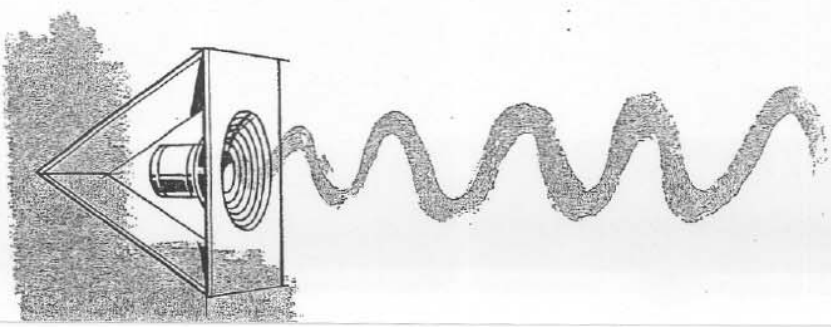


Fig. 19—The Glued Assembly is lowered in place like a Gable Roof.



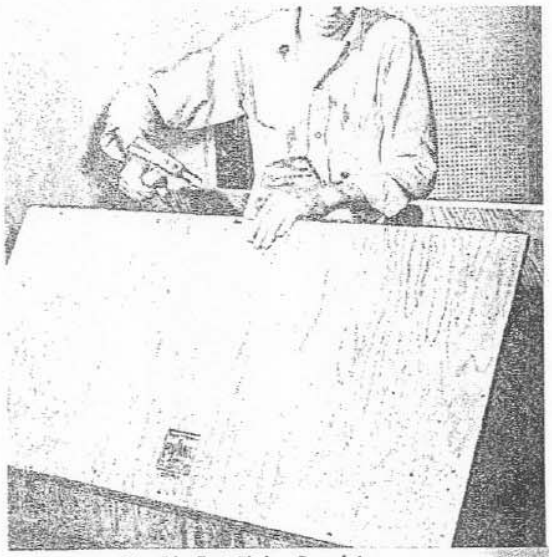


Fig. 20—Test Fitting Panel 4.

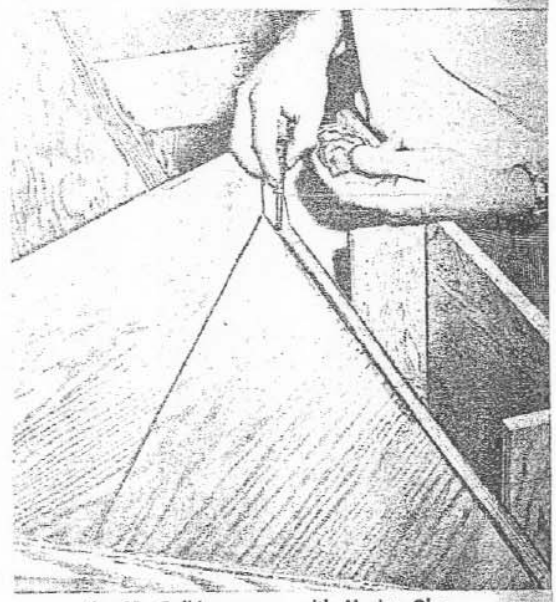


Fig. 21—Calking seams with Marine Glue.

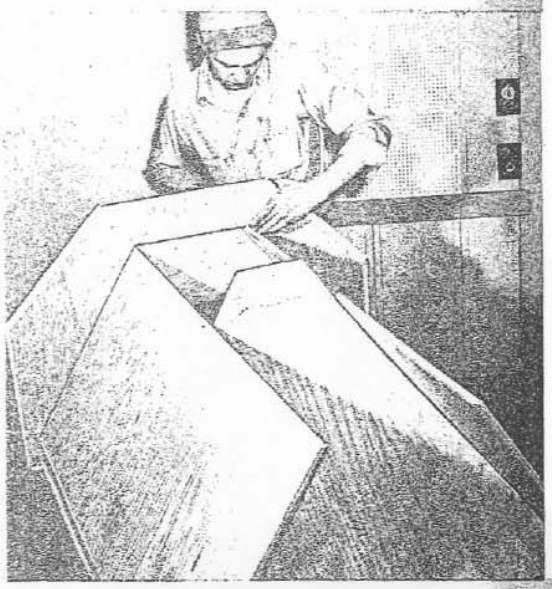


Fig. 22—Checking Bottom Fit.

THE AIR COLUMN

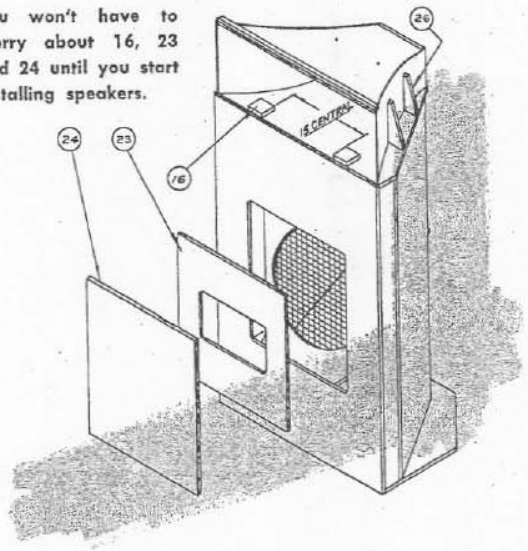
There is six feet of exponential horn folded back on itself within the enclosure. Most of this horn has already developed without your realizing it. By placing pieces 10 and 11, the air column suddenly assumes a recognizable shape, Fig. 22. They are secured to parts 4, in such a way that top and bottom, 3 and 8 fit flush all the way around. This is asking a lot, because there is bound to be a slight warp in at least one of the panels, and it must be drawn snug. What you have to do, is position all the parts so there will be no hand fitting required before they can be secured.

You can't drive nails in unsecured panels 4 due to the spring and bounce, so drill pilot holes for the screws, Fig. 23, tack with nails first, then replace with screws when satisfied the fit is correct. Use lots of glue, Fig. 24 and keep drawing up on the screws, Fig. 25 until the joints are all snug. If two can work on this job, so much the better. It is awkward to hold parts and drive screws with only two hands when one or more panels insist on springing and pulling out the nails. If the spring proves excessive, resort to hand fitting rather

Fig. 23—Drilling for 10 and 11.

than forcing. In most cases the spring is in the panel, itself, not in faulty cutting or jointing. When the screws are once in place, the spring vanishes and the parts line up correctly, or they should, if no error was made in fitting.

When parts 10 and 11 are installed top and bottom, you are ready to seal off the horn and call it completed. Install the bottom, 8, first, Fig. 22. Drive in as many screws as are needed to secure it until the glue holds. Warpage is often bad in large panels, especially in humid weather and it is difficult to predict exactly HOW MANY screws may be needed. Keep inserting them until the bottom fits snug against parts 14, 17, 21, 4, 10 and 11. Calking is not important but do it anyway, just to play safe.



You won't have to worry about 16, 23 and 24 until you start installing speakers.

INSTALLING 200-CYCLE HORN

With the horn already in position on the top, 3, it proves a bit awkward to insert screws in some of the prescribed locations. Counterbore through battons 25, Fig. 26 to enable the screws to sink deep enough to grab. It may be necessary to reach up between parts 17 and 18 to mark the underside of 3 so pilot holes can be drilled in location. You can't reach part 11 at all, and there is really no need to, so smear on lots of glue and let nature takes its course. Part 10 can be screwed up from the bottom.

Before the horn is mounted permanently, remove and install the mechanical fittings as detailed on page 31, Fig. 20. You will use these to secure the speaker units when the time comes.

Now install the top panel, 3, permanently, and once it is in place you have reached the point of no return, your unit is sealed and ready for the installation of the electrical equipment.

There is one optional feature. If the enclosure is to be operated without a cabinet, even for testing, screw a 1 by 10-inch board between 3, 7 and 8, so it acts as a deflector plate for the air column. This board is removed when the enclosure is placed in a cabinet.

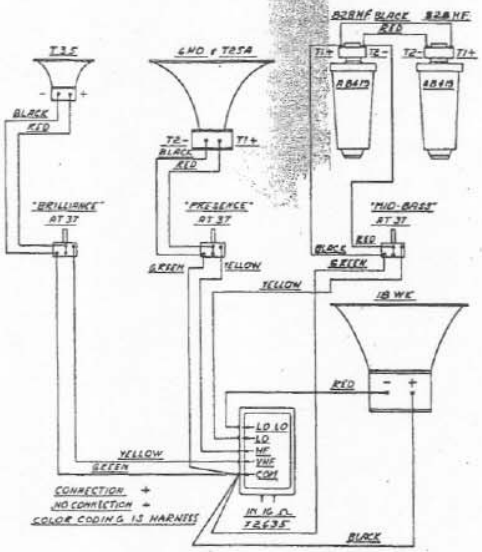

Fig. 24—Prime the joint surface with a thin coating, then put on a thick layer and assemble at once. Plastic glue will set in about thirty minutes.


Fig. 25—Draw up screws till glue squirts out of joint top and bottom.


Fig. 26—Drill holes in 25 large enough to admit screw driver.

Installing the Components . . .

This is where you start if you purchase the enclosure completely assembled.



WIRING DIAGRAM

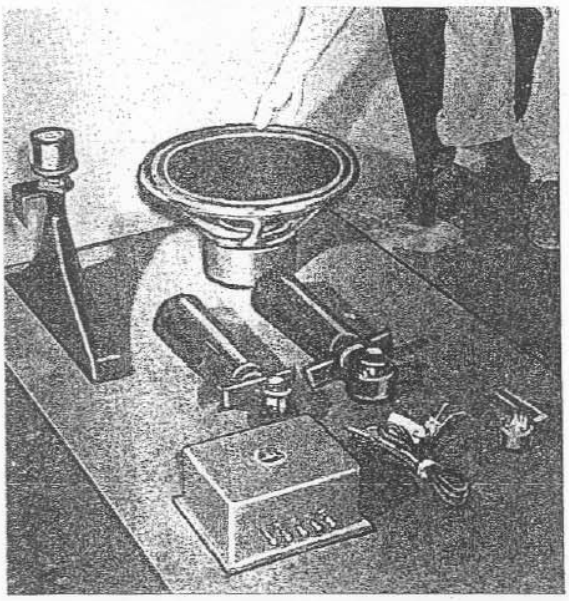
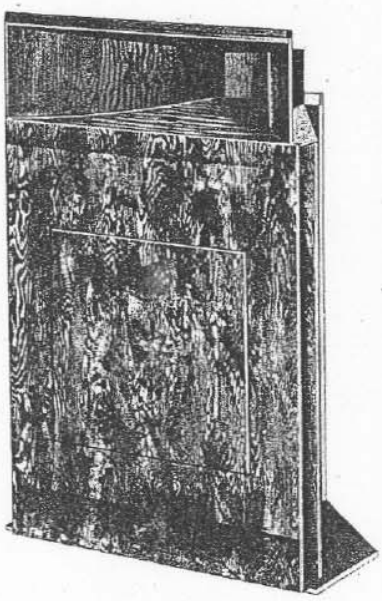
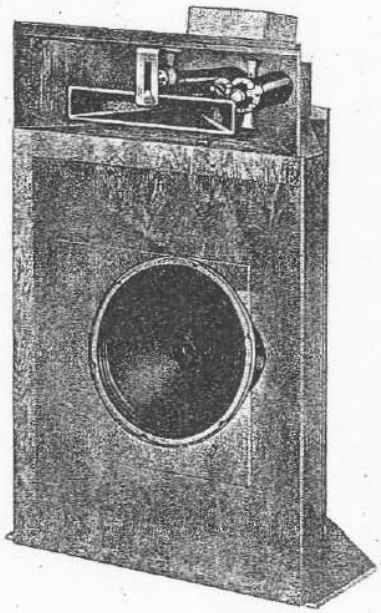


Fig. 27—Left, units unpacked, ready to install. Above, wiring diagram.



COMPLETED ENCLOSURE



PHANTOM VIEW OF SPEAKERS IN POSITION

THE DRIVER UNITS come packed in a wooden box, Fig. 27, and the kit is complete, ready to install. The units match, and will work together as a system. Substitutions of other makes will introduce possibilities of error. Unless you have a very good reason to do otherwise, it is to your advantage to obtain the COMPLETE ELECTRO-VOICE 103C package and install it as instructed. We say "good reason to do otherwise" because the enclosure you have built or purchased is an excellent foundation unit for testing, developing and comparing speakers of all sizes and makes, and even creating a new approach to the problem. This unit, the PATRICIAN is the BEST you can buy or make. If your inclination is to delve into the unexplored in sound propogation, the Patrician is the logical place to start. By doing so, you will not be duplicating what has already been done.

Included in the 103C package are—

- **1 18WK very-low-frequency driver**
- **2 A8419 low-frequency phenolic horn sections**
- **2 828HF drivers**
- **1 T25A treble driver**
- **1 6HD 600-cycle diffraction horn**
- **1 T35 very-high-frequency driver**
- **1 X2635 4-way crossover network**
- **1 8675 cable harness including three AT37 level controls.**

The outer shell of the Patrician, as supplied on factory built instruments, is not available as a separate item because it is jig assembled about the enclosure and has no foundation of its own. It would cost more to build the holding fixtures than buy the complete unit. If you want the Patrician in furniture ready to play, make choice FOUR as outlined on page 5.

ASSEMBLY PROCEDURE

Installing the units in YOUR Patrician is identical to the procedure advocated for the assembly line. Therefore we will simply lift the basic work sheet instructions supplied the assembly line workers. The photos taken are of actual factory workers making an installation. Each man is highly skilled and the system goes together quickly and smoothly. This is the factory built Model 115, and is a prime painted and fixture assembled unit; otherwise it is exactly the same as the enclosure you or I have made. Yes, I made one too, and am personally satisfied anybody who really wants a PATRICIAN badly enough can put the kit together, only mine was done the hard way. I sawed out pieces by hand, just to prove to myself it could be done. Now here are the factory work sheets, with a few ad-libs tossed in to clear up points of possible doubt.

Fig. 28—Removing front cover, 24, to gain access to speaker compartment.

step 1 Lay the Model 115 on its back. Remove the front cover and speaker mounting board (yours has not yet been installed), see Fig. 28. Note or mark the tops of these boards. The factory unit is pre-drilled for speaker mounting but the home constructed unit must be drilled.

step 2 (Omit in factory built unit). Lay the 18WK LF driver on the center of the mounting board, with two opposite rim holes on a vertical center line and with the speaker terminals oriented on either side of the top hole. Mark the 18WK mounting board through the rim mounting holes. Drill six ¼-inch holes through the mounting board and one 5/16-inch hole near the terminals on a 9¼-inch radius, or, in other words, far enough out to just clear the rim of the 18-inch speaker.

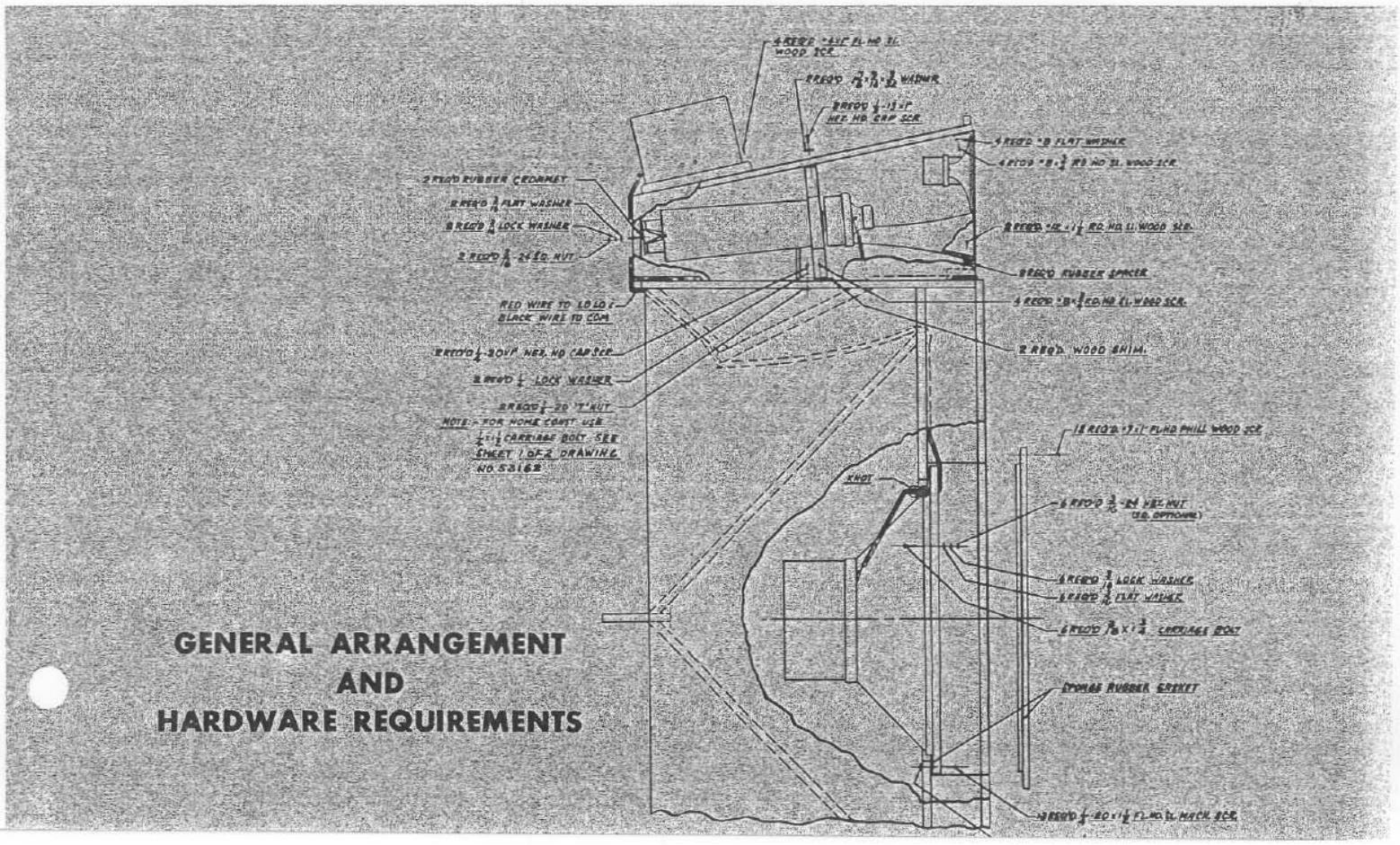


Fig. 29—Snubbing the Cable.

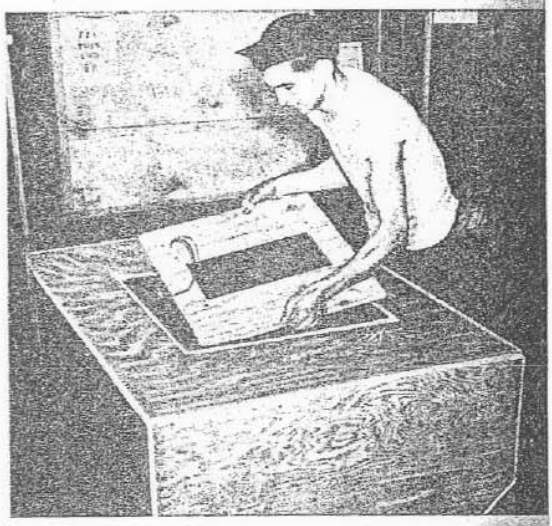


Fig. 30—Lowering Speaker in Place.

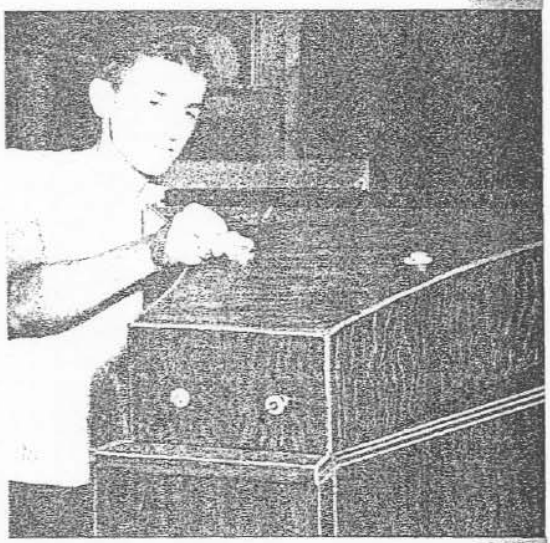


Fig. 31—Positioning A8419 Horns.

step 3

Bolt the 18WK in place with 3/16 by 1¾–inch carriage bolts, using both flat and lock washers. Tighten the carriage bolts only snugly enough to assure firm positioning of the loudspeaker. Excessive tightening may warp the speaker frame and cause the voice coil to rub. Run the long single red and black wire supplied in the wiring harness kit through the 3/16-inch hole and form a square knot as shown, Fig. 29 on the speaker side, to prevent the cable from being pulled out. Attach the wires to the terminals on the 18WK, *RED* wire to the *BLACK* terminal and *BLACK* wire to the *RED* terminal. This insures proper phasing in operation.

The speaker baffle board with the 18WK mounted on it, Fig. 30, may now be put in place. Care should be exercised to insure a tight seal on this board against the sponge rubber gasket material. Feed the 18WK leads through the top opening of the horn and out to the back. The front cover, may now be screwed in place, closing the throat of the large horn. Be sure the gasket makes a perfect seal.

step 4

Return the Model 115 assembly to an upright position. Guide the bolts projecting from the ends of the A8419 horns through the holes in back plate of the smaller wood horn, using the rubber spacers provided to insure an airtight fit. Run large cap screws and washers through the top of the horn and into the brackets of the phenolic tubes, and tighten *by hand only*. Fig. 31. Now push the two wood shim blocks under the bottom of the brackets, but *do not force*. Start the wood screws through the brackets and into the shims, but not into the top of the large "K" horn board. With one hand on the back of the tube and one hand on the shim, float the shim until the back bolt is free through the back board hole. Now drive a brad through the wood shims into the top "K" horn board and complete running the wood screws into the top board of the large horn. Tighten the cap screws just snugly enough so that the tube bolt is free through the back hole. Now add the washers and nuts on the bolts through the back, bringing the nut and washer up just snugly enough to avoid strain on the phenolic horn tube.

step 5

The 828HF drivers, with the terminals facing toward the front, may now be screwed in place on the reentrant horns Fig. 32. The drivers are wired in parallel; T1 or the black wire connects to T1 on the other driver, and T2 or the red wire terminals connect together. The wires are stapled in position and brought out on the front left side of the 200-cycle horn assembly.

Mount the X2635 crossover network with output terminals toward the back of the cabinet, and centrally with the cap screws and the back of the horn as shown.

step 6

The T35 VHF driver now may be mounted in place. Mount the T35 bracket inside on the top section of the 200-cycle diffraction horn, using the predrilled holes. A slight bend must be made in the bracket after it is in place to allow the T35 to be aligned vertically.

Wire the T35 as shown in the schematic diagram, the black wire connecting to the black terminal, and the red wire to the red terminal. The AT37 level controls may be mounted, optionally, on a board as shown on the phantom view of the exterior as shown in the home construction drawings, or in any other convenient position. Extensions up to 20 feet in length may be added to the #8675 cable harness.

step 7

Now mount the 6HD and T25A in place. This is accomplished by following the assembly instructions packed with the T25A driver. Note that the T25A mounting bracket foot faces forward in the components assembly drawing. Attach the threaded adapter plate furnished with the T25A to the bracket and horn and bolt it in place using the flat gasket supplied with the driver. Now screw the T25A onto the horn. The complete subassembly now may be placed in position.

On the factory-built Model 115 unit, use the cap screws and washers furnished with the "K" horn. On the home constructed unit, mount horn foot brackets over the preinstalled carriage bolts and nuts and then lock washers and nuts. Do not tighten until the 6HD horn is lined up parallel with the front of the "K" horn structure. Now install the rubber spacers and screws, drawing them down just enough to compress the rubber slightly. Complete the tightening of the foot bracket. Wire the T25A driver as shown in the schematic diagram, below, the T2 terminal to the black wire, and the T1 terminal to the red wire. Run the wires parallel to those from the 828HF drivers and staple in place.

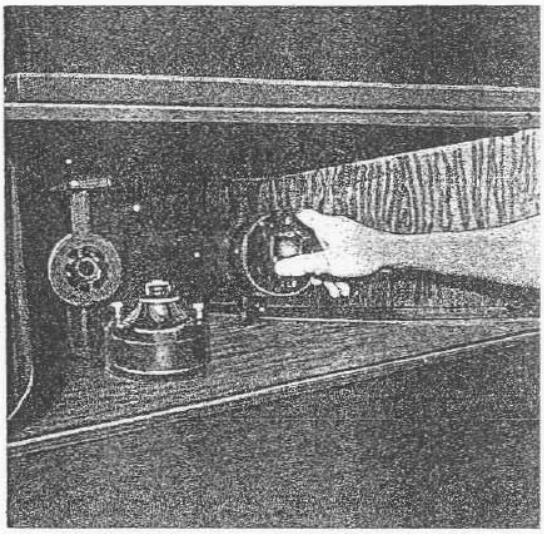
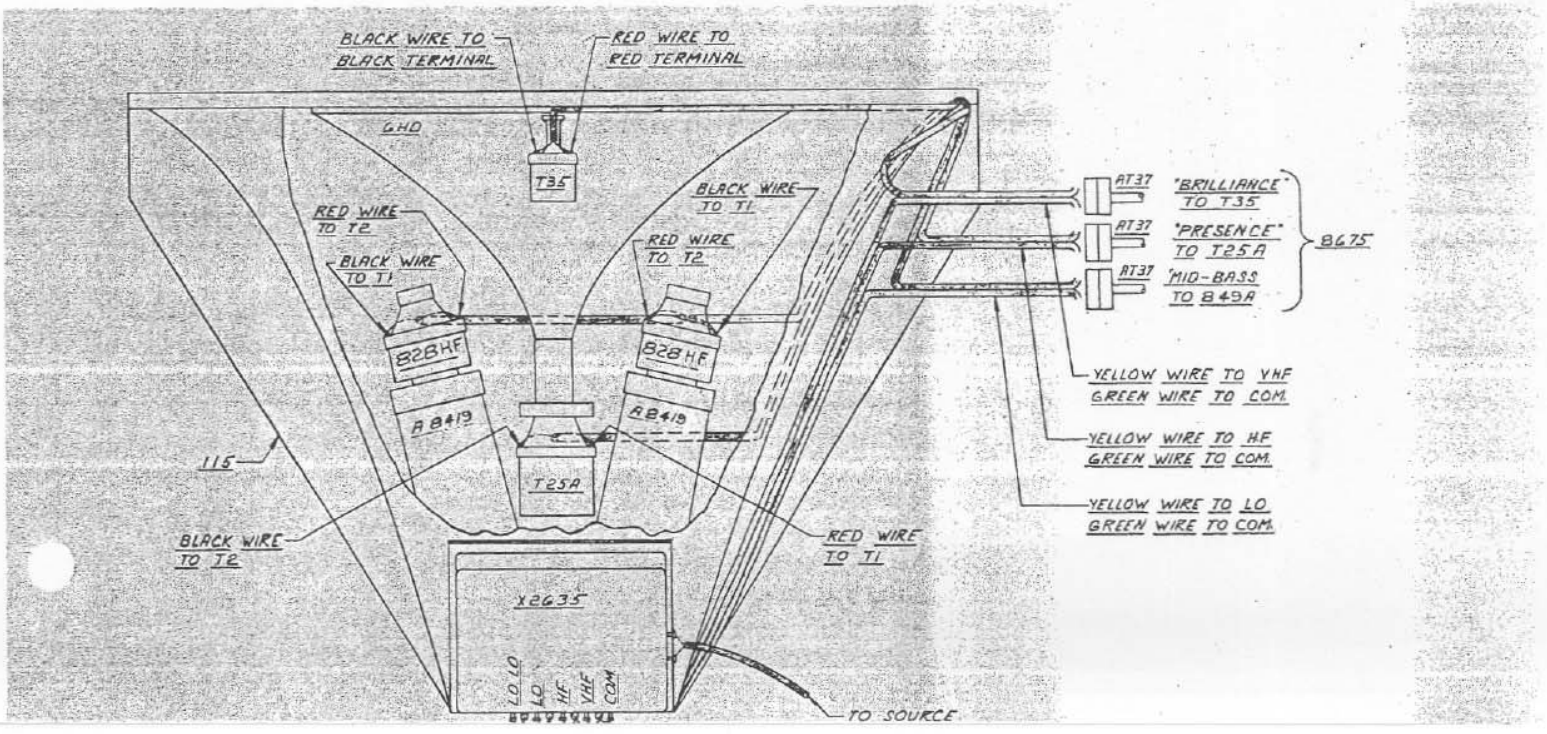


Fig. 32 — Four speakers nest compactly inside the 200 cycle horn.



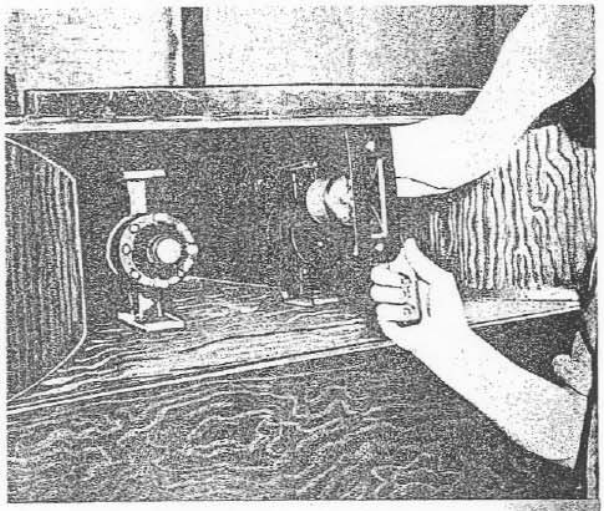


Fig. 33 — Installing T35.

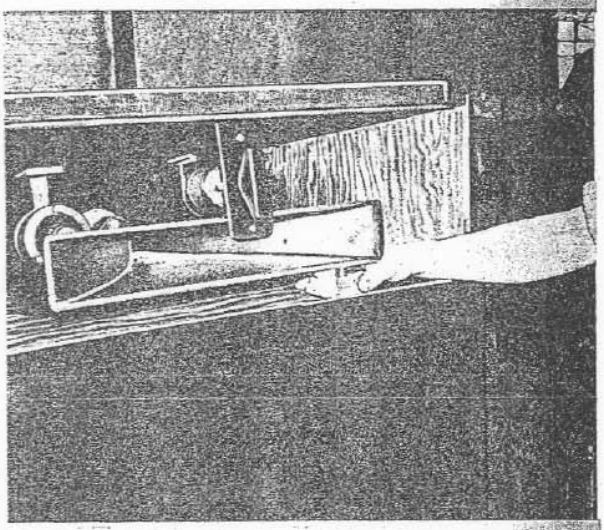


Fig. 34 — Installing T25A Treble Driver and 6HD Horn.

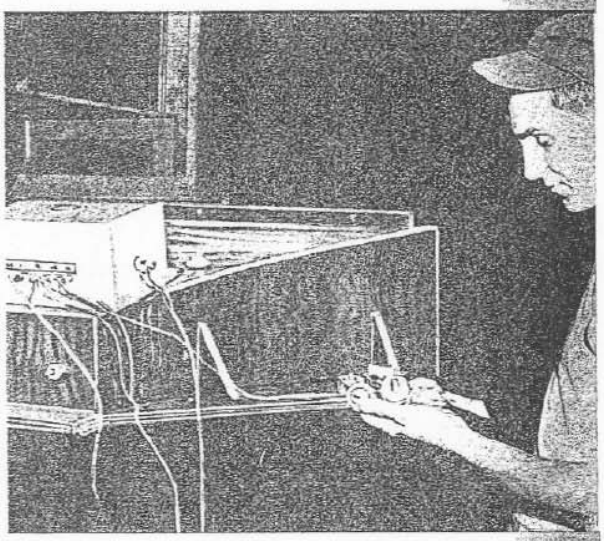


Fig. 35 — Checking controls.

step 8

If the drivers have been connected as described, all units will be phased properly. Connect the output terminals on the X2635 crossover network as follows:

1. Splice the black wire from the 18WK with the three green wires from the high frequency drivers and connect them to the terminal marked "COM" or "Common".
2. Connect the yellow wire from the T35 *Brilliance* control (AT37) to the terminal marked "VHF".
3. Connect the yellow wire from the T25A *Presence* control (AT37) to the terminal marked "HF".
4. Connect the yellow wire from the 828HF *Mid-Bass* control (AT37) to the terminal marked "LO".
5. Connect the red wire from the 18WK to the terminal marked "LO-LO".
6. The terminals marked "IN" should be connected to the 16-ohm output of the amplifier.

preparation for operation

The lead wires to the amplifier should be #18 fixture wire up to 20 or 30 feet; for longer lead lengths, use #16 two-conductor cable. If the unit is connected to a Williamson-type amplifier, capacity between long leads may induce oscillation, resulting in instability and distortion. The remedy is to separate the two wires by an inch or so, or to use television twin-lead.

A high-quality amplifier with damping factor of 10 or more should be employed. If the amplifier has a variable damping factor, it should be set at maximum, although no qualitative difference will be observed past a setting of 10.

testing

If the unit has been wired according to the instructions provided, it is ready for operation. If an audio oscillator is available, the following confirming check may be performed:

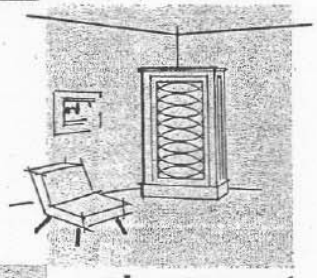
Feed the test oscillator into an unequalized, high-impedance amplifier input. Do not use a magnetic preamp connection. With the signal at a comfortable level, select the frequency of 200 cps. If the 828HF drivers are properly connected and in phase with the 18WK VLF driver, the level will just barely diminish at this frequency (down 3 db) as the MID-BASS control is turned counter-clockwise. If they are not connected in phase, the level will *increase* appreciably.

Select 600 cps as the next point on the oscillator and repeat this test for proper connection of the T25A-6HD assembly. The same effect will be observed as in the previous test, and show proper phasing of the T25A to the 828HF drivers as the *PRESENCE* control is raised or lowered.

Because of the short wavelength of sounds radiated, phasing is of little importance for the T35 driver.

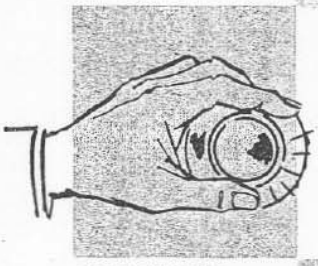
If the sound radiated by the driver in question does not decrease as its attenuator is turned down, a reversal of connections will bring the unit into phase.

OPERATING INSTRUCTIONS



placement

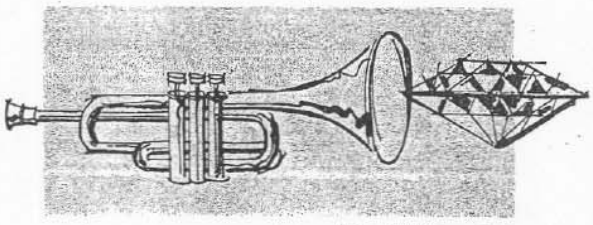
PLACEMENT—The 103C-115 assembly will function in an optimum manner only when operated in a corner. Closely situated chairs and objects affect the operation of the bass section only if their size is very large, so that they form an appreciable portion of the wavelength of the low-frequency tones being emitted. For instance, the wavelength of a 30 cps tone is 111 inches, and an object 3 or 4 feet square must be actually blocking the side ports to affect radiation at this frequency. If furniture is kept 2 or 3 feet away from the sides of the unit, perfect radiation of all tones will be insured. An open window or door, several feet away, will cause little degradation of response.



controls

mid-bass

presence

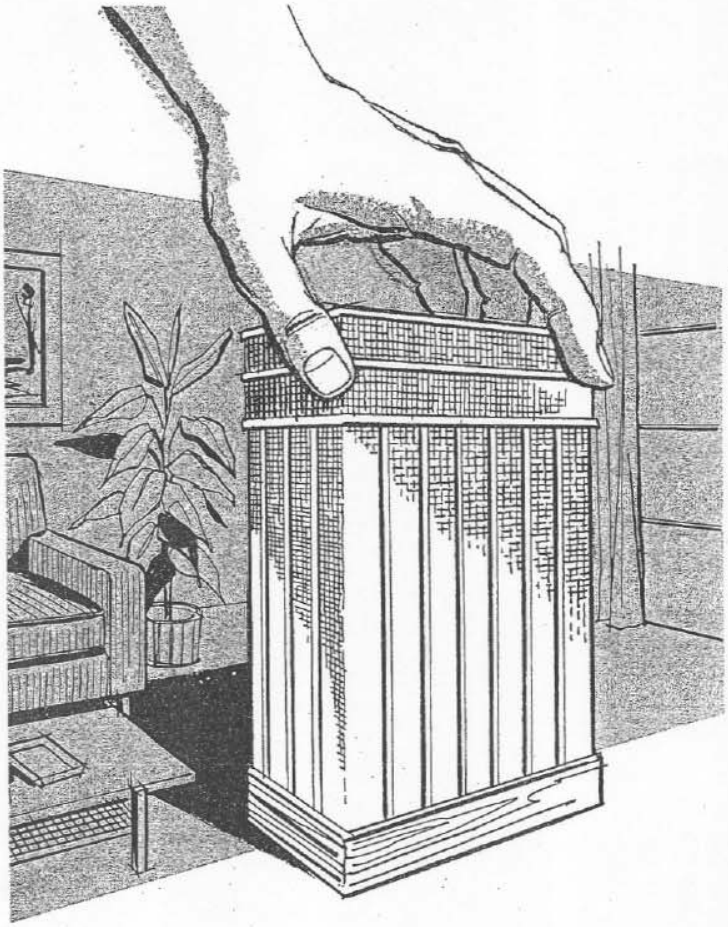


brilliance

SETTING THE CONTROLS—The three level controls allow complete balancing to any acoustical environment. The controls are continuously variable, insuring optimum adjustment to all tastes. While playing a comprehensive orchestral selection, set the MID-BASS control to maximum, and the PRESENCE and BRILLIANCE to ½ rotation. This will be a pleasing setting for a large living room with hard walls and few drapes and rugs. If the room is average in size (about 14 by 20 feet), advance the PRESENCE control to about ¾ rotation. This will require a readjustment of the BRILLIANCE control for good musical balance, so advance this control slightly while listening to various passages in the music. If the source material is clean and wide range, the point of balance will be definite, the higher tones will suddenly fall into place, and there will be little doubt that the proper setting has been achieved. In heavily draped rooms the setting may be as high as 9 or 0, but only in extreme cases.

Ordinarily, the MID-BASS control is operated fully clockwise, at a setting of 0. But over long periods of listening, engineers and others engaged in recording and music monitoring, have found that a decrease in the energy in this part of the spectrum vastly lessens listener fatigue. The user should set this control to conform to his own listening habits, but probably never lower than a setting of 5.

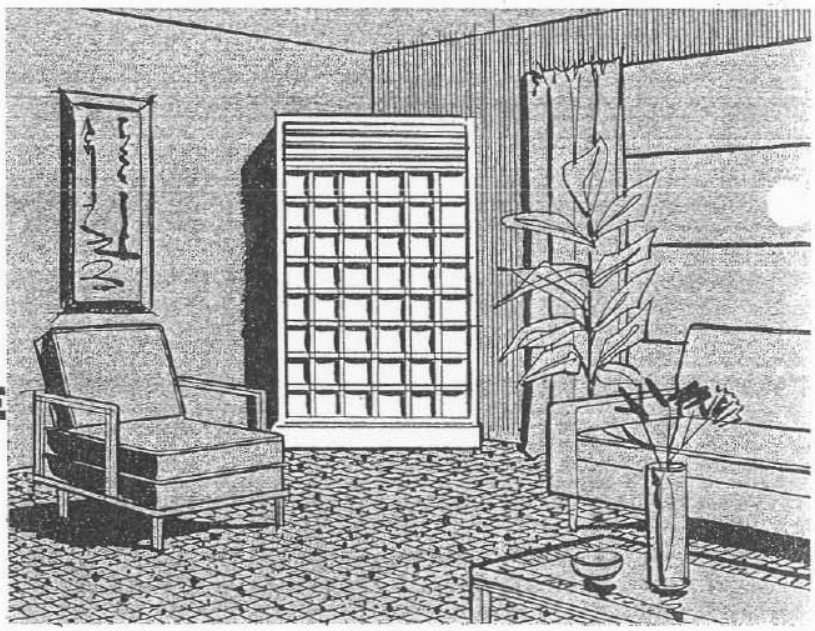
Once set, the controls need never be touched except for an unusual record with poor musical balance, or a badly worn record which requires lowering of the BRILLIANCE setting to subdue scratch.



To you and me, the Patrician enclosure is beautiful, a work of art, a means to an end. But to friends, neighbors and even members of the family the reaction may be 'Now that you have it waddaya gonna do with it?' That is highly unimaginative thinking, but alas, very close at hand.

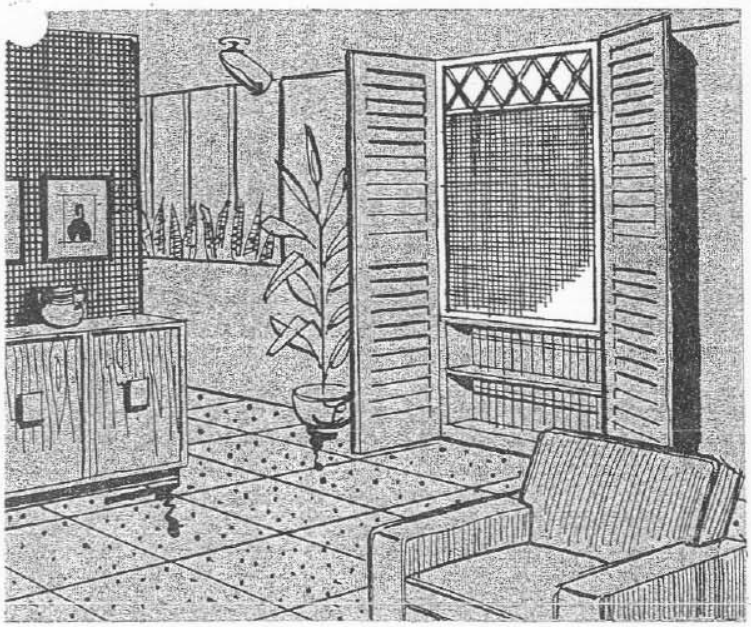
As it stands, the enclosure has all the radiant appeal of a piano crate, but dressed up, it can surpass the piano for elegance. Ideas for cabinets are yours, all yours, because if they were not, you would have made selection Four. Because they are all your ideas, and confidential brain children at that, we will not trespass. If, on the other hand, the Patrician is to be blended into the landscape here are a few suggestions.

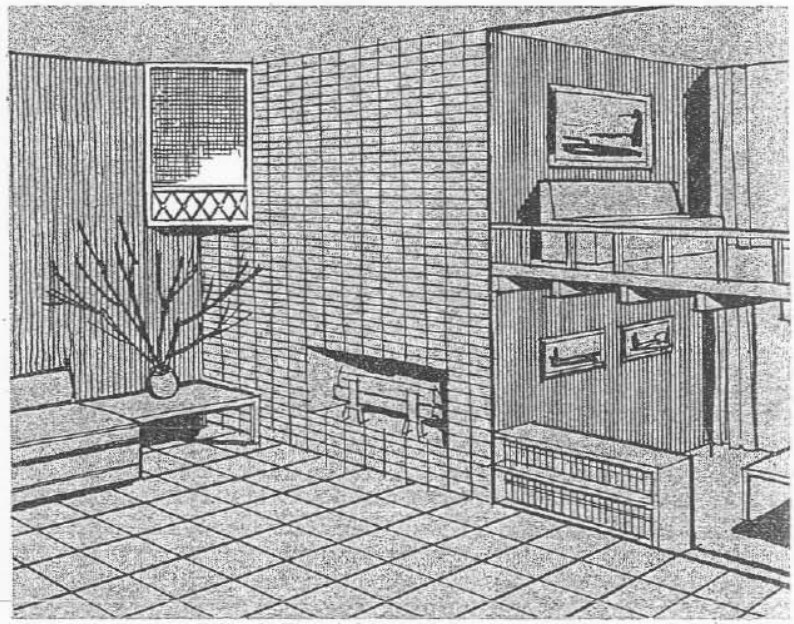
FITTING THE PATRICIAN IV INTO THE PICTURE



CORNER PLACEMENT

In the good old days when men carried rifles, axes and blanket packs as items of wearing apparel, the corner was the logical place to dispose of such garments when entering a room. To discourage this practice, the good wife made certain each and every corner was well graced with a cupboard, what-not or at least a spinning wheel, so the idea grew and hung on. Today people instinctively expect to find the room corners occupied, and nobody questions the presence of a built-in Patrician. If it blends into the scheme of things it can be modern, colonial, Georgian, Gothic or Grand Rapids. The only point being that it must look as if it belonged there.





EXIT BLOCK

Up till recently it was customary to build houses with three or more entrances into each room, including the bath. Modern taste frowns upon such a traffic pattern and road blocks in the form of partitions became popular. A Patrician can be built into one of these otherwise non-useful barriers. The front side couples into the hi-fi room, the back becomes a storage wall with most of the space already spoken for. If you have an abundance of closets the same idea applies. Additional horn area can be obtained by mounting swinging doors which open into horn extensions, and are folded flat on silent night. The efficiency of the Patrician is so high anyway, you will lose only the effect of the lowest of the deeper notes by abridging the room section entirely.

BALCONY SCENE

This is not practical in low ceilinged living rooms, but for clubs, restaurants, auditoriums and the larger houses where there is plenty of overhead area going to waste, the Patrician enclosure can be mounted UPSIDE DOWN in the corner *and at the ceiling* so the 200 cycle horn comes at ear level. This leaves the floor area free and actually gives better tone quality because wall area near the ceiling is usually unoccupied.

BOILER ROOM COUPLING

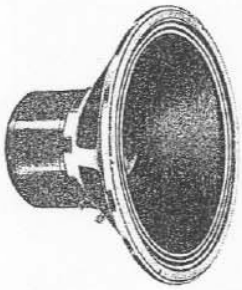
Many of the newer homes do not have room in the parlor for a Patrician so the sound can be 'piped' in from below. The use of gas and oil for fuel has liberated the old coal bin and today basements are the roomiest areas in the house. The two units are separated, and the bass horn laid on its side in the basement, or hung close under the parlor floor, depending upon home construction and dampness. Only one side of the horn is coupled, but by doubling the trumpet area it can be fed through into the 'window seat' with ample volume and excellent quality. The 200 cycle horn is built into the window seat.

SECOND STORY MANIPULATING

The same deal applies to basementless homes which have sealed off attics or unfinished upstairs rooms, Here the bass horn feeds down through a grill at the edge of the ceiling. There is no bottom to a deal like this as the entire house can be brought into the act or even designed around the bass horn.

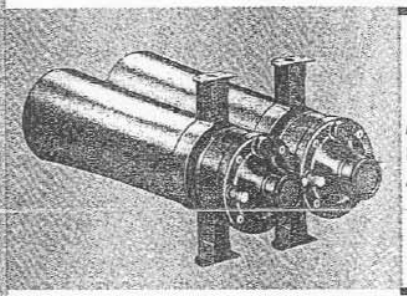
All of which boils down to what was said at the beginning of the book. When you build a Patrician, you start something. When it is all dressed up and looking pretty it becomes a cherished item in the household. An evening of listening to their favorite music will overcome the resistance of friends and family, and they will thank you for bringing them the means to so much enjoyment. Now—through the years to come—just sit back and LISTEN!

DRIVER COMPONENTS FOR THE PATRICIAN IV HIGH-FIDELITY ENCLOSURE



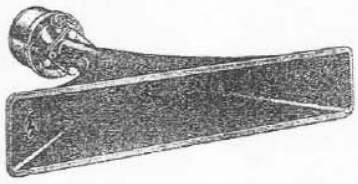
MODEL 18WK
LF DRIVER

LOW-BASS SECTION Employing the Klipsch principle of folder corner-horn loading, the new Patrician IV utilizes an 18-in. low-frequency driver, Model 18WK, housed in a "K" type reproducer scaled up 16⅔ percent. The taper rate has been extended to 35 cps. The first three octaves, to the first crossover point at 200 cps, are reproduced by a tremendous bass driving section . . . the largest, most highly developed ever designed for a home audio system. When the Patrician is placed in a corner, the folded throat of the bass horn becomes part of the entire room, allowing the large wave lengths of the second and the upper part of the first audible octave to be formed properly.



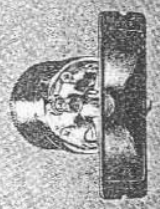
MODEL 828HF
DRIVERS WITH
A8419 HORNS

MID-BASS SECTION A separate horn employed as an indirect radiator with its two complementary Model 828HF driver units takes over for only the next 1½-octave range to 600 cps. Because no metal horn presently developed satisfactorily reproduces down to 200 cps, the horn load for the intermediate bass drivers is fabricated of wood and phenolic tubes. These are a part of the overall interior assembly.



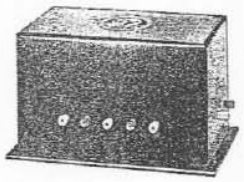
MODEL T25A
HF DRIVER
WITH MODEL
6HD HORN

TREBLE SECTION From 600 to 3,500 cps or the next 2½ octaves, the Electro-Voice Model T25A treble driver exhausts into a 600-cycle Model 6HD diffraction horn. This diffraction horn is the latest design and employs the principles of optical diffraction to disperse high frequencies uniformly, without the losses typical of cellular and lens type horns. Thus, the important "presence" range is assured of complete and proper transmission by this specialized driving unit. Other frequencies, not a part of this range, are completely excluded.



MODEL T35
VHF DRIVER

VERY-HIGH SECTION The range above 3,500 cps, extending beyond the range of hearing, is reproduced by the Model T35 Super-Sonax very-high-frequency driver. This driver, a recent Electro-Voice development, utilizes an integral diffraction horn. Through the Model T35, the remaining octaves of the upper audible register are completely accomplished with practically no measurable distortion.



MODEL X2635
CROSSOVER

CROSSOVER NETWORK To allocate the various portions of the spectral energy to the respective driver units, the Model X2635 crossover network divides the amplifier power into four separate portions, and eliminates upper harmonic and intermodulation distortion from one driver in the region covered by the next.

Electro-Voice

ELECTRO-VOICE, INC.
BUCHANAN, MICHIGAN