

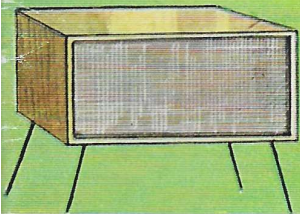
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# HI-FI

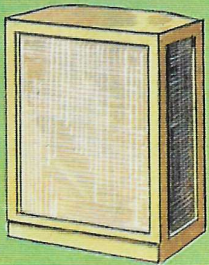
## SPEAKER SYSTEMS

### 18 SIMPLIFIED Jensen PLANS

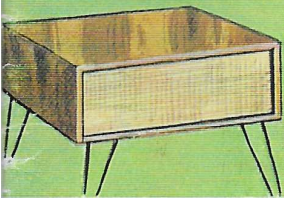
COMPLETE INSTRUCTIONS FOR BUILDING SELF CONTAINED OR BUILT-IN SINGLE SPEAKER AND 2-WAY & 3-WAY SPEAKER SYSTEMS; "DUETTE", BASS-ULTRAFLEX AND BACK-LOADING FOLDED HORN CABINETS. INCLUDES COMPLETE PARTS LISTS AND SPEAKER DATA FOR ALL TYPES OF ENCLOSURES.



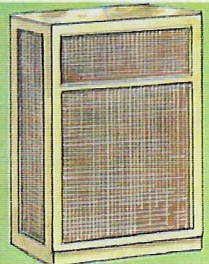
TREASURE CHEST



CONCERTO



TV-DUETTE



TRI-PLEX



IMPERIAL

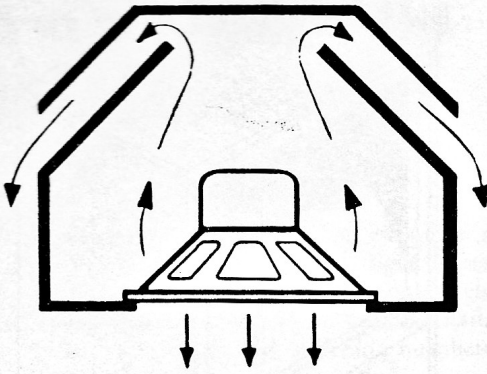
SELECT THE HI-FI SPEAKER SYSTEM THAT FITS YOUR BUDGET AND SPACE FROM THE PLANS IN THIS MANUAL. HAVE FUN AND SAVE BY BUILDING OR BUILDING-IN YOUR OWN CABINET. COMPLETE YOUR SYSTEM WITH AN EASY TO INSTALL JENSEN AUTHENTIC HIGH FIDELITY SPEAKER KIT.

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**HIGH-FIDELITY**  
"DO-IT-YOURSELF" DESIGNS

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JENSEN LOUDSPEAKERS —  
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PRICE  
**50c**

# A BASS ULTRAFLEX ENCLOSURE FOR 15-INCH SPEAKERS



The BASS ULTRAFLEX\* enclosure is a unique Jensen design in which the loudspeaker is attached to the front panel in orthodox fashion but in which the radiation from the back of the speaker is coupled by a large air chamber through ducts or channels to the outside. It can be termed a duct-loaded bass reflex enclosure since the operation is similar but with ducts connecting the opening ports to the inner chamber. These ducts give certain design advantage available in no other way.

Not to be confused with a folded horn this Bass Ultraflex design for 15-inch speakers is suitable for corner or sidewall. With performance superior to any design in a similar size, its use is indicated wherever a large folded horn such as the Jensen Imperial cannot be accommodated.

## BUILDING THE BASS ULTRAFLEX-15

For good results all joints must be accurately fitted and adequately glued and if not screwed, nailed securely with 2½-in. finishing nails. With the exception of the base and cleats ¾-in. plywood is used throughout.

Start by laying out the bottom of the cabinet which measures 17 x 24 in. Note that both rear corners of the bottom are cut off at a 45-deg. angle at a point 12 in. from the front. The bottom of the cabinet is ¾ in. smaller all around than the top to allow the sides, front and back to lap the edges of the bottom. Since panels A rest on top of the bottom, it is necessary to add ¾-in.-sq. filler blocks to the edges of the bottom as indicated in detail A. These filler blocks, which widen the bottom at these points, are glued and nailed to the bottom later. As with all parts, it is important that the bottom be cut out squarely since it must fit the sides, front and back tightly.

Next, cut the front for the cabinet. This measures 25½ in. wide and 35¼ in. high. This makes the front 1½ in. wider than the bottom to let the front lap the sides. The 13¼-in. speaker opening is centered in the front panel on a line 16¼ in. up from the bottom. This can be cut out nicely with a jigsaw or by hand with a keyhole saw. The bottom and front of the cabinet are now joined together, using glue and nails, and watching to see that the bottom sets in ¾ in. on each side and flush with the bottom edge. Brace the two parts temporarily to hold them at right angles.

Next, the sides are added. These measure 8¼ in. wide and 35¼ in. high; the rear edge of each is beveled 45 deg. Note the two control-mounting holes in the right-hand side near the top as shown in the detail. The sides are glued and nailed securely to the edges of both the bottom and front members of the cabinet. Note that a 1 x 2 cleat is glued and screwed to the front panel on the inside 10 in. down from the top. This cleat adds additional rigidity to the front. Another cleat, 1 x 1-in. sq., is screwed and glued across the top of the front on the inside; this is used to help fasten the top of the cabinet.

\*TM Registered, Jensen Mfg. Co.

At this stage the filler blocks are added to the rear corners of the bottom. You'll notice that the ends of the blocks are cut 45-deg. so they will match the 45-deg. bevel on the sides as well as the angular shape of the bottom. Use glue and nails to attach the blocks. Panels A are fitted next. These are cut ¾ in. shorter than the sides since they rest on top of the bottom. One edge of each panel is beveled 45 deg. Note that a 1 x 1-in. cleat is used to fasten each panel to the bottom of the cabinet. These cleats are placed at a 45-deg. angle on a line even with the beveled edge of the sides. The panels are glued and nailed to the beveled edges of the sides and then screwed to the cleats previously screwed to the bottom of the cabinet. Next, three ¾-in. thick spacer blocks 1-15/16 in. wide are cut to the shape shown and glued to the rear faces of panels A. These blocks, besides adding rigidity to panels A and B, help support the removable back of the cabinet. Detail B shows the approximate locations of the blocks.

Panels B are added next. These are cut 8¼ in. wide, and since they lap the edges of the bottom, they are made 35¼ in. high like the sides and front. Both panels are beveled 45 deg. along the outer edge. Panels B are fastened to the edges of the bottom and to the spacer blocks. The two panels, A and B, now form a sound passage 1-15/16 in. wide at each side of the cabinet. The top of the cabinet is cut to be even with the outside all around; nail and glue down into the edges of the plywood.

The back panel is fastened in place with screws so it may be removed easily. Note how the vertical edges are beveled 45 deg. for snug fit against the square edges of panels B. Note too that the beveled edges are faced with a strip of sponge rubber to assure a tight seal when the screws are drawn tight. A 1 x 1-in. cleat, angle-cut 45 deg. at the ends, is placed across the back of the cabinet at the top. This cleat is glued and screwed securely to the underside of the top, ¾ in. in from the edge, and provides a place for driving the screws that hold the back panel to the top.

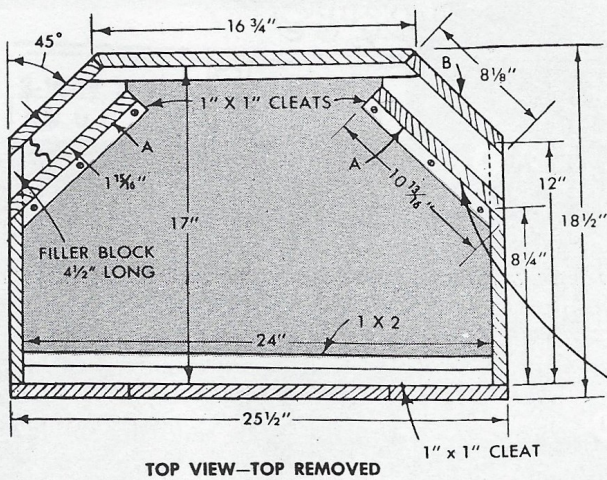
Although optional, the set-back base adds a finished look to the cabinet; it consists of three pieces of 2 x 2 material (actually 1⅞ in. sq.) mitered at the corners; the base sets in ¾ in. at front and sides. All exposed nail and screw heads can be sunk slightly below the surface and puttied over to conceal them. Add 1-in. thick absorption material to top and bottom as shown; jute rug padding or dense fiberglass board are recommended.

### MATERIAL LIST

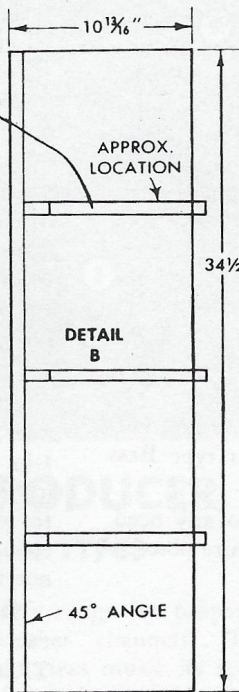
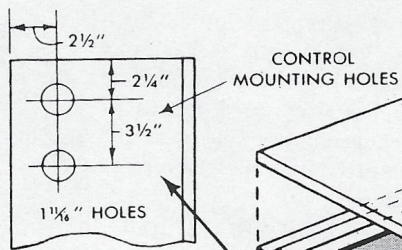
#### BASS ULTRAFLEX-15 ENCLOSURE FREE STANDING TYPE FOR CORNER OR SIDEWALL

¾-in. Plywood		
1	25-1/2 x 35-1/4	Front
1	17 x 24	Bottom
1	18-1/2 x 25-1/2	Top
2	8-1/4 x 35-1/4	Sides
2	10-13/16 x 34-1/2	Panels A
2	8-1/8 x 35-1/4	Panels B
1	16-3/4 x 35-1/4	Back
Lumber		
1-	1-5/8 x 1-5/8 x 48	Base
1	1 x 1 x 66	Cleats
1	1 x 2 x 96	Cleats

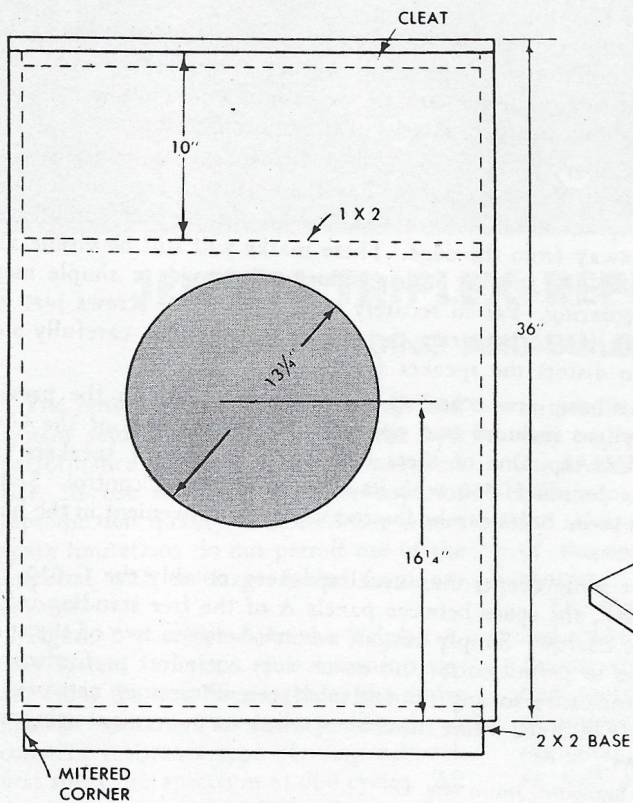
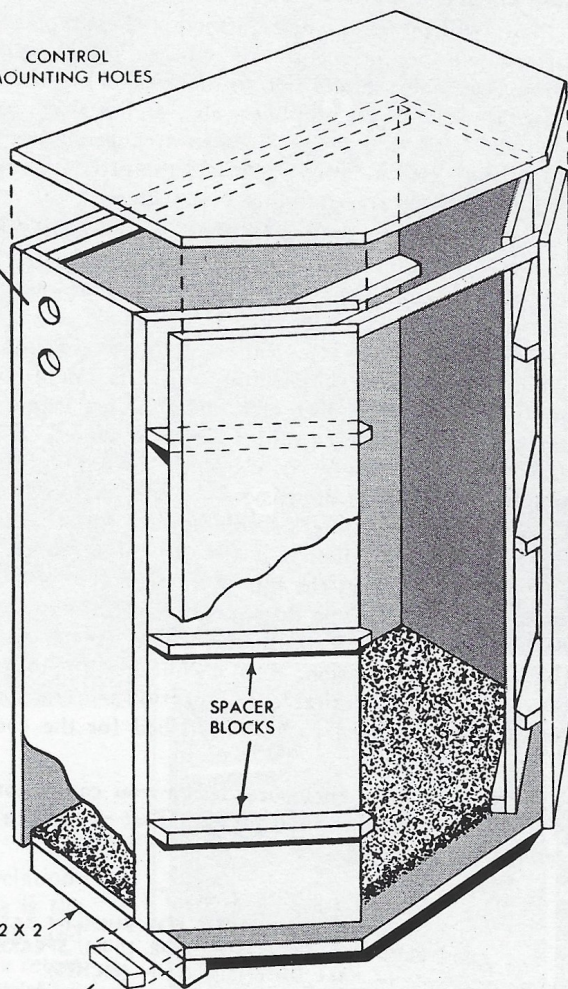
All dimensions in inches.



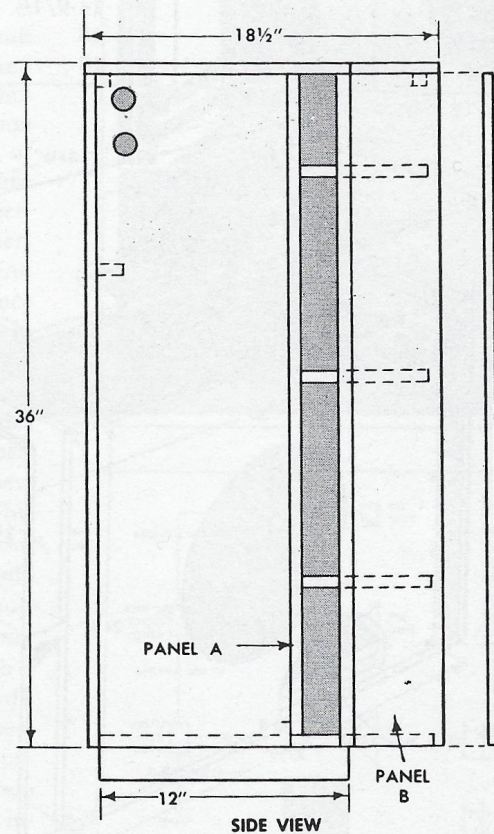
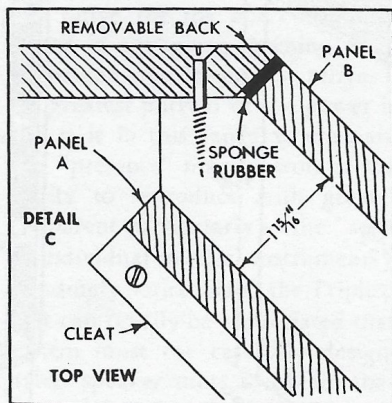
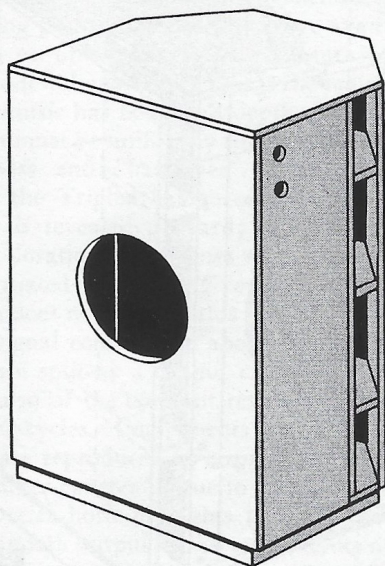
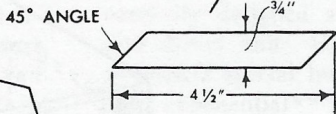
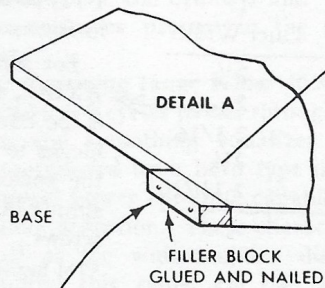
TOP VIEW-TOP REMOVED



PANEL A



FRONT VIEW



## BUILD-IN FORMS OF THE BASS ULTRAFLEX-15

Many will prefer the more orthodox chest type enclosure. Such a form will permit integration into a "music wall"; that is, a group of cabinets in addition to the speaker enclosure for housing tuner, record player, amplifier, etc., and perhaps with record or book shelf space as well. Such an arrangement is shown at the top of the next column. Obviously the orthodox chest forms are also excellent as free-standing pieces as well.

Figure 1 shows a horizontal chest version of the Bass Ultraflex enclosure. Assembly procedure is evident from the drawing as is the various panel sizes. The front baffle is shown removable for easy access when the cabinet is built in. Figure 2 shows an upright form of the Bass Ultraflex. It is now evident that the particular shape is not important. What is important is the total interior volume, the duct area and the duct length. The following table shows several values for the various dimensions of this basic type of enclosure. If one of these does not meet your needs simply choose inside dimensions for height A, width B and depth C so that the total interior volume  $A \times B \times C$  equals 13,300 cu. in. Since the duct height is the cabinet height A, calculate the duct width D so that the total duct area (two ducts)  $2 \times A \times D$  equals 134 sq. in. The duct length must always be 8". It is not desirable to choose any one dimension greater than three times the smallest dimension; this encourages organ pipe resonance effects that are undesirable. Absorption material on top and bottom is recommended just as described for the corner type Bass Ultraflex.

Here then is an enclosure design you can tailor to any need. You can build it into that antique chest or fine-furniture obsolete radio console cabinet.

TABLE I  
TYPICAL DIMENSIONS FOR BUILD-IN BASS  
ULTRAFLEX ENCLOSURE FOR 15-IN. SPEAKERS  
(ALL DIMENSIONS IN INCHES)

A Height	B Width	C Depth	D Duct Width
24½	33	16¼	2¾
33	24½	16¼	2
30¼	30¼	14-9/16	2-3/16
31½	24	18	2⅛
24	31½	18	2-13/16

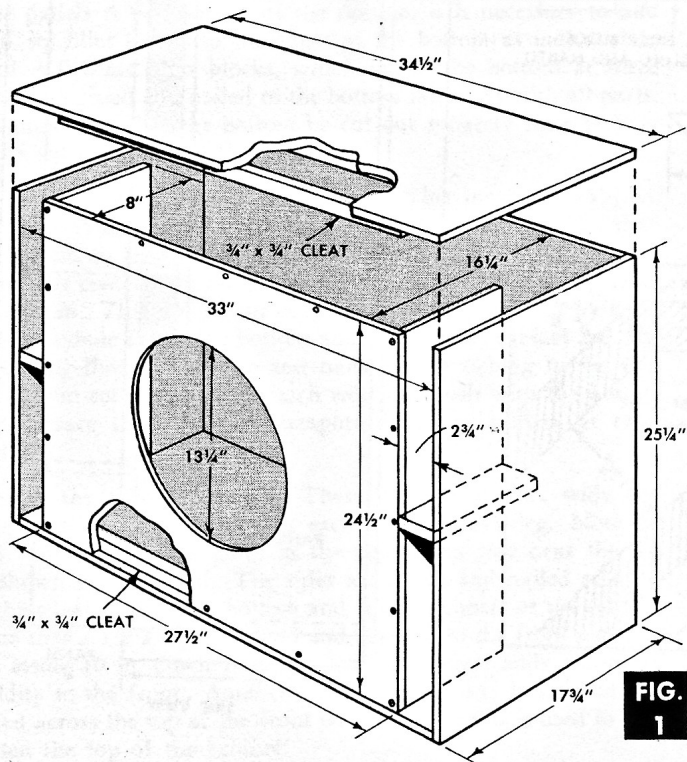
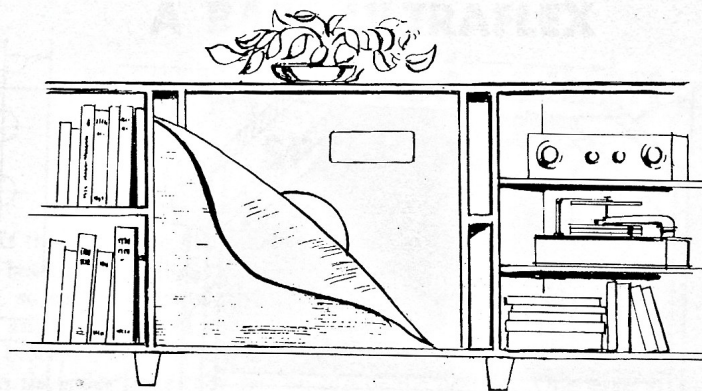


FIG. 1



## INSTALLING SPEAKER UNITS

These Bass Ultraflex designs are ideally suited for the Jensen G-610 TRIAXIAL\*, a 15-inch 3-way unitary assembly, and the Jensen H-530 coaxial, an outstanding 2-way speaker. Considerable cost saving results by adopting other coaxial units some with direct radiator h-f units. Still further savings are possible with a good single radiator unit of the extended range type with some further sacrifice particularly in the upper register.

The above units or any 15-inch loudspeaker units are attached directly to the front panel. Lay the enclosure face down on the floor; place about four marks around the speaker cutout about 1-in. away from the edge. These marks will still be visible after lowering the speaker into position and provide a simple means for centering. Fasten securely with R.H. wood screws just long enough not to penetrate the front panel; tighten carefully so as not to distort the speaker frame.

The basic free standing enclosure described on the previous two pages includes two openings for the controls of the G-610 TRIAXIAL. One of these can be eliminated for speakers such as the Jensen H-530 with its single h-f balance control. Similar 1-11/16-in. holes can be located wherever convenient in the build-in forms.

For some deeper-than-usual speakers, notably the G-610 TRIAXIAL, the space between panels A of the free standing cabinet is too narrow. Simply cut out a notch between two of the spacer blocks to permit entry; this notch does not affect performance of the enclosure to any noticeable degree. Accessory networks are simply fastened inside the cabinet wherever convenient using wood screws.

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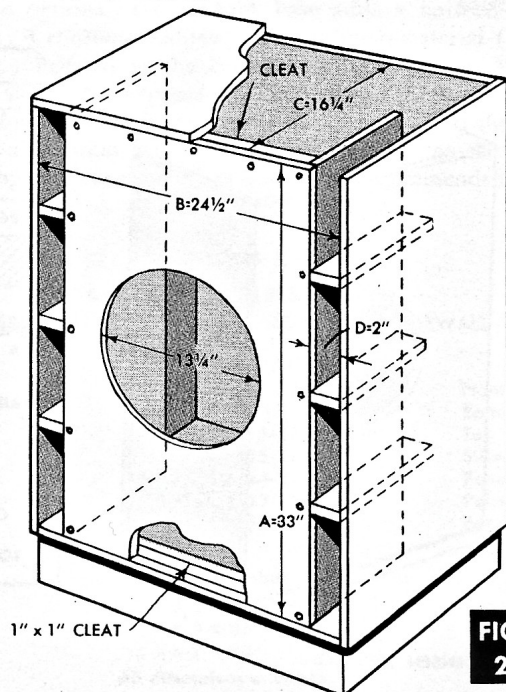


FIG. 2