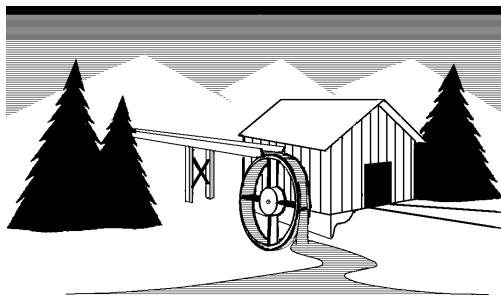


North Creek



Music Systems

**Catamount Revelator
Signature**

Loudspeaker Cabinet

**High Performance Loudspeaker System featuring
dual Scan Speak 15W/8530K000SC Woofers and
D2905 Revelator tweeter in an aperiodic enclosure**

North Creek Music Systems

Catamount Revelator Signature Kit Contents

The woodworker's kit portion of this loudspeaker system was shipped in two cartons.

Carton #1 contains:

- (1) Instruction Package.
 - Cabinet Manual
 - Response Curves
 - The North Creek Cabinet Handbook
 - The North Creek Wiring Guide

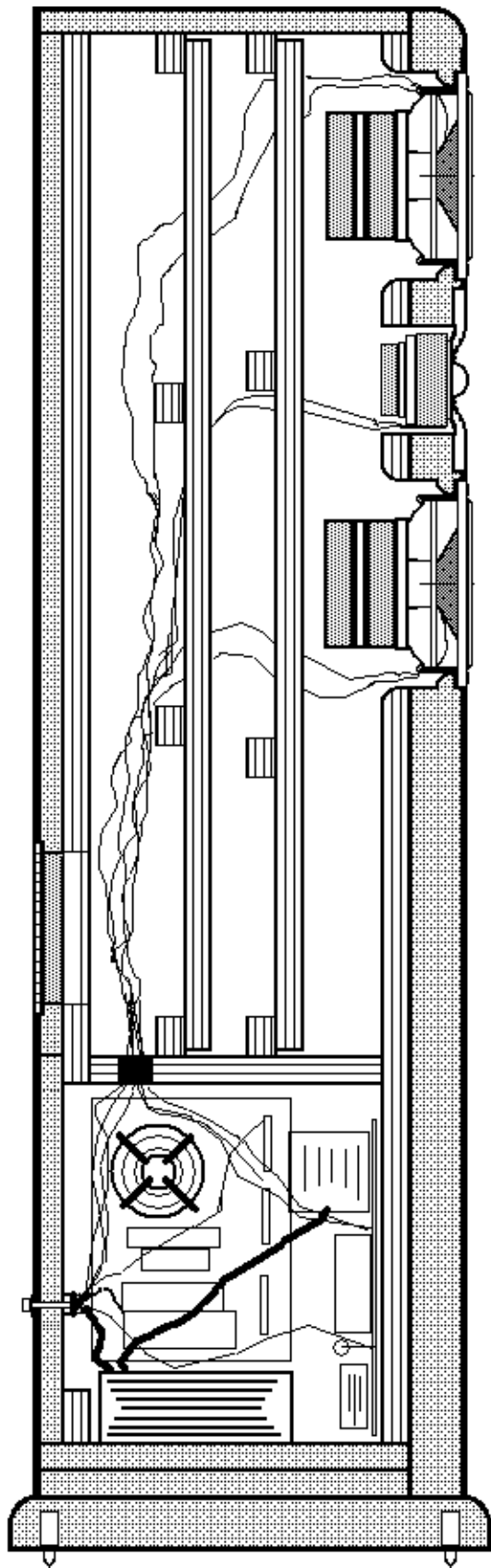
- (2) Liters of NCMS Soft Glue (USA only, not for Lee Taylor cabinets).
- (2) Scan Speak Scan-Vents with calibration felts.
- (2) 3" x 5" Flared Port Tubes.
- (150) Drinking Straws
- (2) Roll of 1/16" gasket tape.
- (40) #6-1" pan head black screws.
- (20) #6-1 5/8" flat head black screws.
- (12) #10-2" flat head deck screws.
- (2) Sets of Big as Texas Binding Posts.
- (1) Set of Big Toe Spikes.
- (1) Set of Very Big Toe Spikes.
- (1/3) Sheet of Gray Wool Felt (12" x 24" overall)

- (2) Woofer Crossovers.
- (2) Tweeter Crossovers

Carton #2 contains:

- (2) shielded Scan-Speak D2905/9900 Revelator Tweeters.
- (4) shielded Scan-Speak 15W/8530K-00SC Woofers.
- (3) 6 oz. Rolls of Dacron stuffing.

You will need to purchase a one-gallon tub of pre-mixed dry-wall compound and a tube of silicone sealant. These items should be available at your local garden shop.



Vision Signature Loudspeaker Cabinet

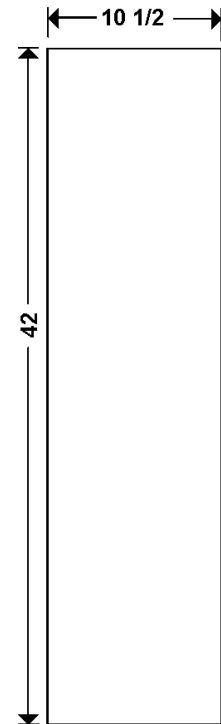
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The cabinet design is the intellectual property of North Creek Music Systems.

Sides

4 Pieces

3/4" MDF (may be pre-veneered)

10 1/2 x 42

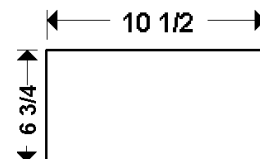


Top/Bottom

3/4" MDF

10 1/2 x 6 3/4

6 Pieces

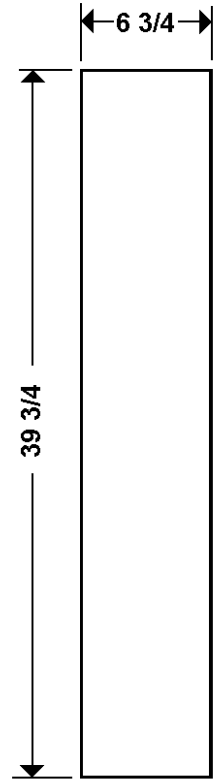


Inner Front, Inner Back

3/4" Plywood

6 3/4 x 39 3/4

4 pieces

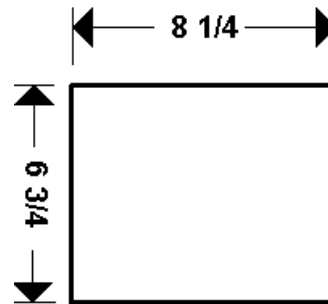


Horizontal Shelf Brace

3/4" plywood

6 3/4 x 8 1/4

2 Pieces

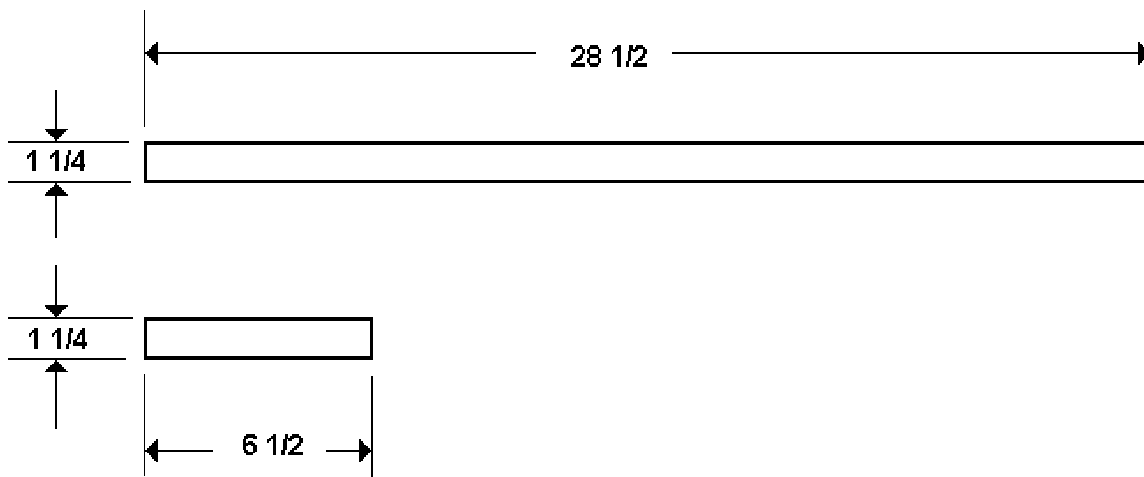


Ladder Braces

3/4" plywood

1 1/4 x 28 1/2 4 pieces

1 1/4 x 6 1/2 16 Pieces

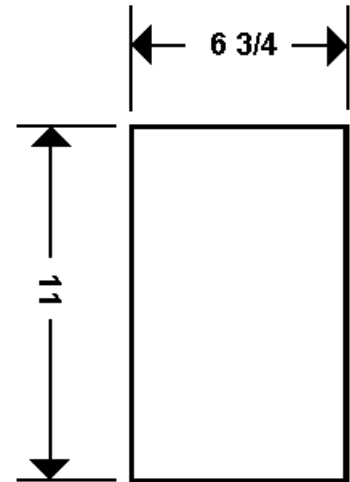


Lower Back Cover

3/4" MDF

6 3/4 x 11

2 Pieces



Outside Upper Back

3/4" MDF

6 3/4 x 28 3/4

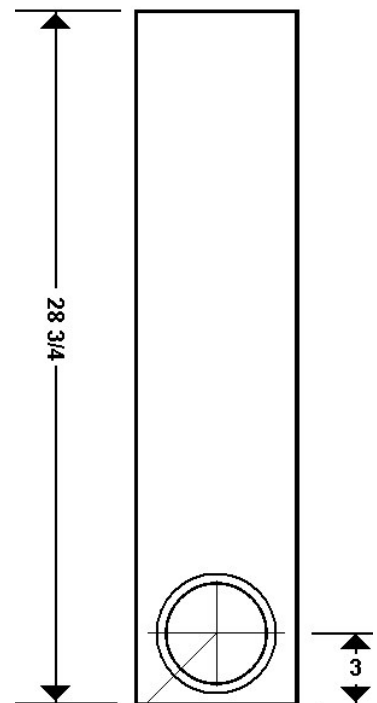
2 Pieces

Scan-Vent:

Countersink

5 1/8 x 3/16 depth;

Through 4 3/8



DIAMETER:
Countersink 5 1/8 x 3/16 depth
Through 4 3/8

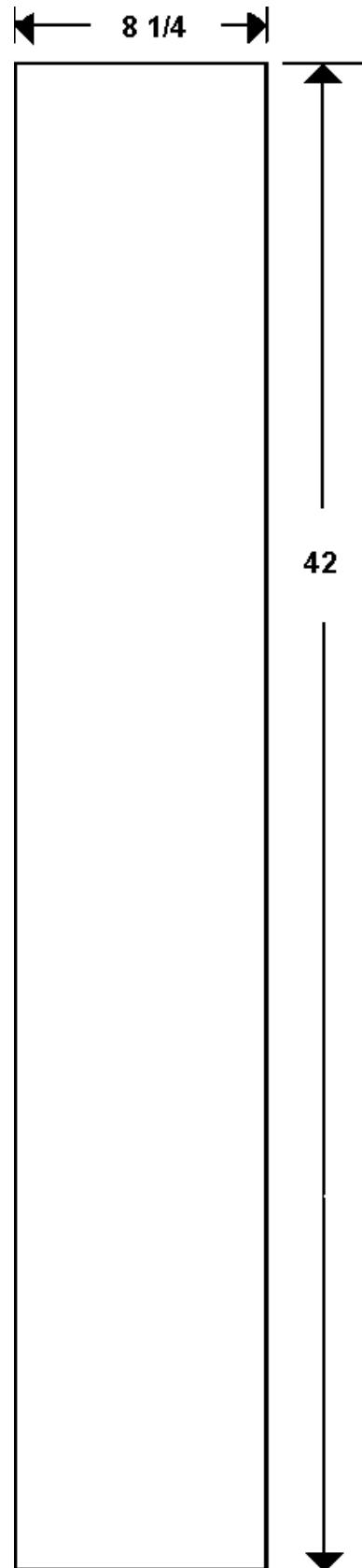
Fascia

1½" MDF (may be double ¾", laminated)
If laminating, use a hard glue such as Titebond.

or Solid Hardwood

8 ¼ x 42

2 pieces (4 if using ¾" MDF)



Plinth and Plinth Detail

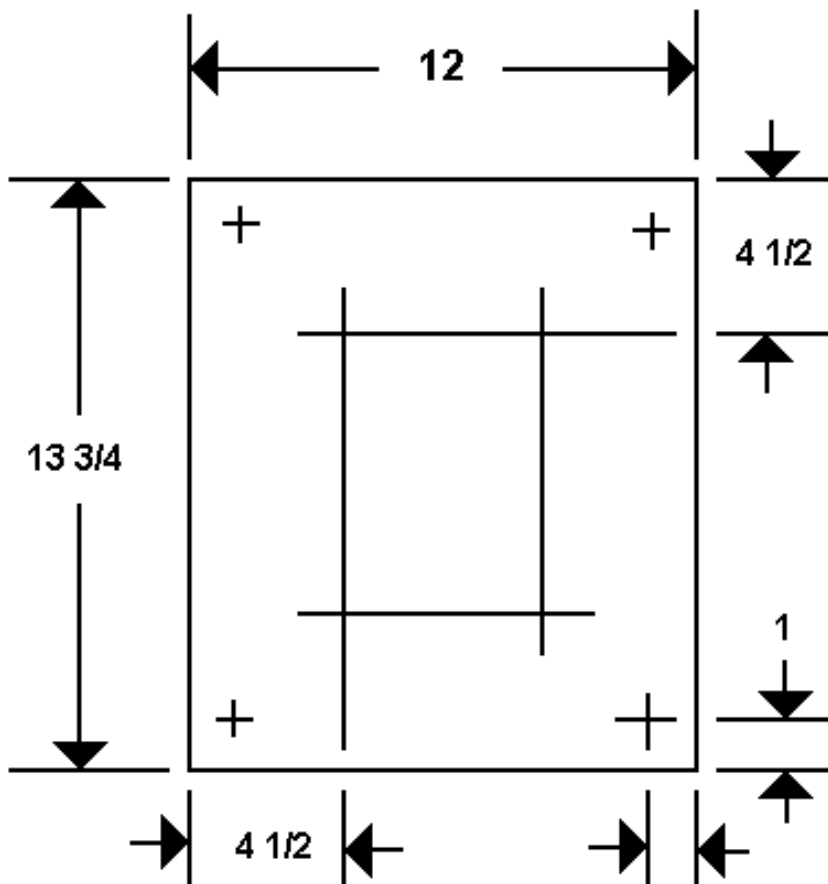
3/4" MDF

12 x 13 3/4

4 Pieces (laminated)

Spike holes are on the outside corners, 1/2" diameter, 1" deep. Spike inserts are installed with a 10 mm hex drive.

Four holes to attach to the bottom of the cabinet take #10 - 2" deck screws.



Fascia Detail

Fascia: Material is 1 1/2" MDF, cut 8 1/4 x 42 and rounded over 1" on the front side edges.

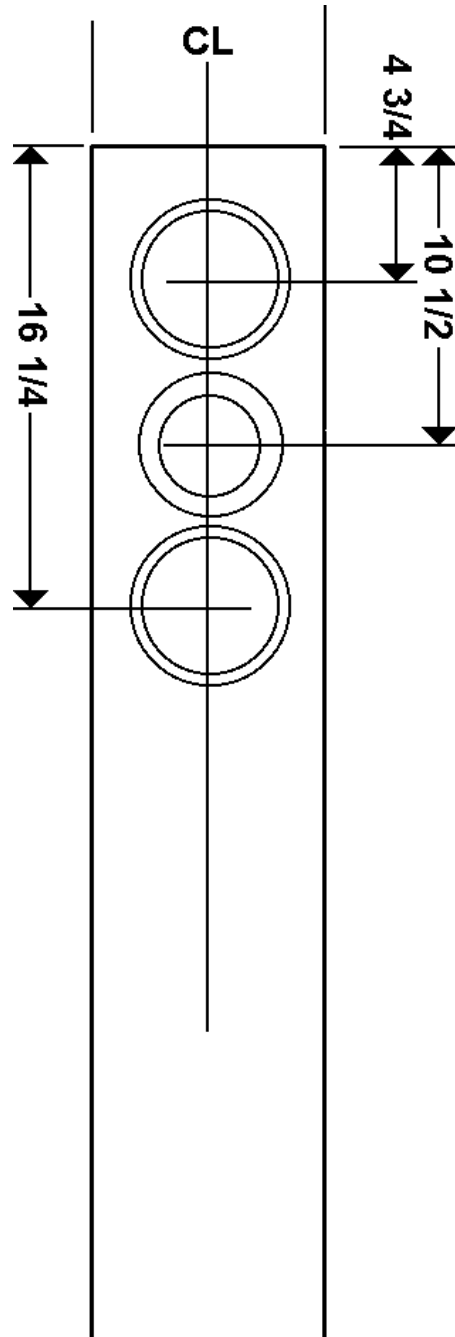
It is much easier to lay out the driver and screw hole positions before this piece is machined. The woofer screw holes need to be drilled at a slight angle for the screws to bite fully.

Cut Outs:

See the detailed drawing below for flare information

Scan-Speak 15W-8530K00SC:
Countersink diameter 5 13/16",
depth 7/32", through 5"

Scan-Speak D29/9900:
Countersink diameter 5 1/8",
depth = 7/32", through 3 1/2".

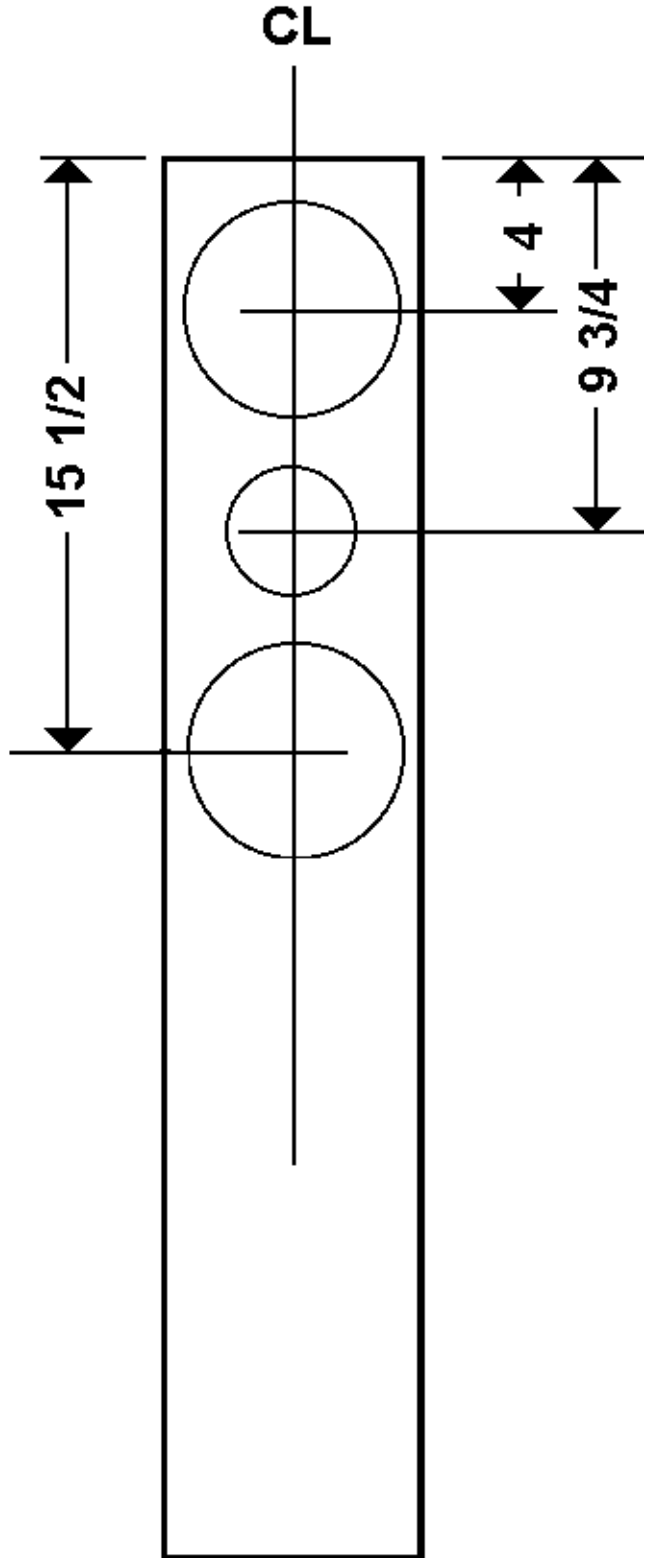


Inner Front Detail

Cut Outs:

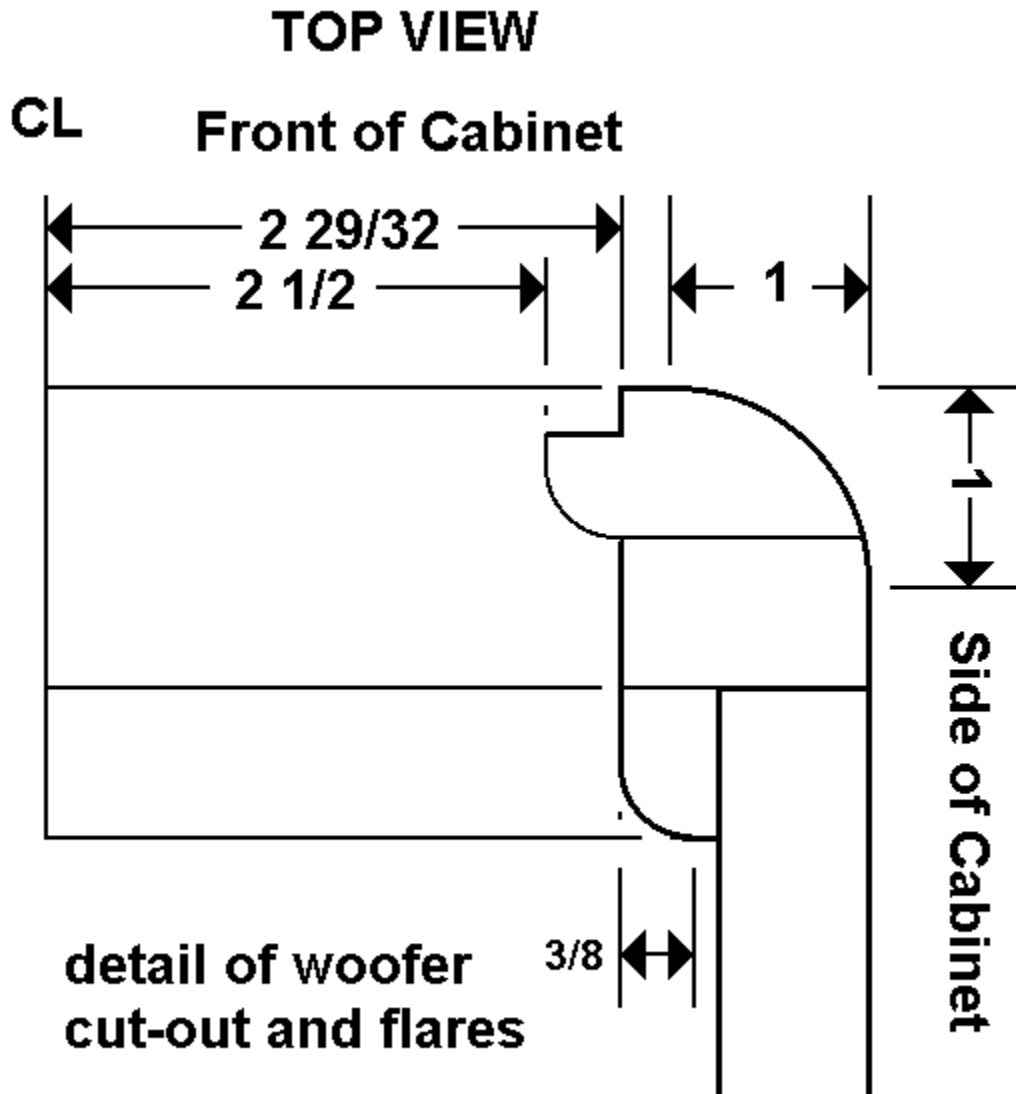
Scan-Speak 15W-853000SC: through diameter $5 \frac{3}{4}$ " , flared on the inside edge of the cabinet. The flare bit should be a quarter round of $\frac{3}{8}$ " radius. See below for a detailed drawing.

Scan-Speak D29/9900 through diameter $3 \frac{1}{2}$ ".



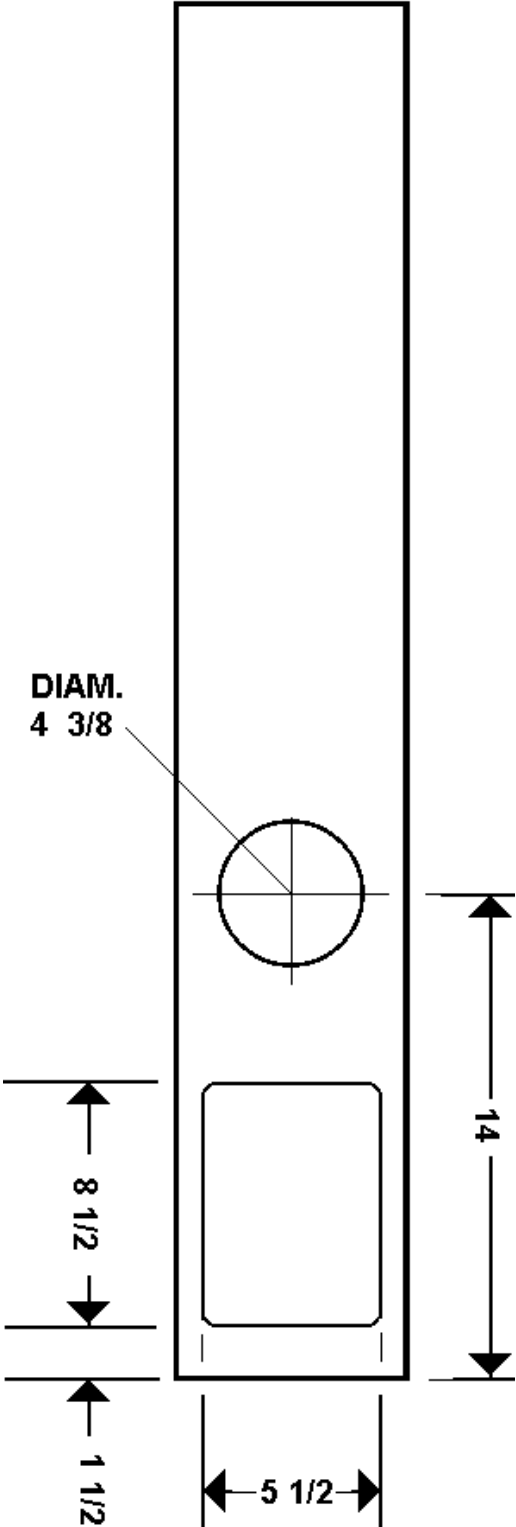
Driver Cut Out Close-Up Top View

Note that we suggest a "double flare" -
the first immediately behind the front edge of the driver,
the second as the inner front meets the cabinet.
The magnet is quite large and the double flare is required to allow the cone to breath.



Inner Back Detail

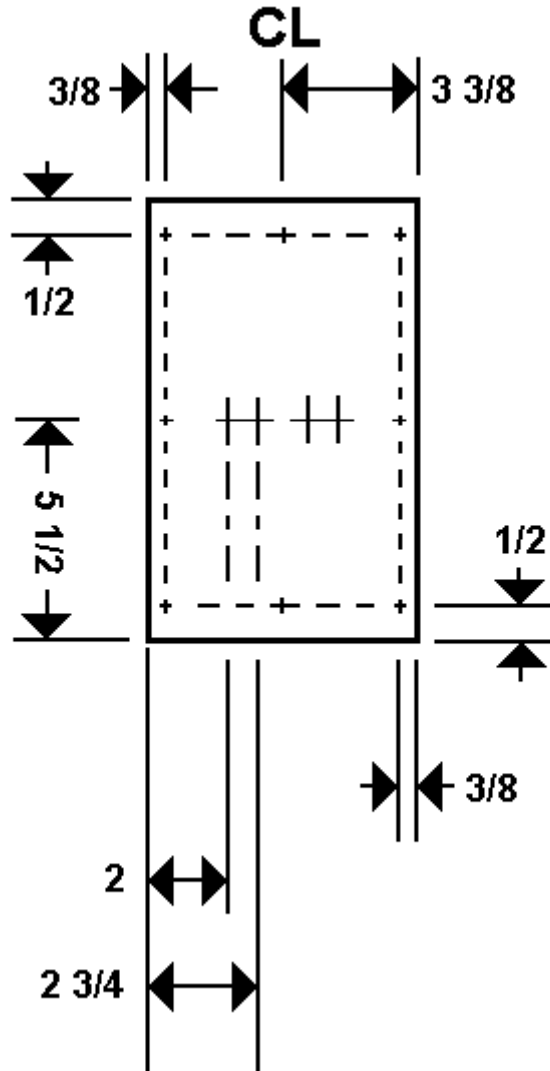
The cut outs are large enough to allow mounting of the crossover boards.



Lower Back Cover Detail

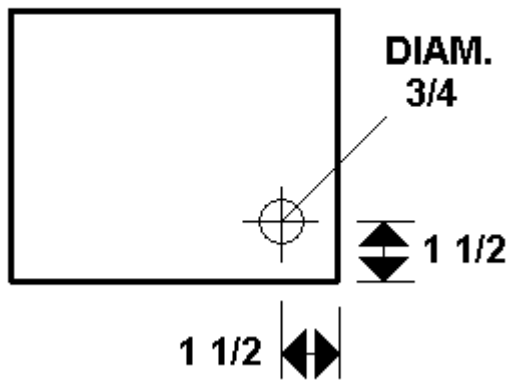
The holes along the edge are sized to accept #6 x 1 5/8" drywall screws.

The center holes are 9/32" to accept North Creek Texas Posts. Drill two holes for single wiring or four holes for bi-wiring.



Shelf Brace Detail

The through hole is 3/4" diameter



Cabinet Assembly

- 1) Pre-assemble all parts without glue, to view the cabinet inside, bracing structure, and test the fit.
- 2) Mark "FRONT" and "TOP" directions (and use arrows) on the inside of all panels. Use a large black marker.
- 3) Mark the ladder brace edge and corner distances from the front of the cabinet sides on the inside of all side panels. Make sure to leave enough room at the top edge for the top panel, and do not go too low or the ladder braces will be in the way of the shelf brace.
- 4) Begin the gluing process by laying up the inner back and outer back with North Creek Soft Glue. A few well placed 1" brads will assure the panels will not flow. Also, attach the ladder braces to the side panels with hard glue. They will try to move, so it is easiest to hold them in place by tacking them with a 1 3/4" or 2" brad.
- 5) Begin the main gluing process, starting with side/top/back. Break several hours between steps to allow the glue to dry. (Or use the "two drill method" outlined in the North Creek Cabinet Handbook.)
- 6) Gluing order is side/top/back, inner front, horizontal shelf brace bottom, side. It is easiest to install the cross braces with pinch clamps. See the drawing next page for the brace positions.
- 6) Test-fit the Lower Back Cover. It may need to be trimmed a touch to be a perfect fit.
- 7) Drill the pilot holes through the Lower Back Cover into the Inner Back. The pilot holes should be 1/8" for #6 - 1 5/8 drywall screws.

Advice

When pre-assembling, take your time to make sure the panels fit together perfectly. This usually means rotating and revolving panels until a set is reached that works just right. Label each panel carefully on the inside with a large black marker to assure the sets do not get mixed up during assembly.

Use a lot of glue. It's much easier to get the glue between the panels before they are glued together.

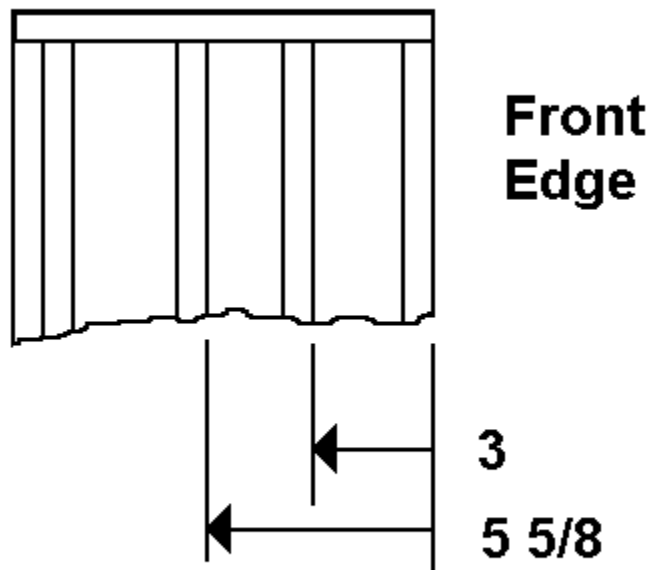
Remember, when clamped, panels tend to "flow" to relieve the pressure. An inexpensive air brad nailer and a variety of nails is invaluable in stabilizing the panels while they dry.

Pinch clamps for the cross braces are invaluable. To get pressure on the top or shelf brace, use scrap wood through the woofer holes with a long clamp to make a wedge.

Brace Positions

This detail is a side-view of the center of the cabinet.

The measurement is taken from the front edge of the cabinet, before the fascia is attached.



Glop Coating

This kit includes one 2 quart jug of NCMS Soft Glue. Roughly 1 quart of pre-mixed drywall "joint" compound is also required. The glop is required only inside the driver cavity.

1) In a large container, mix the remainder of soft glue with 3/4 liter of drywall compound. A wooden spoon or large wire whisk works well. If the mixture becomes too thick, add a maximum of 1/4 cup of water. Mix the glop about twice as long as you feel you need to; uniformity is the key. It should take about 5 minutes.

2) With the cabinet on its side, scoop the glop through the woofer holes, coat the cabinet side wall and press it on with your fingers. The glop is most effective away from the cabinet corners, so there is no need to twist and turn to cover the entire wall.

3) Allow a minimum of 48 hours for the glop to set (or aim a fan into the cabinet to accelerate the process)

4) Rotate the cabinet and repeat step (2).

Glop Advice

It is often easier to pile the glop with the spoon, then spread it with your fingers. The mixture is non-toxic and washes off with water.

Uniform coverage of the panel with glop is not required. Since glop has no effect near the cabinet corners, it is not necessary to go to extremes to coat them.

To speed up the drying process, one may aim a fan into the cabinet. The glop will skin and crack, but this does not change its performance and it will dry a lot faster.

Fascia Installation

The main cabinet and fascia should be finished separately.

The fascia should be filled, primed, and painted prior to attachment to the main cabinet.

1) Coat the rear of the fascia with a thin layer of NCMS Soft Glue, and lay it face down on top of a heavy plastic bag, on a smooth flat surface just slightly larger than the fascia.

2) Position the cabinet and clamp the cabinet to the surface below the fascia.

3) One may add a few 1 5/8" drywall screws though the inner front and into the fascia via the crossover chamber.

Plinth Installation

The plinth should be finished separately. The best results are by rounding, filling, and sanding smooth the top edged, then painting black.

- 1) Lay the cabinet on its back, resting on several slats of 3/4" material.
- 2) Position the plinth and drill pilot holes through the bottom of the plinth and into the bottom of the cabinet.
- 3) Remove the plinth and enlarge the pilot holes if necessary.
- 4) Attach the plinth to the cabinet with #10 by 2" deck screws.

Scan-Vent and Port Prep

It is best to start with the Scan-Vent with a single gray felt and the black rubber seal. This makes the an acoustic suspension system

- 1) Drill four small holes on opposite edges of the Scan-Vent.
- 2) Match the holes with flared port tube and drill matching holes through the port flange.

Woofer Crossover Installation

1) With the cabinet on its front, liberally coat the inside of the front with silicone or mastic adhesive. Place the woofer crossover board on the inside of the front of the cabinet such that the small red inductor is at the bottom. Let it dry several hours or overnight.

2) Feed the long red and black wires terminated with 1/4" quick connects through the upper 3/4" hole of the Shelf Brace and into the driver chamber

Make sure the black ring-connector termination is still free in the bottom of the cabinet.

Tweeter Crossover Installation

1) With the cabinet on its right side (as you face the front of the speaker), liberally coat the inside of the right side with silicone or mastic adhesive. Place the tweeter crossover onto the adhesive, with the large inductor as close to the shelf brace as possible. Let it dry several hours or overnight.

2) Feed the white and blue wires terminated with 110" gold quick connects through the lower 3/4" hole of the Vertical Divider and into the driver chamber

3) Seal the wiring and shelf brace with a liberal supply of silicone. Make sure there are no leaks - it is very important that this seal is tight.

Scan-Vent Installation

1) With the cabinet on its front, apply gasket tape to the countersink for the Scan-Vent. Attach the Scan-Vent with four screws such that the removable plastic screen is on the outside. This makes fine tuning it later on much easier. It is best to start with the Scan-Vent sealed - see instructions later in the publication.

Connecting to the Binding Posts

Binding posts fit a 5/16" through hole. On the outside goes the hex-head, ring and knurled washer. On the inside goes the gold-plated star washer, color-coded seal washer, and one nut. Tighten to prevent spinning. Next comes the gold-plated Big Ring Jr. crossover connector, followed by a second gold plated nut. One may dab a touch of nail polish on the threads and last nut to secure everything.

1) Attach the Big as Texas Post™ binding posts to the rear covers in the order of Red-Black-White-Blue.

2) Attach the loudspeaker internal wiring to the binding posts as follow:

Blues (tweeter -) to Black Post #1.

White (tweeter +) to Red Post #1.

Blacks (woofer -) to Black Post #2.

Coil lead (woofer +) and long red lead to Red Post #2.

3) Make sure the nuts are good and tight, the dab nail polish on the thread of the binding posts to prevent the nuts from coming loose.

Woofer Inductor Installation

With the cabinet standing up on its Plinth, liberally coat the bottom and corners of the large woofer inductor with silicone or mastic. Set the inductor on the bottom of the cabinet such that the bottom and two coated corners are touching the back left corner of the cabinet (as viewed from the front). Let dry overnight.

Next day, adhere gasket tape to the inner back and attach the back cover with 1 5/8 drywall screws.

Driver Chamber Felt and Stuffing

- 1) Carefully place the cabinet on its back. Locate the white and blue wires terminated with .110" quick-connects. Extend these wires through the tweeter cut-out.
- 2) Locate the red and black wires terminated with the .250" quick-connects. Extend these wires through the woofer cut-outs.
- 3) Cut the wool felt into four pieces, each 6" x 12". Insert one piece behind each woofer and press against the back wall. Wedge the ends behind the back brace to keep it in place.
- 4) Cut the three rolls of Dacron in half long ways, so there are six half rolls total. Install three into each cabinet:
The first section goes all the way down to the shelf brace, along the front of the cabinet, above the lower cross brace, and up along the back of the cabinet behind the lower woofer.
The second section goes behind the lower woofer and snakes around the middle cross braces.
The third section goes above the middle cross braces and is wadded against the back of the cabinet behind the upper woofer.

Tweeter Installation

- 1) The Scan Speak Revelator tweeter is built with the gasket attached. Do not add gasket material.
- 2) Attach the white wire to the tweeter positive (marked with a "+" or red dot).
- 3) Attach the blue wire to the tweeter negative (marked with a "-").
- 4) Position the tweeter with the flange lining up with the screw holes, and attach with the #6 phillips head screws provided.

Woofer Installation

- 1) The Scan Speak 15W/8530K-00SC's are built with the gasket attached. Do not add additional gasket material.
- 2) Attach the red wire to the woofer positive (marked with a "+" or red dot).
- 3) Attach the black wire to the woofer negative (marked with a "-").
- 4) Position the woofer frame to line up with the screw holes, and attach with the #6 phillips head screws provided.

Spikes

This loudspeaker was designed with the Big Toe spikes in the back and Very Big Toe spikes in the front. This arrangement allows for considerable tilt back. The spikes should be adjusted such that they all pierce the carpet and tilt the cabinet back slightly. The driver integration is smoothest when the listening axis is just above the tweeter axis.

Placement

The Signature is capable of an extraordinary three dimensional presentation. However, improper placement in relation to room boundaries may emphasize room frequency response aberrations, while proper placement may eliminate them. Experimentation is mandatory.

Do not underestimate the importance of this procedure.

As a starting point, the loudspeakers should be four feet from the back wall, six feet apart and slightly toed in. Move the loudspeakers around the room in one foot steps, then six inch steps, until the bass is tight and crisp. Then, adjust the toe in by quarter inch steps until the image focuses properly and the sound stage extends beyond the loudspeaker positions. Last, adjust the spikes by single turns until the image floats above and behind the speaker positions. When it locks in, you will know.

A Scan-Vent or a Port?

All amplifiers are different.

With amplifiers with a high output impedance, an optimized Scan-Vent usually provides the best bass without any boominess.

However, some amplifiers can drive the s quite well as vented boxes. To experiment, prep the ports by inserting as many straws as possible all the way into one port such that they stick out the back. The straws will begin to turn into hexagons - keep adding them and twisting the bundle until no more will fit.

Wrap the section sticking out tightly with tape. Now, reverse the straws and wrap the other end with tape.

With a sharp serrated knife, cut the roll of straws exactly in half.

Insert one roll into each port such that they are flush with the rear of the port. One can adjust the tuning by pushing the straws farther into the cabinet.

Install the port in the Scan-Vent countersink. It is a function of the amplifier as to whether or not the loudspeaker is port-compatible.

North Creek Music Systems

Fine Tuning your Scan Vent

North Creek provides Scan-Vents with two types of felt; one a heavy gray wool felt ¼” thick and very densely woven, the other a 1/16” brown acrylic felt that is stiff but loosely woven. A rubber seal is also provided.

The Scan-Vent flow resistance can be “tuned” to optimize the Q of the loudspeaker by popping off the inside cover with a thin screwdriver and changing the felt. The cover can be installed either screen-in or screen-out depending on the thickness of the stuffing.

We provide one seal, 2 gray felts and 3 brown felts with each Scan-Vent.

The following calibration is for a single scan vent. The order of the felts does not matter.:

$Q_{tc} = 1.1 = 1 \text{ gray} + \text{rubber seal}$

$Q_{tc} = 0.96 = 2 \text{ gray} + 2 \text{ brown}$

$Q_{tc} = 0.94 = 2 \text{ gray} + 1 \text{ brown}$

$Q_{tc} = 0.92 = 2 \text{ gray}$

$Q_{tc} = 0.91 = 1 \text{ gray} + 3 \text{ brown}$

$Q_{tc} = 0.87 = 1 \text{ gray} + 2 \text{ brown}$

$Q_{tc} = 0.80 = 1 \text{ gray} + 1 \text{ brown}$

It is strongly recommended that one does not go below 0.80.

Fine tuning can only be done by ear. Once the Scan-Vent is adjusted perfectly, turn it around such that the removable screen is on the inside and the Scan Speak logo is on the outside.

Tweeter Level Adjustment

There is a 0.80 Ohm resistor in series with the tweeter, made from a 1.00 Ohm in parallel with a 4.99 Ohm. The parallel connection is made via the long yellow wire on the tweeter crossover board. One can decrease the tweeter level by 0.5dB by snipping this wire.

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North Creek Music Systems

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