

clarion

SFW/SRW/SW

SUBWOOFER

Congratulations, you have just purchased one of the most refined products Clarion has ever produced. The SFW/SRW/SW line of subwoofers offers benchmark levels of performance, reliability and style.

We highly recommend that an Authorized Clarion dealer construct an application specific enclosure. This will ensure that the speaker offers the best possible performance for your application, while consuming the least amount of space in the your vehicle.

To achieve the maximum possible performance from this speaker, we highly recommend that an Authorized Clarion Dealer construct an application specific enclosure that maximizes the space in your vehicle, while offering the best possible performance from this product.

This manual contains all the information required to design your own enclosure with appropriate computer modeling software as well as several highly effective applications, including the intended purpose of each. If you have any hesitation or concern regarding the construction of these enclosures, please consult your authorized Clarion Dealer.

Content

1. Thiele Small Parameters	2
2. Mounting Information	3
3. Subwoofer Break-In Period	3
4. Subwoofer Enclosure Applications	
SFW1051 Single 4 Ohm Voice Coil Shallow Mount	
10" Subwoofer	4
SRW1051/SRW1052 10" Subwoofers	5
SRW1251/SRW1252 12" Subwoofers	6
SW1051 Single Voice Coil 10" Subwoofer	7
SW1251 Single Voice Coil 12" Subwoofer	8
5. Subwoofer Application Comparison	9
6. Calculating Enclosure Dimensions	10
7. Limited Warranty Information	12

1. Thiele Small Parameters

Model:	SFW1051	SRW1051	*SRW1052	SRW1251	*SRW1252	SW1051	SW1251
Revc(Ohm)	3.75	3.67	3.68+3.68	3.72	3.68+3.68	3.7	3.66
Fo (Hz)	37.317	31.475	32.487	31.745	31.034	30.811	29.891
Sd (sqM)	0.031416	0.031416	0.031416	0.049087	0.049087	0.034636	0.053913
Vas (Ltr)	19.081	29.005	30.595	59.009	68.690	35.598	67.924
Cms (M/N)	136.15	206.957	218.307	172.46	199.356	208.971	164.568
Mmd (g)	130.399	118.254	106.740	139.493	125.677	124.517	157.877
Mms (g)	133.601	121.455	109.942	145.746	131.930	131.930	172.273
BL (TM)	13.771	13.351	18.916	13.556	17.012	13.245	13.150
Qms	8.635	9.020	7.243	7.227	7.200	5.287	6.573
Qes	0.619	0.499	0.499	0.592	0.641	0.530	0.685
Qts	0.578	0.473	0.467	0.547	0.592	0.482	0.620
Levc (m H)	1.104	1.410	2.465	1.505	2.721	1.600	1.845
No (%)	0.155	0.187	0.203	0.3133	0.311	0.181	0.256
SPLo (dB)	83.916	84.768	85.101	86.96	86.92	84.592	86.103
Xmax(mm)	5.25	12	12	12	12	12	12
Vd (ft ³)	0.16	0.045	0.045	0.06	0.06	0.045	0.06

*** ALL DUAL VOICE COIL SUBWOOFERS ARE MEASURED IN SERIES ONLY**

2. Mounting Information

Model:	SFW1051	SRW1051/SRW1052	SRW1251/SRW1252	SW1051	SW1251
Outside Diameter	10-5/16"	10-5/16"	12-9/32"	10-5/16"	12-9/32"
Subwoofer Basket Diameter	9-1/32"	9-1/32"	10-31/32"	9-1/8"	11-1/16"
Mounting Depth •	3"	4-25/32"	5"	5-3/4"	6-7/16"
Total Height	3-3/4"	5-1/32"	5-1/4"	6"	6-11/16"

NOTES:

- This is the exact mounting depth of the driver, and does not include provisions for air flow from the vented pole piece. Clarion recommends at least 1" of clearance behind the driver to facilitate air flow and proper cooling.

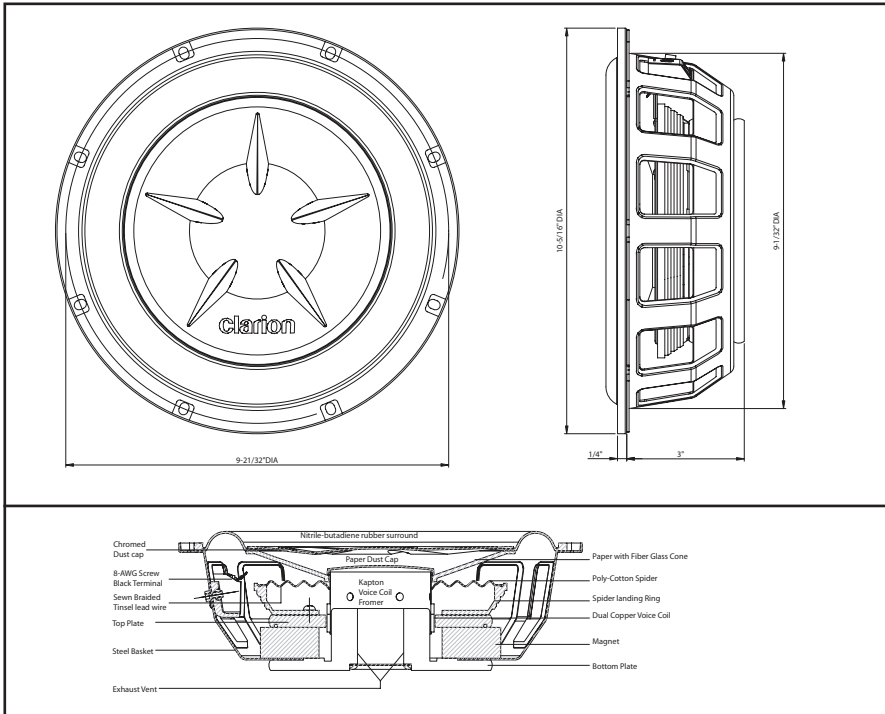
3. Subwoofer Break-In Period

All new speakers require some amount of time to break in. Depending on the application, this may take between one and four weeks. To accelerate this process, you can manually 'break in' your subwoofer before installing it. With the subwoofer sitting on a scratch-resistant surface, connect it to an amplifier and play a 25Hz sine wave at a level of 10V (8V for SFW) for a period of four to six hours. If you have any questions or concerns, please do not hesitate to contact your Authorized Clarion Dealer.

4. Subwoofer Enclosure Applications

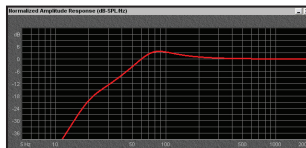
SFW1051

Single 4 Ohm Voice Coil Shallow Mount 10-inch Subwoofer



PORTED ENCLOSURE

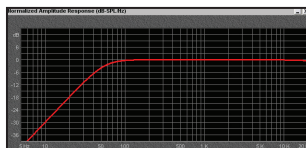
Net Volume: 0.5 Cubic feet
 Port: 2" x 9"
 Subsonic Filter: 30Hz
 F3: 52Hz



SEALED ENCLOSURE

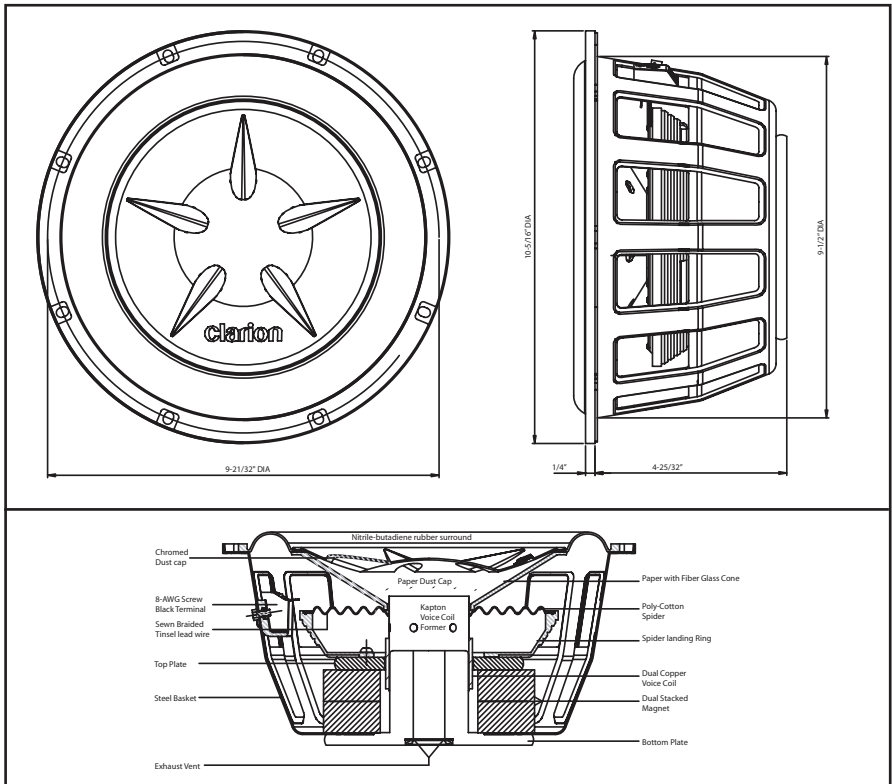
* Limit power levels to 160W in this application

Net Volume 0.45 cubic feet
 F3 55.7 Hz
 Qtc 0.712
 Subsonic Filter 35Hz



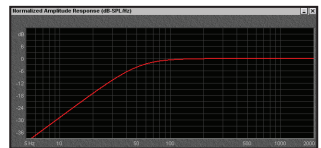
SRW1051/SRW1052

10" Subwoofer



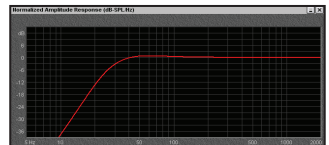
SEALED ENCLOSURE - SOUND QUALITY

Net Volume: 0.4 cubic feet
 F3: 57 Hz
 Qtc: 0.69



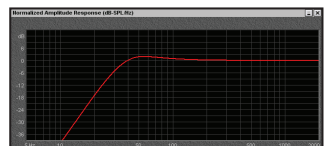
PORTED ENCLOSURE - SOUND QUALITY

Net Volume: 1.0 Cubic feet
 Port 0.75" x 12" x 26"
 Subsonic Filter 25Hz
 F3 30.5 Hz



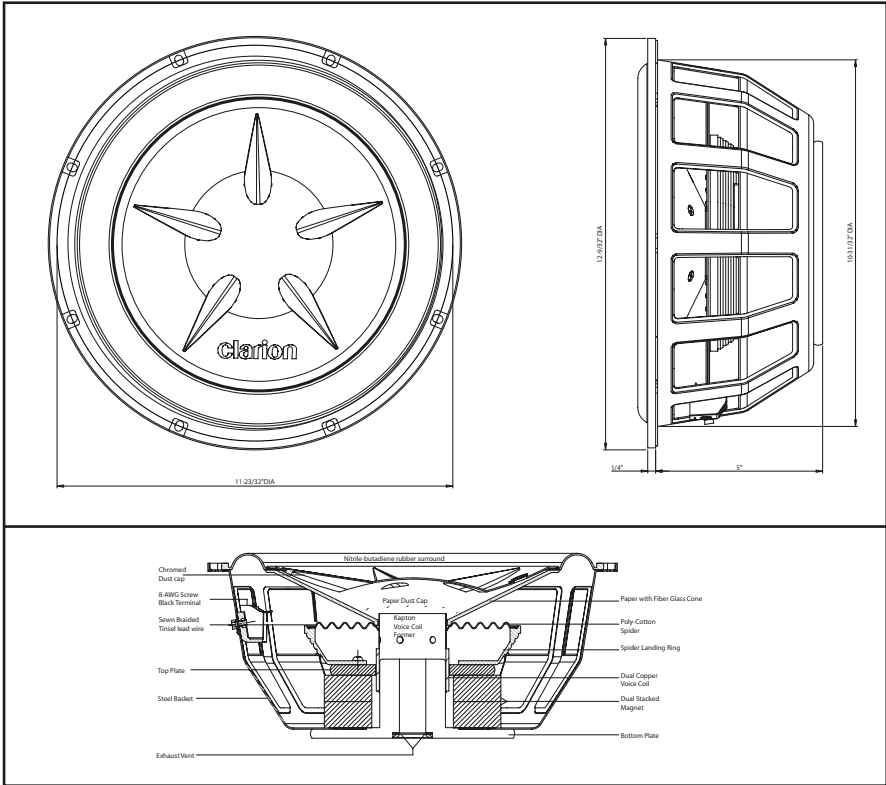
DUAL PORTED ENCLOSURE - SPL

Net Volume: 1.75 Cubic Feet
 Port 4" x 12-3/8"
 Subsonic Filter: 25Hz
 F3 33Hz



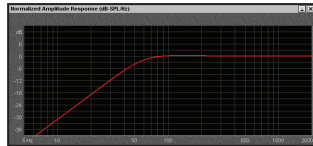
SRW1251/SRW1252

12" Subwoofer



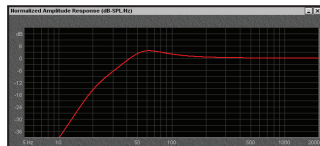
SEALED ENCLOSURE - SOUND QUALITY

Net Volume: 0.8 Cubic Feet
 F3 54 Hz



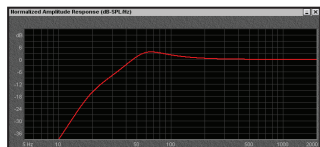
PORTED ENCLOSURE - SOUND QUALITY

Net Volume: 1.5 Cubic Feet
 Port: 3" x 7-7/8"
 Subsonic Filter: 30Hz
 F3: 36Hz



DUAL PORTED ENCLOSURE - SPL

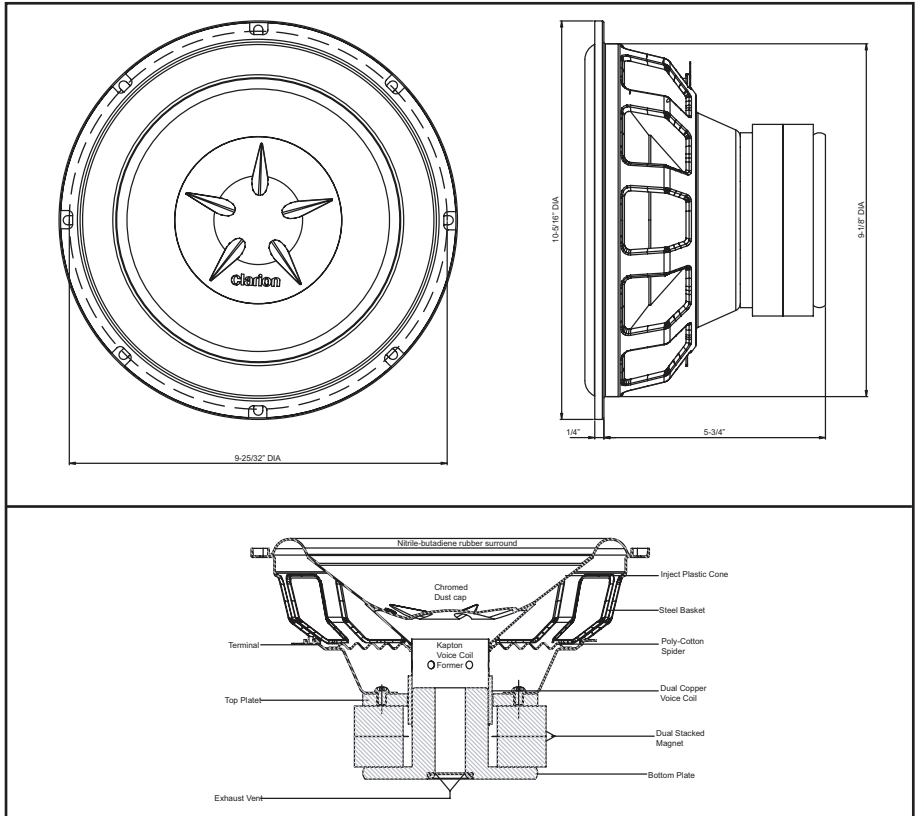
Net Volume: 2.5 Cubic Feet
 Port: 4" x 7-1/2"
 Subsonic Filter: 30Hz
 F3: 39Hz



Z

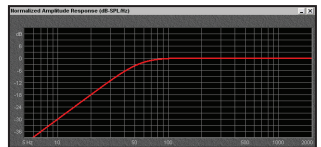
SW1051

Single Voice Coil 10" Subwoofer



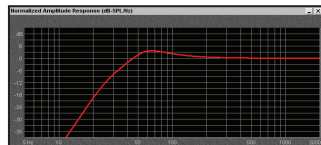
SW1051 SEALED ENCLOSURE - SOUND QUALITY

Net Volume: 0.5 Cubic Feet
 Qts 0.748
 F3: 53.62Hz



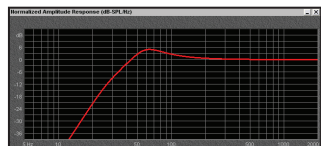
SW1051 PORTED ENCLOSURE - SOUND QUALITY

Net Volume: 0.65 Cubic Feet
 Vent 3" x 16"
 F3: 38.56Hz



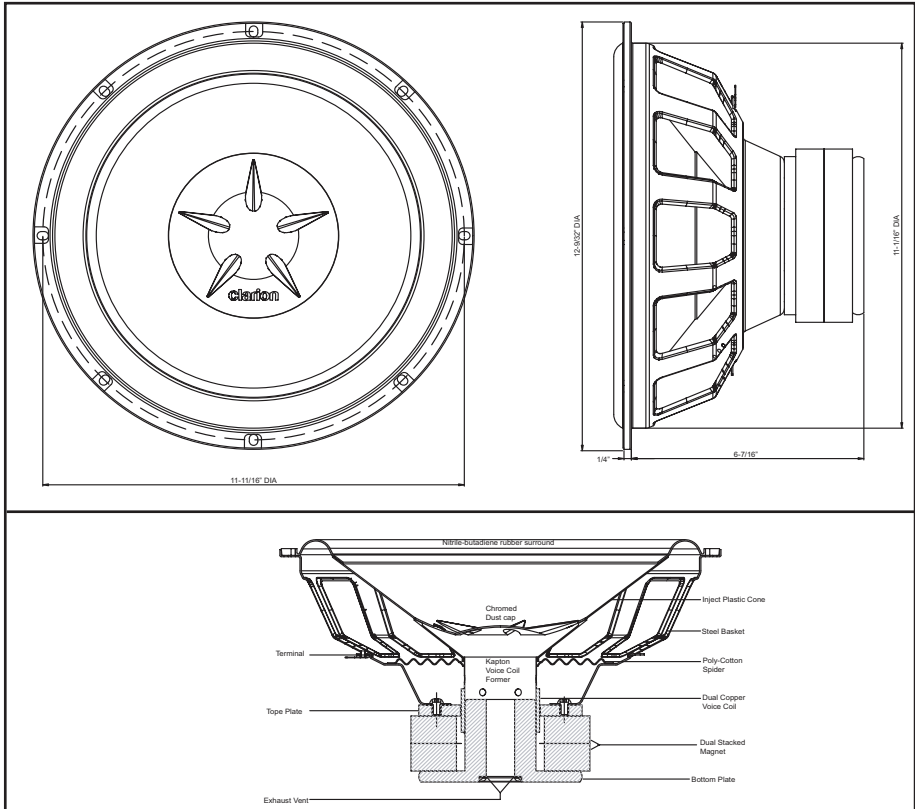
SW1051 DUAL PORTED ENCLOSURE - SPL

Net Volume: 1.25 Cubic Feet
 Vent: 4" x 11-1/8"
 F3: 39.79 Hz



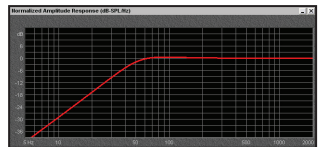
SW1251

Single Voice Coil 12" Subwoofer



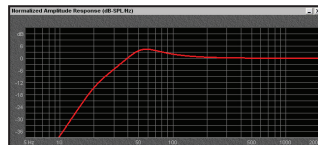
SW1251 SEALED ENCLOSURE - SOUND QUALITY

Net Volume: 0.9 Cubic Feet
 Qts: 0.87
 F3: 45.41 Hz



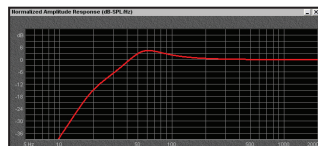
SW1251 PORTED ENCLOSURE - SOUND QUALITY

Net Volume: 1.5 Cubic Feet
 Vent: 3" x 7-7/8"
 F3: 34.13 Hz



SW1251 DUAL PORTED ENCLOSURE - SPL

Net Volume: 2.5 Cubic Feet
 Vent: 4" x 7.5"
 F3: 36.51 Hz



SFW ENCLOSURE DESIGN NOTE:

When constructing an enclosure for the SFW1051, please ensure the subwoofer is mounted in so the cone does not come into contact with any object (back of seat) when in use. This may require the installation of a grill or recessing the subwoofer into the enclosure. The subwoofer may be damaged if it comes into contact with any surface while in operation.

ENCLOSURE DESIGN NOTES:

- All enclosures should be constructed of at least 3/4" MDF. Particle board is not suitable for any enclosure and may result in the subwoofer system offering poor performance or the driver may be damaged.
- All panel joints should be sealed with appropriate caulking (latex or rope caulk). Do not use Silicone.
- All joints must be secured with screws or nails.
- Any panel exceeding 4 square feet in area (2'x2' or 1'x4' for example) should be braced internally for resistance to flexing
- All enclosure volumes are net and do not include the displacement of the subwoofer, ports or bracing. Please include these items in your enclosure calculations
- Clarion does not recommend the use of passive crossover networks with our subwoofers (inductors, chokes). Use an amp with an electronic crossover for the subwoofer to achieve optimum performance.
- Where noted, please use a subsonic filter to protect your Clarion subwoofer from over-excursion situations that may cause damage.
- All specifications are subject to change without prior notice.

5. Subwoofer Application Comparison

Enclosure Type	Sealed	Vented	Bandpass
Power Handling	Good at all Frequencies	Good above Tuning Frequency	Good near Tuning Frequency
Linearity	Excellent	Good	Poor
Dynamic Performance	Excellent	Good	Poor
Efficiency	Good	Very Good	Excellent
Subsonic Output	Excellent	Good	Good
Midbass Output	Excellent	Very Good	Poor
Enclosure Size	Small	Medium	Large

6. Calculating Enclosure Dimensions

There are several important equations required to facilitate the calculation of enclosure dimensions. You will ultimately want to alter then dimensions for your enclosure to maximise the usable trunk space in your vehicle. The following example will show the general procedure to calculate the dimensions for an enclosure suitable for 2 SRW1251/SRW1252 subwoofers.

The calculations below will provide the enclosure depth, allowing you to construct your enclosure and enjoy bass, the way it was meant to be heard.

What you need to know:	Example:
Maximum Trunk Width	35 inches
Maximum Trunk Height	15 inches
Net Enclosure Volume	2.5 cubic feet
Material Thickness	0.75 inches
Driver Displacement	0.06 cubic feet
Port Dimensions	4" x 7.5" long

Step 1: Measure the trunk width and height. Take note of seat belt mechanisms, strut tower protrusions and trunk opening size when measuring.

Eg: 35" wide by 15" tall

Step 2: Calculate the gross enclosure volume. This includes the net enclosure volume, plus the displacement of the drivers, port(s) and any bracing. There is no bracing being used in this example, however Clarion recommends an enclosure of this size be properly braced.

Eg: 2.5 ft³ net volume, 0.06 ft³ per speaker, 0.049 ft³ port.

Gross Volume: $2.5 + 0.06 + 0.06 + 0.049 = 2.665$ ft³ or 4605.12 cubic inches.

Step 3: after subtracting the material thickness from the maximum width and maximum height, we can calculate the depth of the enclosure.

Eg: $4605.12 \div ((35-0.75-0.75) \times (15-0.75-0.75)) = 10.18$ inches.

Step 4: Add the material thickness to the inside depth calculation and you have the outside dimensions of you enclosure.

Eg: $10.18 + 0.75 + 0.75 = 11.68$ inches.

Width = 35" Height = 15" Depth = 11.68"

Step 5: You can now cut and assemble the panels for your enclosure. Make sure all joints are perfectly sealed and there are no air leaks anywhere. If you choose not to wrap the enclosure in carpet, use foam gaskets when installing the woofers to ensure an air-tight seal against bare wood.

Converting cubic inches to cubic feet

To convert cubic inches to cubic feet, divide by 1728

To convert cubic feet to cubic inches, multiply by 1728

Port Volume Calculation

The equation to calculate the volume of a round port is: Radius x Radius x Pi x Net Depth.

The net depth is the total depth of the port minus the thickness of the wood it is mounted in. For our example using a 4" port, 7.5" long, the equation would be:

$2 \times 2 \times 3.1416 \times (7.5 - .075) = 84.85$ cubic inches or 0.049 cubic feet.

Wedge Style Enclosures

To further maximize the available storage space in your vehicle, you may choose to have the back panel of the enclosure follow the angle of the rear seat back. To calculate the volume of the enclosure, we need to find the average depth of the enclosure.

In our example, we had an enclosure depth of 11.68 inches. To calculate the top and bottom panel depths of a wedge enclosure, we need to know how much deeper the bottom is than the top. Follow these steps

- Step 1: Place a board on the trunk floor and slide it to the base of the rear seats.
- Step 2: Cut a small board that when combined with the thickness of the first board, is the total height of the enclosure. In our example with would be 15 inches, so the board would be 14.25 inches.
- Step 3: Stand this board up on the first board and slide it toward the back of the trunk until it runs into the top of the seat back. Mark a line at the rear edge of the board.
- Step 4: Measure from the line to the end of the bottom board. This is how much longer the bottom board is than the top. For this example, we will say it is 5 inches.

We now need to calculate the new depth of the enclosure, knowing the bottom is 5 inches deeper than the top. The average new depth of the enclosure is half of 5 inches, or 2.5 inches.

The top of the enclosure will need to be $11.68 - 2.5 = 9.18$ inches

The bottom of the enclosure will need to be $11.68 + 2.5 = 14.18$ inches

7. Limited Warranty Information

Clarion

CLARION 2007 LIMITED WARRANTY
For USA and Canada only

Except as noted, Clarion products purchased from an authorized Clarion Dealer are warranted against all defects in materials and workmanship for a period of one (1) year from date of original purchase.

The following Clarion products noted below ** are warranted against all defects in materials and workmanship for a two (2) year period from the date of original purchase when purchased from AND installed by an authorized Clarion dealer.

**** DRZ9255 DXZ775USB DXZ675USB DXZ575USB DFZ675MC DPX11500 DPX1800 DPX2250**

All Clarion cables, wires and other accessories if purchased from an authorized Clarion Dealer are warranted against all defects in materials and workmanship for ninety (90) days from the date of original purchase.

ALL PURCHASES OF CLARION PRODUCTS FROM NON-AUTHORIZED CLARION DEALERS ARE SUBJECT TO FURTHER WARRANTY RESTRICTIONS AS DESCRIBED BELOW.

The conditions of this Limited Warranty and the extent of responsibility of Clarion Corporation of America ("Clarion") under the Limited Warranty are as follows:

1. PROOF OF DATE OF PURCHASE FROM AN AUTHORIZED CLARION DEALER WILL BE REQUIRED FOR WARRANTY SERVICE OF THIS PRODUCT. IN THE CASE OF THE TWO (2) YEAR LIMITED WARRANTY FOR THE CLARION PRODUCTS NOTED ABOVE, PROOF OF DATE OF PURCHASE AND PROOF OF INSTALLATION BY AN AUTHORIZED CLARION DEALER IS REQUIRED. INFORMATION ABOUT CLARION AUTHORIZED WARRANTY SERVICE CENTERS MAY BE OBTAINED BY CONTACTING CLARION AT THE ADDRESS LISTED BELOW.
2. This Limited Warranty will become void if service performed by anyone other than an approved Clarion Warranty Service Center results in damage to the products.
3. This Limited Warranty does not apply to any product which has been subject to misuse, neglect or accident, or which has had the serial number altered, defaced or removed, or which has been connected, installed, adjusted or repaired, other than in accordance with the instructions furnished by Clarion.
4. This Limited Warranty does not cover car static or other electrical interferences, tape head or laser pick-up cleaning or adjustments, or labor costs for the removal or reinstallation of the unit for repair.
5. The sole responsibility of Clarion under this Limited Warranty shall be limited to the repair of the product or replacement of the product, at the sole discretion of Clarion.
6. Product must be shipped in its original carton or equivalent carton, fully insured, with shipping charges prepaid. Clarion will not assume any responsibility for any loss or damage incurred in shipping.
7. **CLARION PRODUCTS PURCHASED FROM A SOURCE OTHER THAN AN AUTHORIZED CLARION DEALER, INCLUDING ANY AND ALL PURCHASES VIA THE INTERNET FROM A NON INTERNET AUTHORIZED CLARION DEALER, SHALL NOT BE COVERED BY ANY CLARION LIMITED WARRANTY TO THE EXTENT ALLOWED BY APPLICABLE LAW. IN THE EVENT AND TO THE EXTENT APPLICABLE LAW PROHIBITS ELIMINATION OF WARRANTIES UNDER THESE CIRCUMSTANCES, THE APPLICABLE LIMITED WARRANTY PERIOD SHALL BE DEEMED TO BE FIFTEEN (15) DAYS FROM THE DATE OF ORIGINAL PURCHASE.**
8. **ALL IMPLIED WARRANTIES EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW SHALL HAVE NO GREATER DURATION THAN THE WARRANTY PERIOD SET FORTH ABOVE. UNDER NO CIRCUMSTANCES SHALL CLARION BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT. BECAUSE SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.**
9. **THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.**
10. The laws of the state of California shall govern and control this Limited Warranty, its interpretation and enforcement.
11. Should you have any difficulties with the performance of this product during the warranty period, please call Clarion or visit our web site for a listing of Authorized Warranty Service Centers in your area. You may also contact Clarion Customer Service at the address listed below for any service you may need with Clarion products.

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1-800-GO-CLARION
www.clarion.com

In Canada:
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Warranty Service Center
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