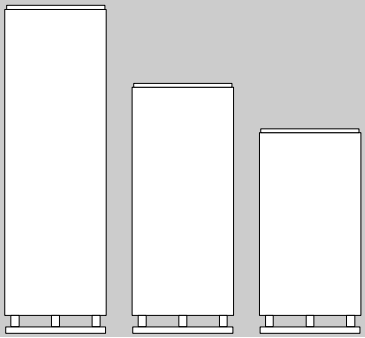
SV Subwoofers

OWNERS' GUIDE

SVS "Cylinder Series" ™



Models 16-46CS 20-39CS 25-31CS

The Bass Authority

- **Contents:**

Last update 21 February 2001

Welcome.

From the entire SVS team, congratulations on your purchase of a new standard in home theater bass!

Your sub isn't some generic black box built someplace you can't even find on a map. It's made in Ohio, (as in USA), by home audio fanatics, like you. Designed, tested and assembled by hand, your SV Subwoofer is without a doubt one of the best investments you'll ever make in bringing theater *home*.

We'll help you to set up your sub right, and in no time, you'll be giving demos of your favorite DVDs or Laserdiscs to all your friends and neighbors (we pity them if you live in an apartment). This isn't just a subwoofer after all, it's a carefully designed audio component carefully tuned in our labs, by bass authority and "Subhuman" Tom Vodhanel.

You're unlikely to have ever heard, or felt, bass like this before, unless it was in a top-notch commercial movie theater. Movies and music in your home will never be quite the same again. We guarantee it.

Already got a question about your sub? You might answer it by reading this manual, we think you'll find it more informative than most. For even more detailed discussion about set-up topics check out both SVS **FAQs** and **Advanced Bass** at www.svsubwoofers.com. We touch on all the key points you need to know, and then some.

Maybe you just want to share a bit of bass news? Or perhaps you have a story about your SV Subwoofer to share with us? Maybe something we missed in our website? No matter, feel free to send a note to: feedback@svsubwoofers.com .

It's not often you can talk to the guys who made your audio component. In this case, we look forward to it.

About your SV Subwoofer

Very few subwoofers look anything like them, and virtually none work like them. SV Subwoofers are decidedly different. The best part? You could have spent thousands more, and *still* not come close to the same bass performance. How do we do it?

Quality components, sane prices. You might be surprised at how inexpensive the components in some *not-so-inexpensive* subwoofers are. Make no mistake, we scour the earth for the best, most cost effective parts (when we don't make them ourselves), and meld them into finely tuned designs that define high performance home theater (HT) bass. Want woofers, amps, or even binding posts? We've tested and discarded plenty that didn't meet our tough standards. If we use it, whatever it is, it made the grade.

Get "tubular". Typical subs require heavy internal bracing and thick enclosure walls *because* they're boxes. But cylinders can't flex the way boxes do. Ever wonder why high pressure tanks are always round? At SVS form follows function, and fortunately, functional designs can lead to simple, stylish and elegant designs too. Take one look at our subs and you'll know this is true.

Stable downward firing woofer. Our slender design is one plus, but we've also taken great lengths to design a downward firing driver. Coupled with our unique base-plates, which minimize driver reactive forces, you'll find our subs can take a tremendous amount of power and remain rock solid. Interchangeable foam rubber or heat-treated steel spike feet allow for stable placement on a variety of surfaces (**NOTE**: Spikes are not recommended for concrete sub-floors or similarly hard materials!).

Custom low turbulence port designs. When you listen to our trend setting ported subs you'll hear (and feel) bass like never before, with a exceptionally low noise and distortion. When you experience genuine SVS bass you'll know something special went into it.

Stylish, and understated. From the simple top grill, to the elegant base-plate you'll be amazed at how easy it is to lose your sub in a corner, they're big, but it's one of those times size *does* matter. There are hundreds of brands of "black box" subs out there. Fortunately you didn't just unpack one of them.

Flexible power options. Our subs are painstakingly designed to perform exceptionally well with nearly any amp. One we offer, or one you already have. And because they are tuned low and take advantage of plenty of internal volume, you get amazingly low extension without the need for external equalizers or processors. This serves to put more of your amp to work making bass. Even small amps can sound big with these efficient subs. Power up, and get down, low.

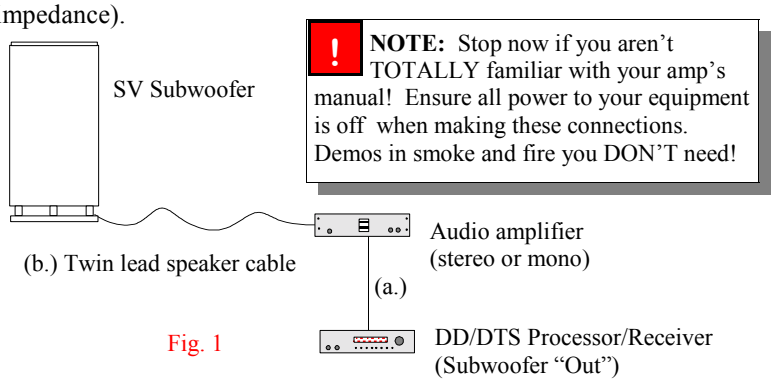
Setup, calibrating and integration

What's to know? Well, first of all, setting up an SV Subwoofer is pretty darn easy. There are a few key things to get right though, if you want to get the most out of your sub…

Unpacking. You're probably eager to fire up your sub (we're the same way) but take time to carefully unpack your sub. Set the box and other coverings aside, just in case you need to return the sub for any reason.

Location. They say it's ALL about location right? It's somewhat the same with setting up your subwoofer too. Where to put it? ***Go for a corner*** if you can**.** Studies have shown that the deepest and flattest bass response is typically attained when a subwoofer is placed within a few feet of one of your home theater room's corners. The tall upright configuration of SV Subwoofers makes this easy. Avoid putting your sub where it might adjoin large open areas; but whether you put the sub in front or to the rear of your seating area makes surprisingly little difference. True, deep, home theater bass, like that from Dolby Digital (DD) "5.1 channel" DVDs is non-directional. You can't tell where it is coming from, even though you can hear, and feel it.

Hook-up (see fig. 1). There are a variety of ways to configure your new sub. Usually, a simple mono, shielded 75 Ohm A/V RCA type cable (a.) is used to take the subwoofer output of your DD/DTS surround sound receiver and feed the low-level input of an audio amplifier. You might only be using one channel of a stereo amp, or two channels "bridged" to provide a more powerful "mono" bass signal (depending on your amp rating). SV Subs present a nominal 4 Ohm impedance).

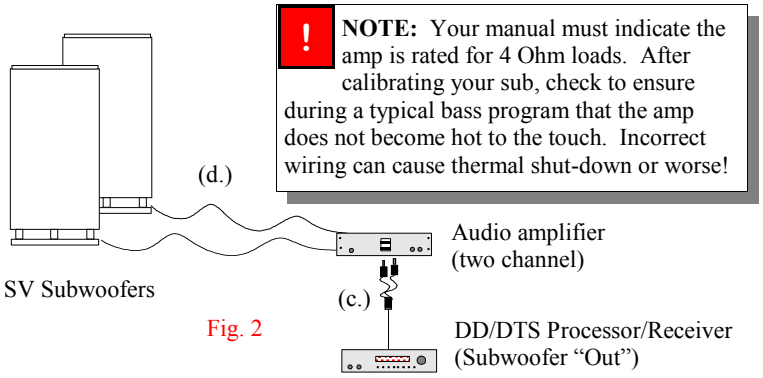


NOTE: Stop now if you aren't TOTALLY familiar with your amp's manual! Ensure all power to your equipment is off when making these connections. Demos in smoke and fire you DON'T need!

Fig. 1

More Setup, calibrating and integration

You can put your subwoofer amp in your current equipment stack (make sure it gets plenty of ventilation) or run the subwoofer signal cable to the amp in a closet, or other out of the way location. Some exceptionally powerful amps are fan cooled and you might want such an amp out of the way location to avoid hearing the fan. Either way, you can then use simple 14 or 12 gauge speaker wire (b. above, plus d. in Fig 2 below) to then connect the amp to your subwoofer (s). Some amps sold by SVS allow one input to drive *both channels* of a dual sub/ amp setup. If you are running a pair of SV Subwoofers (fig. 2) with a standard amp, or bridging a stereo amp for one sub, you might need to use a "Y" cable adapter (c.) to split the subwoofer signal from your receiver and feed both channels of the amp. Naturally two pairs of speaker wires, (two wires leading from each channel of a stereo amp), would be used to drive two subs. We do NOT recommend you "daisy chain" subwoofers together unless you consult with SVS. Damage to your subwoofer, amp, or both can result!



NOTE: Your manual must indicate the amp is rated for 4 Ohm loads. After calibrating your sub, check to ensure during a typical bass program that the amp does not become hot to the touch. Incorrect wiring can cause thermal shut-down or worse!

Fig. 2

"Calibration" isn't only for tech minded folks, it's critical to a proper balance of your home theater sound system. Fortunately, channel balance calibration is as easy to do as it is important. The first order of business is making sure your DD/DTS surround sound system is set up properly. We recommend you consult your audio/video receiver (or processor) manual to refresh on the procedures to do this. Generally, this requires ensuring the receiver's test tones, or a special test disk (like *Video Essentials*) plays back at the same volume from each of your system speakers. That's Right, Center, Left, Right Rear and Left Rear speakers, plus the subwoofer . (More on sub level in a second).

Some things to check as you get ready to calibrate your system:

- Are your speakers set correct to the correct "size"? Your receiver/processor should allow you to indicate if your speakers are "Small" or "Large". Selecting the size accordingly will ensure bass goes to most appropriate speakers, and use the subwoofer correctly too. Also, is your subwoofer turned "ON"? We don't mean "is your subwoofer *amplifier* on?" (that'll be important later too!) but rather, ***is your receiver sending a bass signal to your sub amp***? This can only happen if you say "Yes" (or "ON") to the "Subwoofer" setting of any typical Dolby Digital/DTS capable receiver.

- Is your receiver connected to the sub amp? If you bought an amp from SVS, use an "RCA-to-1/4" adaptor and a well-shielded RCA cable to hook to the subwoofer output of your DD/DTS receiver to at least one channel of your subwoofer amplifier. As mentioned earlier, you can use a stereo amp to drive a pair of SV Subwoofers. In the latter case you'll need to "split" the subwoofer signal with a "Y Cable" and run separate pairs of speaker wires to each sub.

- Is your Radio Shack ® sound pressure level (SPL) meter ready? This tool is absolutely critical to proper home theater audio calibration. It's akin to a tire pressure gauge for your car. Set the meter to "Slow" and "C-weighting" (and the dial to 70). The manual which comes with the SPL meter is excellent, and we recommend you read it entirely. Haven't got the meter yet? Well, head on down to your neighborhood Radio Shack ® and snag one. We prefer the analog instead of the digital display model. Ask for part number 33-2050. At about $35 it's a bargain.

Don't "just do it". Do it right. Now play your receiver's internal test tones so you have something to measure with your SPL meter. Or better yet, a calibration disk, like the *Video Essentials* DVD (go to Chapter 3-1). A test disk's calibration tones ensure your entire signal path, from the DVD player to your speakers, is set correctly.

Setup, calibrating and integration (cont.)

Getting ready to start now: A few more checks. Make sure your receiver/processor master volume is set at "00 dB" *or some other easy to remember reference level*. Finally, ensure your subwoofer amp's volume control (if it has one) is set full up, to start. It's a good idea to check the separate subwoofer level control of your surround receiver before you begin the test tones too. Keep it to no higher than "-5 dB" initially (that's one fourth up on a typical receiver channel limits of –10 dB to +10 dB) . Your LFE "trim", if you have one, should be set to 0dB to start too. As the tones start, alternating from speaker to speaker (watching your sound meter now) set each speaker's volume to about 75 dB, using the receiver's channel controls (leaving master volume the same). We recommend you turn down the receiver's subwoofer level, before you lower your amp's volume control to keep input distortion to a minimum.

When it comes to setting the level of the subwoofer channel, ***you might find that a higher level is preferable***. Tastes vary, and so do movie soundtracks, but your SV Subwoofer is capable of *tremendous* levels of low distortion, low frequency bass. Take advantage of this, especially if you like action movies with lots of ".1" channel low frequency effects (LFE). Keep in mind too that the human ear is relatively insensitive to low frequencies. This, coupled with the fact most folks don't watch movies at Dolby Digital reference level (loud!), means tweaking the bass up a few dBs usually yields a better movie sound experience. If you hear your woofer "bottom" (a loud clacking noise!) be sure to back off until this stops on that scene.

If you watch movies at relatively moderate levels (say -15 to –8 dB from reference level) try a +4 to +6dB setting on the LFE or ".1" channel. This means that the VE test tone will waiver about 81dB for the subwoofer portion of the calibration run. You'll briefly need to rotate the sound meter level dial to the 80dB setting to get a good reading on the subwoofer. Don't forget that most modern surround sound receivers allow completely different subwoofer level settings, depending on the listening mode you are in. With "DVD" as your "source" use the above calibration routine. You may well find that "CD" (music) calls for a lower bass setting for the best balance in your home theater (try setting this by ear with music you are familiar with). The above is a guide, experiment! Avoid bottoming your sub repeatedly on your most bassy movies and it'll sound great for years.

Location and measurement: You should take the above measurements from your typical preferred seat for watching movies (center cushion, right?). Strong bass levels can vary tremendously simply by moving a few feet. Such is the nature of long wave-length, low bass sound. Don't hesitate to experiment with different locations and different level settings of your subwoofer.

Performance Specifications. OK, time to take the gloves off. We said we were tough home theater customers, and we meant it. Our response charts reflect honest, no-BS performance. Not every sub

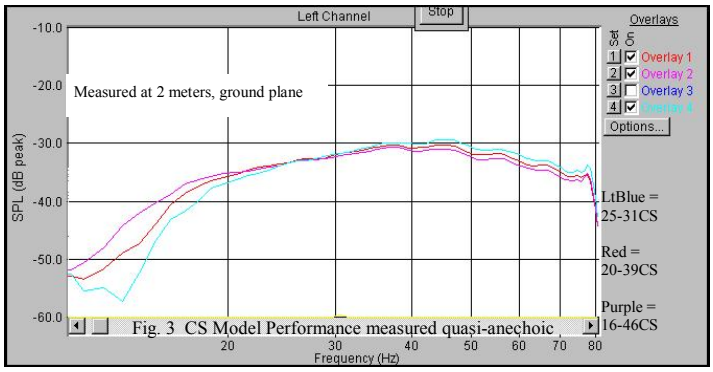


Fig. 3 CS Model Performance measured quasi-anechoic

maker can say that. Some use equalization to get artificially low response (which can be ok, but often reduces available amp power and bass SPL to a fraction of what you'd think). Other times you'll see "response curves" charted at a ridiculously low volume (that is, great "flat" performance, but only at a volume too low to hear). There are all sorts of tricks to make subwoofer's performance "look good". We don't use any of them, and thought you might appreciate that. At SVS, we guarantee not only you'll be surprised and amazed (with bass you never experienced before), but also that your sub performs at least as well as advertised, no smoke or mirrors allowed. While equalization can be used with our subs, the response curves shown reflect performance you can achieve with virtually any good quality amp.

Model	16-46CS	20-39CS	25-31CS
Extension	**16-100 Hz** +/- 3 dB	**20-100 Hz** +/- 3 dB	**25-100 Hz** +/- 3 dB
Max SPL	**Coming soon!**	**Coming soon!**	**Coming soon!**
Power Handling	**350 watts** (Cont.) 600 watts (Peak)	**350 watts** (Cont.) 600 watts (Peak)	**350 watts** (Cont.) 600 watts (Peak)

Fig. 4 SVS Cylinder Series comparison matrix

Bassy demo scenes to die for.

So now what?? You've got one of the best HT bass sub-systems on the planet, you're calibrated and balanced. Want to see what she'll do? ***Sure you do!*** Since finding those scenes can be a bit trying we've compiled a list of our favorites below. After all, calibration with test tones is important, but it's the movies (and music) this sub is itching to show off. Chapter stops for DVDs are shown, with movie time in hours: minutes: seconds. What are you waiting for? Just hit *PLAY*!

- ***"The Iron Giant"*** Great family animation with SERIOUS bass, including strong peaks below 25 Hz. Jump to:
    1. "Chase thru the forest" Scene 8 (20:00 into the movie)
    2. "Robot Landing" (Train Impact) Scene 10 (25:40)
    3. "Green Boom" Scene 27 (1:11:40)
- "***Antz"*** Another good family movie, though not perhaps for small children. Extremely loud bass above 30 Hz.

  "Terror from Above", Scene 17 (51:48)
- ***"The Matrix"*** Modern, violent, science fiction classic with plenty of shoot-'em-up bass blasts. Here's some subtle and not so subtle.
    1. "Where we are grown", Scene 12 (42:55)
    2. "Landing in fight", Scene 15 (50:51)
    3. "Chopper shootout", Scene 31 (1:47:15)
- ***"Das Boot"*** Arguably one of the best war pictures of all time with bass approaching 20 Hz. Very loud, very intense.
    1. "Depth charges", Scene 21 (59:30)
    2. "Storm surfing", Scene 25 (1:15:15)
    3. "Hitting bottom", Scene 17 (53:15, Side "B")
- ***"Apollo 13"*** Moving story, with some surprisingly subtle, but revealing, bass where it counts.
    1. "Lift off", Scene 13 (35:15)
    2. "Coming home", Scene 53 (2:05:43)

More Bassy demo scenes.

- ***"Titanic"*** You love it...or you *hate* it. Regardless of which side of the ship you sit, this flick does some serious rumbling for you:
    1. "We can't leave him" Scene 22 (2:21:50)
    2. "Ship Splitting" (2:41:30)
    3. "Last Gasp" (2:42:05)
- "***Blade"*** Not one for the kiddies, but loaded with deep bass.
    1. "Footstep", Scene 4 (7:15)
    2. "Door blown" Scene 20 (50:05)
- ***"Aliens"*** Not just another modern sci-fi horror classic, this one rocks from intro to final scene.
    1. "Ship drop", Scene 9 (41:20)
    2. "Awakenings", Scene 15 (1:12:52)
- ***"Apocalypse Now"*** Making This Vietnam war movie, Francis Ford Copolla nearly went crazy...imagine what it'll do to your subwoofer!
    1. "Chopper ride" Scene 2 (0:19:47)
    2. "ARC LIGHT" Scene 4 (0:26:02)
    3. "Grenade launch" Scene 12 (1:27:58)
- ***"Contact"*** SETI with a (bass) twist or two along the way.
    1. "Bombing", Scene 28 (1:36:30)
    2. "Space truckin", Scene 33 (1:55:56)
- "***Dark City***" One of Roger Ebert's favorites, think he likes bass too?
    1. "Let the tuning commence", Scene 8 (34:30)
    2. "City makeover", Scene 15 (1:27:45)

A Glossary of Home Theater Terms

Frankly, don't feel guilty if you want to skip over the below. But if you are curious about just what some of the terms and abbreviations stand for, read on:

dB - Short for "deci-Bell" a unit of sound, 3dB takes twice the acoustic power to attain!

DD - Dolby Digital, the most popular form of digital surround sound, usually found on DVD soundtracks. Actually a compression algorithm that can provide 1 to 6 channels of movie audio .

DPL - Dolby Pro Logic. The last generation of non-discreet channel surround sound. Derived from 2 "matrixed" channels.

DTS - Digital Theater System similar to DD, but with less compression. Many feel it sounds better than DD, but you be the judge.

DVD - Amazing little video disk, DVD, doesn't "mean" anything!

HT - Home Theater. What you make of it. But a home (theater) without a subwoofer, isn't quite up to our definition!

Hz - Short for Hertz, the German scientist who came up with a scheme of measuring the frequency of sound waves. 15-30 Hz is very low bass and very rare in anything but movie soundtracks. 60 Hz is generally considered mid-bass above which most large full range speakers can easily produce. The real fun (and real) bass, is in the middle of that range, call it 20-40 Hz.

LD - Laserdisc, grandfather to the DVD. Still capable of great picture and sound. Increasingly going the way of the 33 1/3 LP.

LFE - Low Frequency Effects are the ".1" channel in 5.1 sound tracks. If you have a sub selected in your system any LFE signal goes to the subwoofer. The sub may get bass from other channels as well however, depending on the "size" of speakers in your set-up.

RMS - A common and accurate way to rate the power of an amplifier. Literally "Root Means Squared". Typically measured in "watts".

SPL - Sound Pressure Level, a fancy way of saying "Volume". Usually measured in dBs.

Sub - Short for subwoofer

"**5.1"** - Reference to 5 full range channels and one bass only channel.

Warranty:

45 day money back guaranty. If you are not completely satisfied with the performance of your subwoofer, return it to us for a full refund of the purchase price. Just a few minor stipulations should you choose to do this:

- Subwoofer must be returned in original shipping box.
- E-mail for return of merchandise number (RMA) and display this on the outside of the box.
- Subwoofer must be insured during shipping,
- Shipping costs not refundable.

The "small print": 3 year warranty against defects in materials and workmanship for subwoofers, 1 year for electronics. Sub must be returned to SVS shipping pre-paid. SVS will repair or replace any item at its discretion and return to the customer as soon as possible. Naturally, this warranty does not cover any product subjected to misuse or accidental damage. Repairs or parts required to misuse are subject to additional charges.

Except as provided above, *SV Subwoofers* makes no other warranties express or implied. Some states do not permit limitation or exclusion of implied warranties, so exclusions may not apply to the purchaser.

The bottom line: We're proud of these subwoofers and want you to be as happy owning one, as we are selling one (or more) to you. E-mail us if you have any warranty question.

SV Subwoofers

SV Subwoofers LLC
P.O. Box 8423
Reston, VA 20195

SVS
The Bass Authority

Fax: 330-793-8183
Email: Custsupport@SVSubwoofers.com