

**Tower loudspeaker system
Owner's manual**



L1590

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Introduction

Thank you for purchasing ADS L1590 loudspeaker systems. Each ADS L1590 has been thoroughly inspected and computer tested to provide you with years of sonic excellence. It is constructed of materials chosen for optimum performance and has been precision built in a modern plant designed specifically for loudspeaker production. The design and acoustic performance of the L1590 fully complements ADS' Atelier series of electronic components, making it possible to integrate an entertainment system into the living environment.

This manual provides information on the placement, connection and operation of your L1590 loudspeakers. Please read it thoroughly and save it for future reference.

Thank you.

ADS, Analog & Digital Systems, Inc.

Unpacking

Each loudspeaker is wrapped in a protective bag and held by corrugated bolsters inside a rigid carton.

Remove the top bolster, then the envelope containing a sheet with two self-stick serial number labels and the *Owner's Registration Cards*. Rotate the carton so that it rests on one of its long sides and then carefully slide the speaker out of the shipping carton onto the floor. Stand the speaker up on its base and remove the protective bag.

The bottom center bolster in the carton contains the grille on a foam spacer. Remove the grille from the bolster, lift it away from the foam spacer, and set it safely aside.

The tweeter and midrange drivers are covered by protective cups. Remove these cups by pulling straight out from the face of the speaker. If you are unable to easily pull them off, use your fingers to carefully pry the edges of the cups away from the driver plates. Two raised sections at the edges of the cups cover small wires on the drivers; do not pry around these sections. **Do not** pry with tools of any kind. **Do not** touch the driver domes or cones.

Installing the grille Notice the ADS logo on the front of the grille and six pointed studs on the rear. Place the grille, logo at the bottom, on the speaker by pressing the top two studs into the rubber sockets at the top of the L1590. Press the remaining four studs into their sockets.

Shipping carton We suggest you save the carton and packing materials for future use. Do not pack the speaker without first placing the protective cups over the tweeter and midrange. Do not pack the speaker with the grille still on it. There is a packing diagram printed on one of the shipping carton flaps. Transporting the L1590 in anything other than its factory carton can result in damage which is not covered by the warranty.

Owner's record Completing and mailing your postage-paid *Owner's Registration Card* enters your purchase into our files. Please use **one** postage-paid *Owner's Registration Card* to record both of your numbers. Peel off one of the two serial number labels packed with each speaker and place it in the space provided on the *Registration Card* that you send to ADS. Place the other serial number label from each speaker in the space on the *Registration Card* that you keep.

We urge you to save *both* your sales receipt and your Owner's Registration Card for future reference; you may want to attach them to this manual.

Removing the grille Remove the grille by pulling straight out on its bottom to release the lower four studs. Then pull the top of the grille straight out to release the remaining two studs. *Do not* touch the driver cones or domes.

Placing your speakers

The location of speakers in the listening room and the characteristics of the room itself are highly important factors in the quality of the reproduced sound. For most people, the room is the factor least able to be altered in the process of achieving good sound. It is also true that the locations of the speakers are often influenced by considerations of decor rather than sound quality.

In view of these facts, we urge you to experiment freely with the locations of your speakers. Not only might you find outstanding locations for the speakers, you are also quite likely to thoroughly enjoy the process. Below are some general considerations.

Boundaries The walls, floor and ceiling make up the boundaries of the room. In some rooms bookcases, divider walls and the like can also act as boundaries. In general, the L1590s have smoothest response and best stereo imaging when their front panels are located 2–4 feet from boundaries. Moving the speakers closer to one or more boundaries will increase the bass output. In some rooms, this extra bass will sound good; in others, the extra bass will sound boomy or tubby.

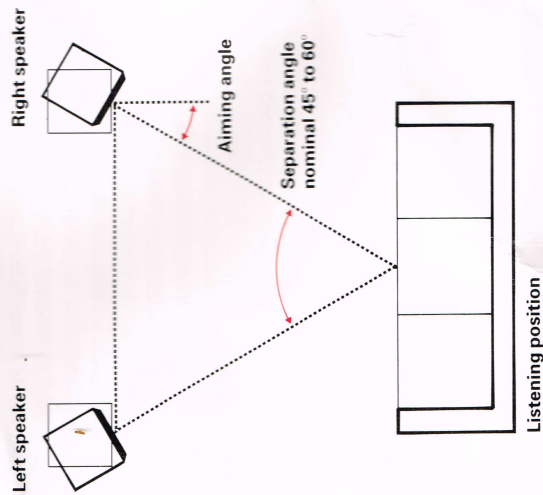
Nearby "hard" surfaces can dramatically affect the distribution of higher frequencies in the room. When corner locations must be used, angle the speaker toward the center of the room. When the speaker is on or facing an uncovered floor, try using a rug beneath and/or in front of the speaker to reduce high frequency reflections.

Separation The wide, smooth power response of ADS speakers provides an excellent sense of stereo breadth and depth over a wide listening area. However, varying the distance apart and the aiming angle of the speakers has a substantial effect on the size and depth of the stereo stage.

A good rule of thumb is to start with your preferred listening position and each of the speakers at the points of an equilateral triangle, with the speakers aimed toward the listening position. In other words, the angle between the speakers, as you face them, will be about 60° . In some rooms, this will be too much separation, while in nearly every instance an angle less than 45° will be too small. Vary the separation and the aiming angle for the sense of stage that you prefer.

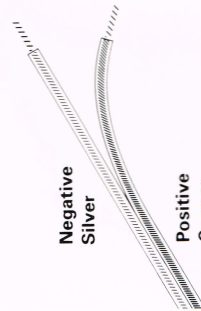
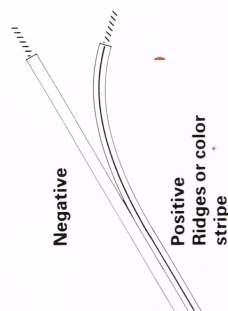
The accessory F15 Base attaches permanently to the bottom of the L1590 to increase its stability on thick carpet or uneven floors. Contact your ADS dealer for information about the F15.

Caution: Do not use these speakers outdoors, or where they may become wet or damp.



Connecting the speakers to the amplifier

6 Remove insulation approximately $\frac{3}{8}$ "



Note: When you are using the ADS PA1 biamplifier/crossover module, or are biamplifying with separate power amplifiers and an electronic crossover, see the instructions in *Bi-amplified operation*, page 11, following.

Removing the input connector cover The input connector housing is located behind a cover panel, in a recess in the rear of the L1590. The panel is held in place by four Phillips head screws. Use a #2 Phillips screwdriver to remove the screws. Remove the panel and set it safely aside until the connections are completed.

Wire Use two-conductor, stranded-type, insulated wire to connect the speakers to the amplifier. Wire gets larger in diameter as the gauge number gets smaller; 12 gauge (AWG) wire is larger than 16 gauge. Larger wire has less resistance and maintains amplifier damping of the speakers while reducing power loss in the wire itself.

Some users and retailers endorse exotic (and expensive) wire designed for certain audible benefits. Many of these wires are well made and effective. "Lamp" wire or "zip cord" also works well so long as it is large enough. We recommend 16 gauge wire for short runs of less than 50 feet, and 12 gauge wire for longer runs. Using wire smaller than 16 gauge will not cause harm but may reduce the damping of the woofer system by the amplifier.

Preparing the wire Estimate the amount of wire needed to reach from the amplifier to each speaker. Add enough extra wire so you can freely move the speakers about to find the locations for best sound. Use wire cutters to cut these two lengths of wire. You can cut the wire to exact length once the locations are established.

Separate the two conductors of each wire pair for a few inches in from the ends. Strip about $\frac{3}{8}$ " insulation from each conductor by using wire strippers designed for the job. Be careful not to cut into the wire itself. After removing each conductor's insulation, twist the strands of the conductor together to avoid fraying.

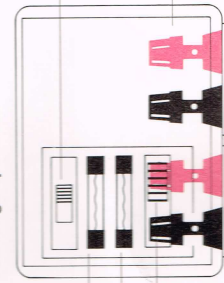
ADS speaker connectors accept wire up to 16 gauge directly. When you use larger wire, reduce the diameter by removing strands. Cut away strands where they emerge from the insulation, until the wire fits the ADS connector holes. Reducing the size of the wire at the ends to fit the connectors does not affect the performance of the system in any way.

Speaker input connectors Your ADS L1590 has four color-coded, binding post input connectors. These connectors accept bare wire and a variety of wire terminals, including dual "banana" plugs which insert into the ends of the posts.

The red and black pair to the right in the housing are used for full range operation. The red and black pair to the left are for direct woofer connection in biamplified operation only. For information about biamplified operation, see *Bi-amplified operation*, page 11, following.

For full range operation, connect the speaker wire to the right hand pair of binding posts.

Full range operation



Tweeter fuse 1.6A

Midrange fuse 2.5A

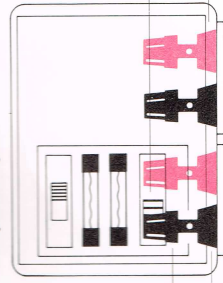
Biamp switch

Switch in right hand position for full-range operation

Tweeter level switch
◀ -1.5 dB 0dB ▶

Input connectors

Bi-amplified operation



Input connectors

From low frequency amplifier

Switch in left-hand biamp position

From mid/high frequency amplifier

Polarity The left and right channels of the stereo system must be connected in identical polarity (phase). Having one channel reversed in polarity will result in serious bass loss and peculiar stereo imaging.

Speaker wire has coding for the two separate conductors. The wire has raised ribs or a color stripe on the insulation of one conductor, or clear insulation with different color conductors. Whichever type of wire you have, call one of the conductors "positive" and the other "negative." Be consistent in connecting both channels.

Dress the speaker wire through the hole in the bottom of the left hand speaker's recess. When using bare wire ends, unscrew the fluted tops of the binding posts to reveal the wire holes in the posts. Insert the bare wire ends and secure them by screwing the tops of the binding posts finger-tight on the wires. Do *not* use tools to tighten the binding posts.

Connect the positive conductor of the wire pair to the red input connector and to the amplifier's left channel red, "positive" or "8 Ohm" output connector. Connect the negative conductor of the wire pair to the left speaker's black terminal and to the amplifier's left

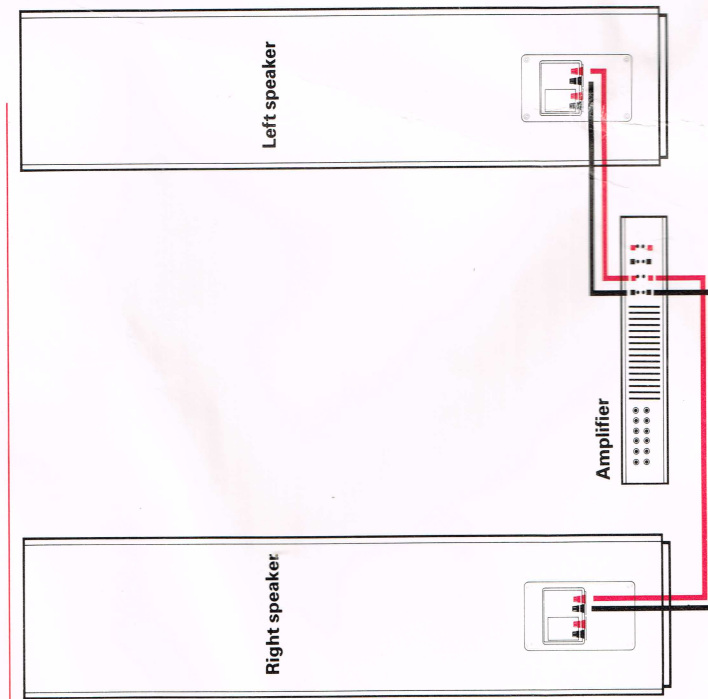
channel black, "negative" or "ground" connector. Repeat the above steps for the right channel, using the other wire pair, the right hand speaker and the amplifier's right channel output connectors.

After connection, you can double-check for proper polarity by a simple listening test. Place the two speakers face-to-face, a few inches apart. Set your amplifier to *mono* mode, play some music, and then reverse the connections on *one* speaker. Whichever polarity connection has the fullest, loudest bass is the proper one.

When you have completed the connections, replace the cover panel.



Using your speakers



Amplifier power and listening levels Thanks to their high efficiency, ADS speakers play loudly with relatively little power input. At the same time, they are rugged enough to be used safely with high power amplifiers. Your ADS speakers produce, in a typical listening room, about 90 dB average sound pressure level from 2 Watts, average, per channel. This means that the recommended minimum 15 Watts per channel (30 Watts or more, peak) amplifier can produce average music levels of 90 dB with clean peaks of more than 100 dB.

Rooms that are much larger or less live than typical can require substantially more amplifier power. Listening levels that approach live concert levels may also require much more amplifier power.

Using tone controls Amplifier tone controls and loudness compensation controls are of great value in adjusting the tonal balance of the system. Experiment with tone control settings to obtain the tonal balance you prefer for your music, equipment and room acoustics. Try the loudness compensation when listening at low levels. Generally, the most satisfying sound results from moderate adjustments.

Of course, these controls can be abused. Using full bass and/or treble boost can call for significant power increases from the amplifier. These extra power demands beyond the amplifier's capacity can blow fuses or cause damage.

Precautions You can safely use high power amplifiers (more than 100 Watts per channel) by observing some simple precautions. We advise you to observe these precautions regardless of amplifier and speaker power ratings.

First, avoid amplifier clipping. Clipping occurs when amplifiers are pushed to their electrical limits. Clipping is audible as distortion or noise such as buzzing, popping or harshness. If you hear the warning of distortion at high levels, *immediately* turn down the level to a point where distortion disappears. Prolonged operation at distorted levels can damage the speakers. Such damage is not covered by the warranty.

Second, continuous test tones can be dangerous to any loudspeaker. Use test tones only at low volume settings and for brief periods.

Finally, and perhaps most importantly, be sure to lower the amplifier level control setting *each* time you change the input selector, tune in stations, or raise or lower the tone arm of your analog disc player.

Observing these precautions will assure you of the continued high performance for which your speakers were designed.

Tweeter level control The L 1590 has a two position switch to adjust the output level of the tweeter. The switch is located behind a cover in the input connector housing, above the tweeter and midrange protection fuses and the biampifier switch. Use your fingernail to slide the cover down, and then remove it for access to the switch. A label on the back of the cover shows the location and settings of the switch.

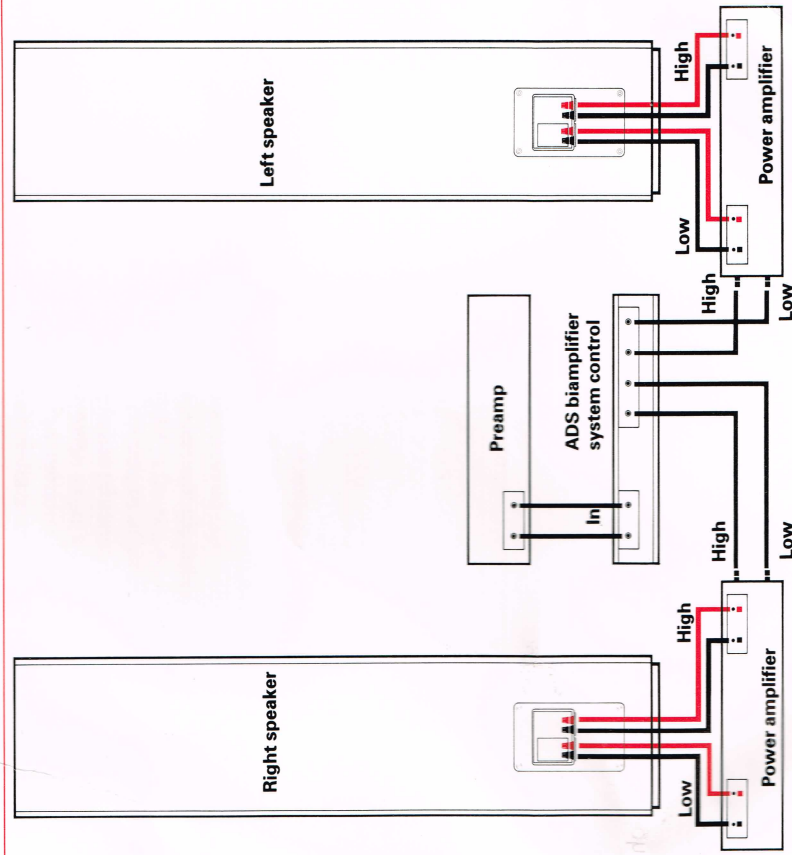
Setting the switch to the right results in the normal output level from the tweeter, while setting the switch to the left results in a very mild cut of 1.5 dB. This adjustable tweeter output can help compensate for the increased level of high frequencies in relatively bright rooms. Try the switch both ways, and use the setting that sounds best to you.

Biampified operation

Biampification results in several sonic benefits, among them lower intermodulation distortion and greater dynamic range. In a biampified system, the woofers of the L1590 are connected directly to one power amplifier, while the midrange and tweeter are connected to another. The two amplifiers must be fed from an electronic crossover whose characteristics of crossover frequency and filter damping factors match the requirements of the L1590.

The L1590 can be used in a biampified system with an ADS Biampifier system control and separate power amplifiers, or with the ADS PA1 Biampifier which contains an electronic crossover and two power amplifiers. The PA1 neatly fits into the recess in the rear panel of the L1590, making an integrated amplifier/speaker system.

To use the L1590 in biampified mode, the biampifier switch must be set in the left, *biamp* position. This switch is located behind the cover in the input connector housing. Slide the cover down with your fingernail and remove it to set the switch. The switch is located below the fuses. The biamp switch positions are shown on the label on the back of the cover.



The speaker wire from the woofer amplifier (low-pass amplifier) is connected to the left-hand, red and black pair of binding posts. The wire from the mid/high amplifier (high-pass amplifier) is connected to the right-hand pair of binding posts. The label on the connector housing shows the locations of the connectors.

See the Owner's manual of the PA1 for more detailed instructions for its use. See the Owner's manual of the ADS Biampifier system control for detailed instructions for using various combinations of amplifiers and for a thorough discussion of connection polarity.

In case of difficulty

Most difficulties with high fidelity equipment result from loose or poor connections, bad connecting cables or lack of understanding of the unit's operation.

Below are some common difficulties with suggested remedies. If these remedies don't help, contact your ADS dealer for assistance. If you want to contact the factory directly, write or call:

Customer Service Manager
ADS, Analog & Digital Systems, Inc.
One Progress Way
Wilmington, Massachusetts
01887

617 658-5100

No sound It is extremely rare for a speaker to fail completely. Check the amplifier speaker selector and tape monitor switches, and the connections at the amplifier and the speaker. Usually you will find a loose connection or a switch in the wrong position.

Dull or muffled sound A blown tweeter and/or mid-range fuse can produce this sound quality. The L1590 has both tweeter and midrange fuses. Turn the amplifier level control to a low setting, and put your ear close to each driver in turn, to discover the driver that is not working. Replace the fuse for that driver. Fuses blow only from an excess of power applied to the speaker; they do not wear out. The fuses are located behind the cover in the input connector housing on the back of the speaker. Use your fingernail to slide the cover down, and then remove it for access to the fuses.

The fuses have plastic pull tabs around them for easy removal; be sure to place the pull tab around the replacement fuse before you install it. Replace a blown fuse only with a fuse of identical type and rating. A label on the back of the cover shows the locations and ratings of the fuses. Occasionally a blown fuse will look good. The surest test is to replace the fuse with a known good one.

No bass output If your L1590 sounds thin and reedy, check the position of the amplifier switch behind the cover, below the fuses, and set it to the *normal* position.

Weak or distorted sound Check for loose strands shorting out adjacent speaker wires at the amplifier and speakers. Check also for a loose connection, which is the most common cause of speaker distortion. If you experience distortion or buzzing sounds from an individual driver after having to replace its fuse, contact your ADS dealer for assistance.

Continuous background noise or hum These sounds are always from the electronic equipment and not from the speakers. Check the other equipment.

Maintaining your speakers

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Enclosures Ordinarily, the enclosures of ADS speakers require no maintenance other than dusting. The genuine walnut and rosewood finishes are lacquered to seal the grain and preserve appearance. You can use dusting spray or furniture polish, if you like, but be careful not to spray on or near the drivers, or through the grilles. Do not use furniture oils.

Dust the textured black finishes with a dry or slightly damp cloth. Dusting sprays may, and polishes will make the finish shiny.

Simply dust the grille with a dry cloth or duster as needed.

Drivers The drivers require no routine maintenance. Do not touch the drivers or allow anything to touch them. Do not vacuum clean the drivers or the front panel of the speakers. Some dust accumulation on the tweeter and midrange domes is normal and does not affect the sound in any way.

L1590 Specifications

Frequency response	28—23,000 Hz, ± 3 dB.
Impedance	8 Ohms, nominal.
Efficiency	90 dB SPL from 2.8 VRMS ("1 Watt") pink noise input, measured at 1 meter in a typical listening room.
Driver complement	One 25mm/1.0" woven soft-dome tweeter with proprietary damping. Wet wound, single layer, high temperature voice coil assembly. Magnetic fluid cooling. One 50mm/2.0" woven soft-dome midrange with proprietary damping. Wet wound, single layer, high temperature voice coil assembly. Magnetic fluid cooling. Two 250mm/10" cast basket, high compliance woofers with tapered, damped Stiffite cones and butyl rubber surrounds. Wet wound, two layer, high temperature, Linear Drive voice coil assemblies in extended-pole magnet structures.

Finishes	Select, straight-grain, genuine walnut veneer or textured black urethane. Enclosure fully finished on all sides.
Grille	Acoustically transparent, frameless, perforated steel with matte black finish.
Dimensions	1200mm/47.3" H x 290mm/11.5" W x 360mm/14.2" D. Grille adds 25mm/1" to depth.
Weight	45 kg/100 lbs.
Optional accessories	F15 Base. PA1 biamplifier/crossover module. Installs in recess in rear of L1590 enclosure.
Optional finishes	Rosewood, oak, mahogany; consult dealer for availability

Crossovers	350 Hz and 5000 Hz. High efficiency, tight-tolerance design with 12 dB/Octave slopes.
Provision for biamplified operation	Mode switch and separate terminals for direct woofer input.
Tweeter level control	Two-position switch, 0 and -1.5 dB.
Driver protection	Tweeter—type 3AG 1.6 Amp fuse. Midrange—type 3AG 2.5 Amp fuse.
Power rating	500 Watts maximum peak program.
Recommended amplifier power	15 Watts minimum, 500 Watts maximum.
Input connectors	Two pairs of color coded, multi-way binding post terminals.
Enclosure type	Acoustic suspension, with glass fiber damping and separate chamber for each woofer.
Enclosure construction	19mm/0.75" thick, high density compressed wood with heavy internal bracing. Diffraction-corrected flush front baffle and flush driver mounting.

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