

YOUR FIRST DISH: HOW TO BUY A HOME SATELLITE SYSTEM

# AudioVideo

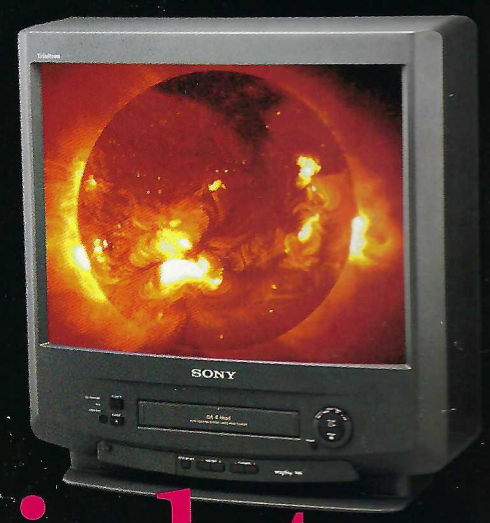
GUIDE TO HOME THEATER

# Shopper

A CurtCo Freedom Publication May 1997



TV/VCR Combos



# Getting

Camcorders

the right

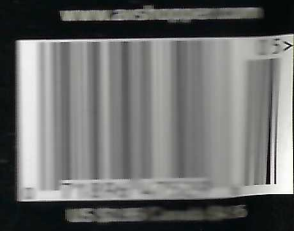
# Gear

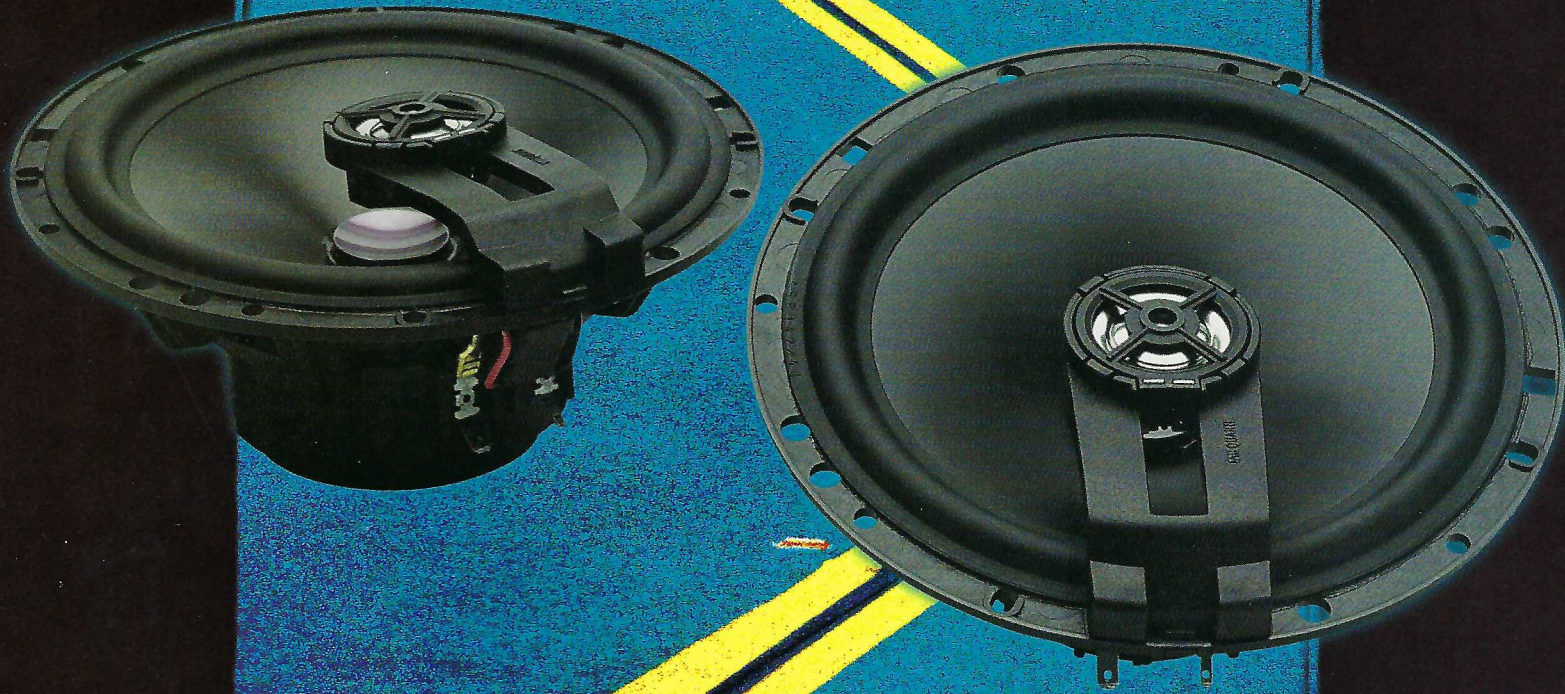


Car Stereo Speakers



Recommended: Paradigm Subwoofer, Energy Speaker System





Photography by Cordero Studios

# For Great Sound and Ease of Installation, Coaxial Speakers Hit the Bull's-eye



**t**here are some things in life—like incompetent bosses or receding hairlines—that you can't change;

you've got to accept 'em as fate and move on. But there's no accepting a poor-sounding car stereo system. Not here, buddy. We don't allow concessions. A wimpy-sounding car stereo is...well, it's un-American. After all, listening to great-sounding tunes in your car or truck is your birthright, just like baseball, apple pie, and the national debt.

Actually, the impact of a high-quality mobile sound system playing your favorite music can be an intimate and revelatory experience. It'll transport you to another place where you become impervious to everything but the needle on the speedometer, the potholes in the road, and most importantly, the music permeating your soul. It's a place where everything else is transitory—that is, as long as your speakers are up to the task.

*by Micah Sheveloff*

## **You Don't Know What You Don't Know**

In all likelihood, the stock sound system that came in your car probably isn't doing the job that a well-designed aftermarket system can do. But upgrading the entire system—with a source unit, amplifiers, and speakers—can cost more than you might be willing to spend in one shot. Since your speakers are the final factor in the signal chain that determines how good (or bad) your system sounds, they represent the first and best place to start upgrading.

Automotive loudspeakers come in many sizes and configurations, but a pair of 6.5-inch coaxial speakers represents one of the best upgrade options going. They're rel-

atively easy to install and provide close to full-range frequency response, delivering all but the lowest bass notes and every bit of midrange and high-frequency response that you'd ever want or need.

Coaxials are an interesting breed. They're composed of a single tweeter mounted in the center of a woofer. This configuration is referred to as "coaxial" because both drivers share the same axis. Basically, the woofer reproduces the bass and midrange, while the tweeter handles the higher frequencies. A crossover network separates the audio signal into specific frequency bandwidths and routes them to the appropriate driver. Crossovers are sometimes so small they're barely noticeable when attached to

the speaker housing. The more elaborate networks sit in separate boxes that must

be wired and mounted during installation.

These will vary in size and shape, but they're usually compact enough to be hidden away easily.

A constant concern of any automotive speaker designer

is to allow for the constraints of physical size—it serves no purpose to build a great-sounding speaker that won't fit in many vehicles. Coaxial speakers often provide the perfect solution because all their sound (theoretically speaking) comes from one source point, which can improve image quality, and in most cars they fit easily behind a factory speaker grille or cover, making them harder for a would-be thief to spot.

### Methodology

I tested nine pairs of 6.5-inch coaxial speakers in the comfy confines of a retail demonstration room designed to mimic the frequency response of a car; when all was said and done, six made the final cut. The room is pretty typical of what you'd encounter when shopping for speakers at any good car stereo salon. It measures approximately 7 by 10 feet with an 8-foot ceiling and has been treated with acoustic damping material on the ceiling and industrial carpeting on the floor. I placed the speakers in custom-built, 1-inch-thick industrial-fiberboard enclosures loosely filled with Dacron (pillow stuffing) for damping and sealed inside with caulking. Each enclosure has an internal volume of 1 cubic foot and is

equipped with a removable front panel to enable proper speaker mounting.

For test purposes, I placed each speaker enclosure in a corner of the room at ear level and also at my sides in an off-axis position from my knees, as if the speakers were mounted in the front door panels of a car (probable mounting locations in most of today's automobiles). In some cases, the door-panel position provided distinctly different response from the ear-level position. I powered the speakers using an Audison Sedici power amplifier (160 watts by 2) and an Alpine CDE-7828 CD receiver (35 watts by 4). The Audison's clean power minimized tonal coloration and laid bare the characteristics of each speaker, while the more moderately powered 7828 revealed how well each speaker pair might perform in a conventional audio system.

For source material, I enlisted the help of Lyle Lovett and jazz guitarist Tony Purrone. I chose "Penguins" from Lovett's album *I Love Everybody* for its tastefully placed vocals, rich upright bass, dynamic horns, and open space. This is no cakewalk for any loudspeaker. Purrone's rendition of the Beatles' "Norwegian Wood" (off *Electric Poetry*) starts out innocently enough, but the thrashing rhythmic pace near the song's end is loaded with detail that'll get smeared by anything less than an athletic loudspeaker. Although these two pieces of music are vastly different, they enabled me to listen to the subtle coloration of each speaker.

Finally, keep in mind that while a well-designed demonstration room provides a consistent and reliable means for testing and making comparisons, car speakers will invariably sound different once they're installed. In-car performance will vary depending on the shape of the vehicle interior, the location of the speaker-mounting holes, the cavity (or lack of cavity) behind the speaker, and so on. Nonetheless, trust your ears and go with what sounds best to you. And if you're unsure, check with an experienced salesperson.

### Polk Audio db6520

First impressions are usually worth a lot, but not in the case of the db6520s—they actually got a lot better with time. It's common for new speakers to need a break-in period, and the db6520s were no exception. When I first played them, their bass was tight but somewhat constricted, while the tweeter sounded raspy and very metallic. This being the case, I left them playing at a relatively high volume and went to dinner.

When I returned, the db6520s sounded completely different. The upright bass thundered forth willfully, and Mr. Lovett sounded like Mr. Lovett again, locked

a pair of  
6.5-inch  
coaxial  
speakers  
represents  
one of the  
best upgrade  
options going

dead center on the stage. There was still a vague graininess to the horns, but nothing really worth complaining about. Off axis, with the speakers at my side, I was able to appreciate how hard the Polk woofers were hittin' it. With sensitivity given as 90 dB, these are rock 'n' rollers at heart. Both the Audison and Alpine got along quite well with these speakers, although I preferred their

attached, the tweeters sit on (or close to) the same axis as the woofer, so I say they're coaxials. Wanna fight?

As with the Polks, the tweeter has a swivel mechanism that enables you to tilt the tweeter for a custom-tailored effect; in this case, final adjustment is handled once the grille is in place. Mounting depth is a reasonable 2.5 inches, which should allow the speaker to fit in numerous applications, but if your install environment won't permit the use of the grille, CD Technologies also makes a two-way component version. The outboard crossover networks are compact and easy to tuck away, although they didn't feel as solidly constructed as the rest of the product.

After making certain that the tweeters were angled symmetrically, I cued up the Purrone jazz trio and was treated to some smooth grooves. The timbre of both the guitar and saxophone worked perfectly through this unusual version of "Norwegian Wood," and even as the rhythm section picked up the pace, everything remained glued together up to the highest volume levels. When I set the speakers down at my feet and pointed the tweeters upward to simulate a car-door environment, the angled tweeter effectively compensated for the off-axis speaker locations.

I thought the CL-609s sounded pretty good with the Alpine 7828; given the speakers' 92.5dB sensitivity, they played surprisingly loud before tiring out the 35-watt-per-channel amplifier. I'd still opt for more amp power, though, as the Audison provided the

CL-609s with the richness and detail missing with the Alpine unit.



high-powered performance with the Audison. These are accurate speakers, longing to kick out the jams. Frequency response is rated as 50 Hz to 20 kHz, power handling as 65 watts continuous.

The db6520s are pretty husky coaxials: Their large structure requires at least 3 inches of mounting depth, which may pose a problem in certain mounting locations. Once mounted, the tweeter in each speaker can be swiveled on its axis to direct the high frequencies—a real plus when the speakers are mounted in a door panel or other sub-optimal location. The speakers come with an attractive set of grilles that'll enable surface mounting or stealth installs behind a stock cover where applicable, and the attached prewired crossover capacitor doesn't create any install problems.

Once you've given the db6520s some time to limber up, they'll perform quite admirably. The db6520s are endowed with plenty of kick and lots of realistic response; at \$220 a pair, these speakers are appropriate for just about any moderately powered system. Circle Reader Service No. 625.

#### CD Technologies CL-609

The CD Technologies system uses a unique and creative design approach: The woofers are complemented by separate tweeters neatly housed in the grille assembly. Without the grille on, these babies aren't really true coaxials, but once the grille is



Overall, the grille size may present problems for installations in narrow door panels, but this is a well-designed, pleasant-sounding speaker with some punch and realistic sonics. Truly a jack of all trades. Circle Reader Service No. 626.

**Kicker Impulse 650i**

The Kicker Impulse 650i's work on the same kind of high-frequency directional-dispersion theory as the CL-609s, except their tweeters are mounted at a fixed angle. By simply rotating the speaker during installation, you can align the tweeter to your heart's delight, but it'll take a bit of tweaking before you get it just right. (Ah, poetry.) Requiring a modest mounting depth of



\$199

pair

just over 2.5 inches, the 650i's employ an onboard crossover network that's attached to each main unit, making wiring a cinch. A set of grilles is included.

Like the Polk db6520s, the 650i's needed some time to break in, but once they were ready, they did just what you'd expect 'em to do—they kicked. Bass response was very tight and didn't struggle until journeying down into the 40Hz arena, while guitars and vocals remained natural and in perspective, even at lower volume levels. Horns, on the other hand, were somewhat strident throughout my listening. (They weren't really offensive, just more pronounced than I'd like.)

The 650i's did sound a bit better when I sat off axis, though. The midrange shrillness I heard in the horns seemed to fade away, and their overall sound was more natural. Given their respectable 90dB sensitivity and rugged power handling (125 watts continuous), the 650i's aren't overly power hungry, but they still seemed to perform better with that extra dose of Audison juice. Construction quality was very solid, and overall performance was aggressive but very good, especially from the off-axis door location these speakers are likely to occupy. Considering their price, the Kicker 650i's offer lots of bang for the buck. Circle Reader Service No. 627.

**Macrom 5417 Integra**

The Macroms offer one more example of ingenuity in the design stage. The tweeters are center mounted like a standard coaxial, but Macrom includes two differently shaped lenses that surround the tweeter and alter its directionality. As far as physical footprints go, the Macroms are quite trim, requiring a mere 2.25 inches of mounting depth for a solid installation. Since you can't always dictate the best place to mount your speakers, this shallow design will likely come in handy. The internal crossover keeps the wiring quite simple, and grilles are included.

Mr. Lovett's penguins also seemed to enjoy these coaxials, with the horns, bass, and drums painting an almost perfectly detailed sonic picture. The vocals were way up front—on the verge of preponderance—but then again, Lovett's voice is mixed way up front as it is, so who knows? Demanding upright-bass passages remained clear and focused, and the odd, ringing snare drum was reproduced exactly the way it was mixed. Upper mids sounded a bit honky at times, but otherwise all was well.

The Macroms actually sounded stellar when I sat off axis; the upfront nature of Lovett's vocals were almost entirely corrected, and this miraculous achievement carried over to the treatment of the wailing tenor-sax solo on "Norwegian Wood." It is good Norwegian wood! Sensitivity is given as 90 dB, but these speakers sure needed some power to get cooking (they're rated for 120 watts maximum). When powered by the Alpine head unit, they sounded frail, with muddled mids and a hole where the bass used to live, but when powered by the more formidable Audison, the Macroms sounded excellent. These are good-sounding, well-designed speakers, and when you consider their shallow mounting depth and off-axis performance, they ought to make a lot of people happy. Circle Reader Service No. 628.



\$330

**a/d/s/ A6i/m**

When companies continue to use the same design aesthetic over and over again, it says one of two things: Either they've got no clue what they're doing, or they know exactly what they're doing. It's my opinion that there's no guesswork going on at a/d/s/; their A6i/m coaxials use the same drivers found in the company's AL-6 component set, and for good reason—they kick butt.

The A6i/m's are pretty big fellas, requiring 3 inches for mount-



ing depth, though that's usually a trade-off you'll have to make for solid bass impact. Also, their center-mounted synthetic-dome tweeters aren't angled, but the radiation pattern for highs is still very clear. The speakers employ compact outboard crossovers that can be hidden away easily during installation. A set of grille covers is included.

The A6i/m's don't leap or sizzle so much as they serenade the listener with deep, rich bass. Upright bass is decidedly more real with the A6i/m's in place, and the kick and snare drums were where they should be. Vocals retained a silky gentleness, and Purrone's jazz-guitar work sounded sweet and subdued until the torrid pace nearing the end of the track. Off-axis listening generated plenty of low-frequency energy, with maybe just a touch of softness in the upper mids and higher-frequency ranges. The A6i/m's played very loudly with the Alpine head unit, but given their 90.5dB sensitivity rating, that's no surprise; they only sounded fuller with the Audison in place.

The A6i/m's seem to get beefier in the lower end, as compared to their more subtle treble attack. They're not terribly aggressive speakers overall, but they've got lots of bass impact, and there's probably not another woofer this size that'll do any better in the low end. As long as your vehicle can accommodate the 3 inches of depth required for installation, the A6i/m's are real winners. Circle Reader Service No. 629.

**MB Quart 160.03KX**

German technology has always been revered for its attention to the particulars, and that's wildly evident with MB Quart's 160.03KX coaxials. They use a unique bridge to hang their .75-inch tweeter at an angle over the center of the woofer assembly. The dispersion characteristics of their titanium-dome tweeter have won Quart much praise, and for good reason—they're awesome. Overall construction is equally impressive; mounting depth is barely over 2.75 inches, and the speakers' separate crossovers are very easy to mount. Unfortunately, the set doesn't include grilles—perhaps an oversight—but they are available from MB Quart.

Flat out, I have to admit that these are wonderful speakers. Their tonal balance is lively, and the finest details shine through the mix at all times. Upright bass on "Penguins" was defined without ever becoming overbearing, while the kick drum snapped through the fray smartly. Vocal images remained front and center, and while the horn sections were inclined to blur occasionally at higher volumes, cymbals were airy and seemed to come from nowhere. That's exciting stuff.

The Quarts sounded almost as good from my off-axis position; they remained full of detail and didn't lose their impact. The Alpine head unit handled the 160.03KXs nicely at lower volumes, but the more power the better, I say. (Lots of wattage to those titanium tweeters will deliver every last bit of detail you could ask for.) The 160.03KXs are



great car speakers, and while they might deliver less impact on the bottom end when compared to the hard-hitting A6i/m's, they surely make up for it with their angelic highs. These are revealing speakers and may offer more detail than you're used to hearing. Circle Reader Service No. 630. 🚗