Car Audio Buying Basics
What to Know Before You Buy

Not getting the most enjoyment from your car audio? Whether you want to add to your existing car stereo system or completely replace a factory-installed entertainment system, this guide will help you determine which components you need for the crisp, powerful sound you want.
Head Units / Receivers
The heart of your car audio system sits in your dashboard and is commonly referred to as the head unit or audio receiver. It connects all the different parts of your radio to the speakers, and it provides power to all the components through your vehicle's electrical system. Your head unit may include a built-in CD player, radio tuner or a controller for a multi-disc CD changer. To accommodate more recent technology, many receivers have started including interfaces for digital music players, connectors for HD or satellite radio and connections for car video systems.

Head units are available with large touchscreen displays with Bluetooth and GPS capabilities, more traditional push-button and dial controls or a combination of the two! Make sure you know the size of the opening in your vehicle before ordering to eliminate the need for dash modifications.
When shopping for a new car stereo, most people think in terms of wanting more power. An amplifier takes a signal from a source and makes it larger, which makes the sound louder. Amplifiers will boost power to your speakers, ideally without adding any distortion. Car amps can power one, two or four audio channels, with the most common being two- and four-channel models. Before you buy, there are a few specifications to note:

- Car amplifiers will list RMS power, which is the steady power level the amp will produce, and peak power, which is the maximum power your car amplifier can produce in short bursts. Match the power rating on the amp to your car speakers to prevent damaging the speakers.
- Low-pass filters provide better low-frequency bass sounds; high-pass filters provide better high- and mid-range treble sounds.
- A pre-amp is a second amplifier hooked up in sequence to your car stereo for an even bigger sound.
Speakers
One of the most important audio components for superior sound quality is speakers. Auto manufacturers typically do not install high-end car speakers, which can result in poor playback (especially noticeable while driving). When purchasing after-market speakers, you should be mindful of a few things. If using your existing receiver, you’ll need to choose speakers that both fit your car and closely match its RMS wattage output. Whether you decide to work with your existing head unit or completely replace your audio system, upgrading speakers is an excellent way to improve your in-car listening experience.

**Power**

When selecting a head unit, it’s very important that you match the receiver power to the speakers. Receivers and speakers work best together when their RMS (sustained power) output wattages match. Too much or too little power to the car speakers can damage them or distort your sound quality. Before buying, you should also consider the speakers’ sensitivity, which refers to the sound your speakers produce based on the electricity they receive. Speakers with high sensitivity work best with radios with lower power levels and vice versa.

**Features**

Speakers that have more features can produce fuller sounds. A typical factory-installed car speaker is a two-way speaker, which means that there are two separate drivers (also known as speaker cones) in each speaker. One driver reproduces the lower frequencies coming from the car’s audio receiver; the other produces the higher frequencies. Three-way speakers go a step further by having three separate drivers inside of each speaker, with each driver handling a narrow range of frequencies. This delivers sound that is clearer and more powerful across the entire hearing spectrum. While listening to your favorite music you will clearly hear background instruments and more subtle tones.

**Size & Shape**

When choosing new speakers for your car audio system, use your existing speakers to help gauge the correct size. Many factory-installed speakers systems include either 5.5” or 6.5” speakers in the front door panels and either 6.5” or 6”x9” speakers in the rear speaker panels. For the fewest complications and modifications, look for speakers that are the exact dimensions as the ones you are replacing.

You’ll also want to check the depth and shape of your new speakers to make sure they’ll fit in the current speaker enclosures. If round speakers won’t work for your door panels, you may find other shapes that fit in your current spaces.
Subwoofers
Whether you’re looking to turn your car into a performance machine or simply boost the quality of your favorite tunes, car subwoofers are the way to go. A subwoofer completes the aural coverage of your car audio system by producing low bass sounds. Even 6”x9” speakers can’t reproduce sounds as low as a subwoofer.

Subwoofers enhance bass quality by amplifying and feeding the audio signal back through an enclosure of 8 to 21 inches in diameter to produce a frequency of 20 to 200 Hz. The lower the frequency, the higher the quality of sound will be — and the bigger the beats. The subwoofer will also filter out other frequencies, which allows for better quality and a clear, crisp sound.

It is unlikely that your car stereo alone would be able to power a subwoofer. In this instance, you would want a powered subwoofer or you can connect an amplifier to your audio system. You’ll want to match the RMS wattage output of the amplifier with the RMS power handling of the subwoofer and the ratings for the rest of your car stereo components. Cone material and the subwoofer enclosure will also affect the sound. You might have to adjust power levels from your amplifier to help reduce excessive vibration in your vehicle.
Satellite Radio
If you’re ready to make the switch to satellite radio, and revolutionize your car radio experience, you should do your homework before you buy. Benefits of satellite radio include genre-specific programming, digital audio signals, commercial-free music and automatic display of song titles and artist names.

The technology uses powerful satellites that beam signals across broader areas than traditional terrestrial transmitters (whose reach is ultimately dependent on their height). And because satellite radio broadcasts digital rather than analog audio signals, any receiver that is capable of decoding a satellite-radio signal can offer more channels than a traditional tuner and with better quality, as there’s no static or channel interference. Song titles and artist names are displayed while the music plays, so it eliminates the need to wait for disc jockeys to identify the song you are hearing.

Programming variety is another key benefit of satellite radio. You’ll have access to channels from all over the country that are dedicated to specific genres (rock, country, jazz and more) and subgenres (such as indie, hip-hop, rap and dance), music organized by decades, news and sports programming and call-in radio shows.

In order to reap the benefits of satellite radio, you need a satellite radio and a subscription with SiriusXM. You can listen to satellite radio in your vehicle or on your computer or smartphone.
GPS Navigation
GPS navigation systems are standard in many luxury vehicles, and are readily available as options on other more mainstream vehicles. GPS stands for Global Positioning System, a constellation of nearly 30 satellites orbiting Earth which can provide your precise location anywhere, any time and under any atmospheric condition. Not only can navigation systems help you stay on course when traveling, but they can also help you save time by avoiding traffic and help you find restaurants or other points of interest.

While some cars feature built-in navigation systems, many others do not. You can purchase a portable GPS that moves from car-to-car with ease. Before you buy, there are quite a few factors you should consider.

**Screen Appearance**
Consider the following in regards to the screen: How big is the screen? Is it in color? Does it have glare protection? What type of resolution does it offer? Can it be read in direct sunlight? Is it clearly readable from both the driver and passenger seats?

**Space/Size Considerations**
If your GPS is built-in, you don’t have much input as to the location or amount of space that the unit occupies. However, if you are purchasing an independent unit, you should consider its overall size and how you will position it within your car. Many GPS systems can be attached to the windshield with a suction-cup arm, or you could have the unit installed within the dash.

When you place the GPS, you want to make sure that it does not distract you from the road or interfere with your ability to see out of the windshield. The primary objective is that you are able to keep your eyes on the road... where they belong!

**Type of Operation**
Touchscreen operation is the most common and seems to be the most straightforward and easy-to-use; however, some people find joysticks and dials to be faster to manipulate.

**DVD or HDD-Based**
At least 80% of today’s navigation systems are DVD-based. More and more automakers are moving to mapping software on a hard-disc drive (HDD), which provides faster map-access speeds and often share space with music files.

**Updating Mapping Information**
Major highways rarely change, but local roads quite often get rerouted or renamed. How easy will it be for you to update your GPS with the latest maps? How often you make updates is more of a preference, based on your GPS usage history.