

LIMITED 90-DAY CONSUMER WARRANTY  
LIMITED TWO-YEAR CONSUMER WARRANTY WITH PURCHASE AND INSTALLATION BY A  
PRECISION POWER AUTHORIZED DEALER

Precision Power promises to the original purchaser, to repair or replace this product with a new or refurbished unit (at Precision Power's sole and absolute discretion) should it prove to be defective in workmanship or material under normal use, for a period of **\*two-years** from the date of purchase from the Precision Power authorized dealer, **PROVIDED** the product was purchased and installed by a Precision Power authorized dealer. During this **\*two-year** period, there will be no charge for product repair or replacement, **PROVIDED** the unit is returned to Precision Power, return shipping pre-paid, along with the required proof of installation, the bill of sale or other dated proof of purchase, and the consumer's contact information.

If the unit is installed by anyone other than a Precision Power authorized dealer, the warranty period will be **90-days** from the date of purchase. This warranty is non-transferable and does not apply to any unit that has been modified or used in a manner contrary to its intended purpose, and does not cover damage to the unit caused by installation or removal of the unit. During this **90-day** period, there will be no charge for the repair or replacement **PROVIDED** the unit is returned to Precision Power, return shipping prepaid, along with the bill of sale or other dated proof of purchase and the consumer's contact information.

This warranty is void if the product has been damaged by accident or unreasonable use, neglect, improper service or other causes not arising out of defects in materials or construction. This warranty does not cover the elimination of externally generated static or noise, or the correction of antenna problems or weak reception, damage to speakers, accessories, electrical systems, cosmetic damage or damage due to negligence, misuse, failure to follow operating instructions, accidental spills or customer applied cleaners, damage due to environmental causes such as floods, airborne fallout, chemicals, salt, hail, lightning or extreme temperatures, damage due to accidents, road hazards, fire, theft, loss or vandalism, damage due to improper connection to equipment of another manufacturer, modification of existing equipment, or Product which has been opened or tampered for any reason. Units which are found to be damaged by abuse resulting in thermally damaged voice coils are not covered by this warranty but may be replaced at the absolute and sole discretion of Precision Power. Unit must be returned to Precision Power, postage pre-paid, with bill of sale or other dated proof of purchase bearing the following information: consumer's name, telephone number, and address, authorized dealer's name and address, and product description. **Please contact Precision Power warranty office at 800-724-1377 or repairs@precisionpower.com to obtain a Return Authorization number prior to shipping the product.**

Note: This warranty does not cover labor costs for the removal and reinstallation of the unit. **IN ORDER FOR THE TWO-YEAR WARRANTY TO BE VALID, YOUR UNIT MUST BE SHIPPED WITH PROOF OF INSTALLATION BY A PRECISION POWER AUTHORIZED DEALER. ALL UNITS RECEIVED BY PRECISION POWER FOR WARRANTY REPAIR WITHOUT PROOF OF PRECISION POWER AUTHORIZED DEALER INSTALLATION AND PURCHASE WILL BE COVERED BY THE LIMITED 1 YEAR WARRANTY.**

**BY PURCHASING THIS PRODUCT, ALL WARRANTIES INCLUDING BUT NOT LIMITED TO EXPRESS WARRANTY, IMPLIED WARRANTY, WARRANTY OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND WARRANTY OF NON-INFRINGEMENT OF INTELLECTUAL PROPERTY ARE EXPRESSLY EXCLUDED TO THE MAXIMUM EXTENT ALLOWED BY LAW, AND PRECISION POWER NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. PRECISION POWER HAS ABSOLUTELY NO LIABILITY FOR ANY AND ALL ACTS OF THIRD PARTIES INCLUDING ITS AUTHORIZED DEALERS OR INSTALLERS. BY PURCHASING THIS PRODUCT, THE CONSUMER AGREES AND CONSENTS THAT ALL DISPUTES BETWEEN THE CONSUMER AND PRECISION POWER SHALL BE RESOLVED IN ACCORDANCE WITH CALIFORNIA LAWS IN LOS ANGELES COUNTY, CALIFORNIA.** Some states do not allow limitation on how long an implied warranty lasts. In such states, the limitation or exclusions of this Limited Warranty may not apply. Some states do not allow the exclusion or limitation of incidental or consequential damages. In such states, the exclusion or limitation of this Limited Warranty may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights which vary from state to state.

# PrecisionPower®

Absolutely State of the Art Mobile Audio™

## 2010 POWER CLASS COMPONENTS

PCB.65C PC2.65C

You're smart enough to buy these Power Class Components,  
be smart enough to read this manual...



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Using these basic principles, you can imagine where your stage needs to be and how to align your speakers accordingly. Most 3-way sets consist of a 6.5" or 8" midbass, a 4" midrange, and a tweeter. Commonly, you will see the midbass in the door and the midrange and tweeter in the kickpanel. Some people get creative and make pods on the dash or in the A-pillars. Our 2.5" Midrange is engineered specifically for A-pillar locations. The very small size makes it quite easy for mounting in many A-pillars. If there is not a flat space, the work needed to fabricate a mini pod is minimal. The benefits are unparalleled! No bulky kickpanels that get kicked, leaving you with less foot room, and can potentially damage speakers. You are assured of a higher sound stage with your Midbass and Tweeter mounted in the A-pillar or dash top pods. There is no one perfect way to install these components, so take your time and make sure that your choice is going to yield the best results.

\*SQ Judging Criteria reprinted with permission from:

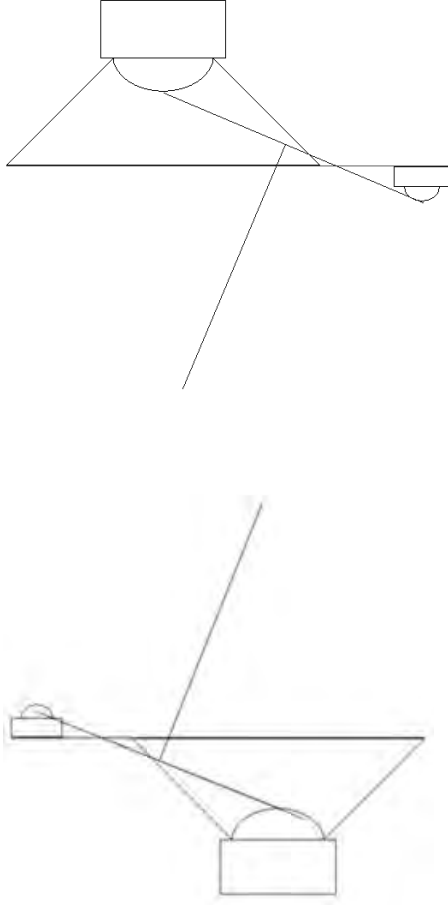


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If you're reading this, you obviously want an audiophile quality system. So read on...

So how do we get the benefits of kickpanel locations but with ear-level height? This is where it gets tricky, but it is not all that difficult to understand... Let's look at the effects of acoustic centering via different alignments.

The next drawing shows a typical installation where the Midbass is mounted below a Tweeter. With any size transducer, the low frequencies roll off the outer edge of the cone/dome/surround while the highest frequencies come from the very center of the dome (or dustcap). If a 2-way system that uses a 4kHz crossover, 4kHz (the lowest Tweeter frequency) will come off the outer edge while the same 4kHz, (the highest Midbass frequency) will come off the center of the dustcap. The line connecting the two drivers shows how the crossover frequency of 4kHz couple and the perpendicular line aiming down shows where the acoustic coupling of the driver will be. Obviously, if



## Welcome to the realm of Precision Power! *Absolutely State of the Art Mobile Audio*

As one of the revolutionary companies of high-end car audio dating back over 2 decades, Precision Power owned the Sound Quality competition arenas. Back in the day, PPI manufactured amplifiers *only* and were frequently accompanied by a high-end imported components and high-end subwoofers.

The market changed fundamentally over the last 2 decades. Today, there is no shortage of car audio companies, but as the industry has diminished slightly, so has the amount of companies that remain strong.

2010 not only brings you a brand new Precision Power company, but a long awaited return of elite sound quality car audio products. Amplifiers, components, subwoofers and full range speakers, everything you need to experience sonic nirvana!

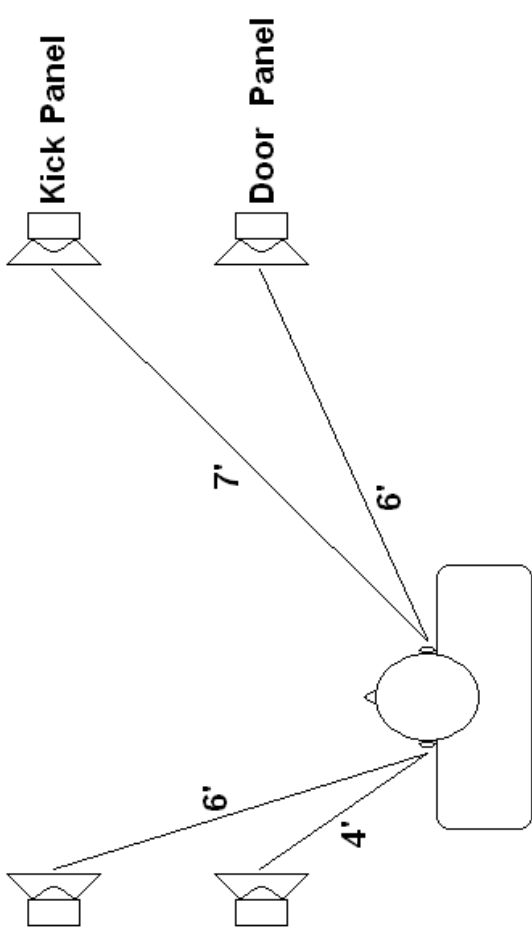
## Sonic Goals

Everybody loves great sounding music. Some audiophiles live for it while others, not so much. Some people feel that certain speakers are better suited for Jazz, while others seem more at home with rock-n-roll. They're right...

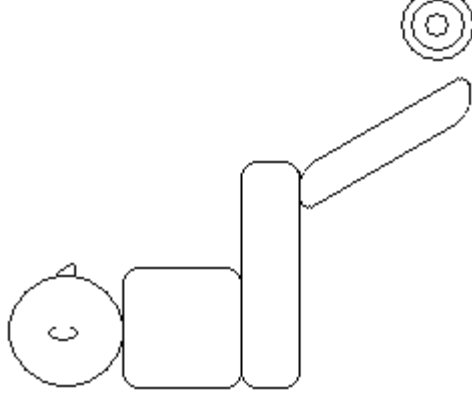
Every speaker has a distinctive sound. Sometimes it's due to the cone or dome material. Sometimes it is the magic within the motor structure. There are hundreds of speaker manufacturers worldwide catering to all types of audio. Each has their own theories on what materials are best, what parameters work best for certain applications, etc. There are still some very old speakers still in existence and they still sound phenomenal. But as technology changes, new and exciting products can be fabricated.

Whether you've chosen the 2-way or 3-way set, you will experience the pleasure of pure, uncolored music reproduction.

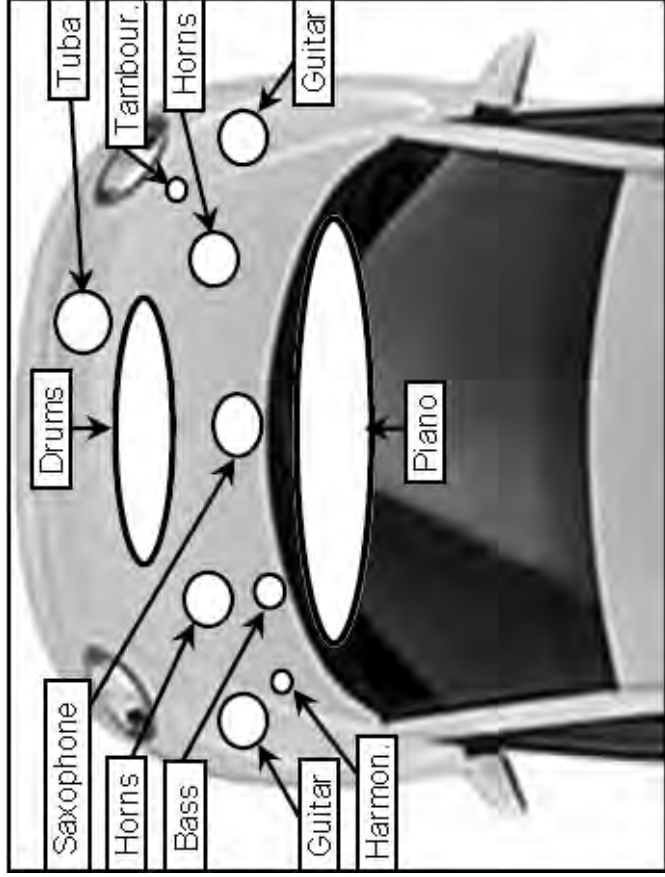
difference from 24" to 12"! This alone will make a huge difference in the center stage.



In this 2nd picture you can see why door speakers do not yield an ear-level stage height... DUH!!! It doesn't take a Rocket Scientist to realize the issue here.



Rather than just hearing a blurry wall of music, you can expect to hear stages like the illustration below...



Here are some basic drawings of common problems in a typical vehicle...

In this 1st picture, it is easy to see why the speaker closest to you will be louder and why the center of the soundstage will not be in the center of the vehicle... When speakers get further away from you, you become more centered. Let's take another look at the first picture. For easy math, we're going to assume that the left speaker is 4' from the left ear in the lower door corner. The right speaker is 6' which is 50% further and yields a 24" pathlength difference. If we moved both of those speakers up about 2' into the kickpanel, the left speaker may now be 6' away, but the right speaker is only 7' away. We just reduced our pathlength

## Driver Anatomy

The new raw drivers found in the PC3.65 and PC2.65 component sets encompass elite technologies and allow us to bring you some of the finest components ever built.

## Common Features Amongst All 3 Drivers

<b>Motor Assembly</b>	These unique motors use ultra strong Neodymium magnets which help to yield high the BL required for great transient response. (No huge, impractical standard Ferrite magnets that are hard to fit in some applications!)
<b>Voice Coil &amp; Terminals</b>	All voice coils use 2-layer copper clad aluminum wire for higher power handling and heat dissipation.
<b>Suspension</b>	The multi-roll Conex spiders (not on tweeters) are symmetrical in design and has woven tinsel leads to the voice coil. The surrounds are made of high-loss Butyl rubber. This marriage of our chosen suspension components allows the driver to be very taut and accurate from the midbass range to upper midrange frequencies.
<b>Basket</b>	Injection-molded PPS (Polyphenylene Sulfide) was used to lower resonance frequencies. If you drop a metal ruler and a wooden ruler, the metal ruler has horrific "ping" resonance while the wooden ruler has a dead "thud" sound. Since baskets can't be made out of wood for durability reasons, this composite material was the proper way to go.

## 6.5" Midbass Features

### Motor Assembly

The Neo motor is protected by a durable aluminum motor cover which also acts as a heat sink to withdraw heat and increase power handling along with the vented pole piece. On top of the pole piece is a solid aluminum phase plug. The phase plug also helps to cool the motor as a heatsink and it eliminates compression found under a traditional dustcap. But the reason for justifying the added expense is found in the response, especially through the crossover region of frequencies. This is accomplished by reducing pathlength differences at the highest frequencies coming off of this midbass driver and allowing for a much smoother blend into the lower frequencies of the midrange driver.

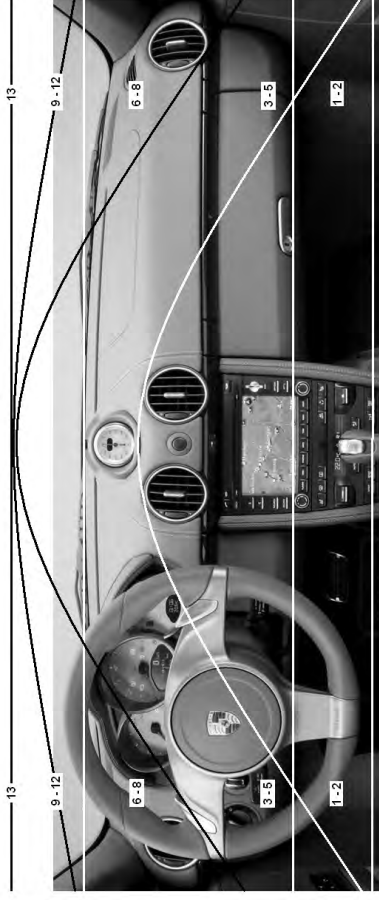
### Voice Coil & Terminals

The voice coil utilizes a high-temp 2" Teflon former (fiberglass/ composite). The terminals use screws rather than springs for more secure connections, less resistance and better conductivity. From the terminals, the wires carefully wrap around the outer edge of the spider landing until they meet with the spider leads symmetrically on each side of the driver. The top of the former couples to an aluminum collet. The collet not only helps to dissipate more heat, but it also secures and stiffens the joint to the cone, resulting in less cone flex and less cone radiated distortion.

### Diaphragm

Certainly, one of the most important pieces of a speaker is the actual cone. Some audiophiles prefer paper, even with all of the other materials available. Some people prefer polypropylene, aluminum, Kevlar, fiberglass and even bamboo. Time always brings us new technologies and new materials. This cone is a composite material featuring Kevlar to reinforce paper. One of the secrets that make these drivers sound so good and natural is the layer of laminated foam on the back of the cone. Modern times require modern measures...

And here is the way they judge for HEIGHT...



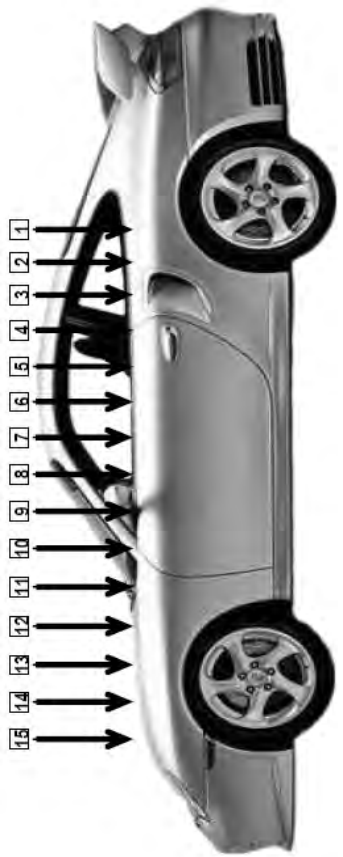
Vehicles with a higher and more linear stage height (as the lines on the above graph demonstrate) will earn top scores...

If all staging characteristics (depth, width, height) score well, the soundstage will be phenomenal. Positioning of each musical instrument and the vocalist(s) will yield a realistic and enjoyable listening experience.

The next pic not only gives you an idea of stage width and depth, it also gives you an idea of "imaging" (where the instruments and vocals are located on the sound stage). Properly positioned speakers will not only give you great sound stage depth, width and height, but also image well, recreating the exact positions of the instruments and vocals on the sound stage.

According to IASCA Sound Quality judging, here are the criteria for staging\* ...

This first pic show how many points you get for the DEPTH of the stage...



Scoring increases the further forward the soundstage extends...

This next pic shows how they judge for WIDTH...



In soundstage width, points are reduced if the stage is narrow...

## 2.5" Midrange Features

<p><b>Motor Assembly</b></p>	<p>Having a strong, yet small motor was the key goal in designing this driver. The 1-3/8" mounting depth allows you easily fit the driver in/on the dash or the A-pillar, optimizing high staging, and eliminating the hassle of building custom kickpanels which can be bulky and a nuisance.</p>
<p><b>Voice Coil &amp; Terminals</b></p>	<p>The coil is wound on an aluminum former with vent holes above the spider to allow heat extraction from the inner side of the coil, contributing to higher power handling...</p>
<p><b>Suspension</b></p>	<p>The surround is inverted on the midrange to accept a shallower grill and have a lower profile overall.</p>
<p><b>Basket</b></p>	<p>Due to the Neo motor, there was room to make 16 smaller holes in the bottom of the basket that are under the spider, therefore bringing in cool air to cool the coil.</p>
<p><b>Diaphragm</b></p>	<p>Most 3-way component kits typically use a 4" midrange. With the advancement of technology over the past few years, "wide-range" home audio raw drivers were engineered. Capable of playing into the upper midbass region and well into the tweeter range as well. We chose an aluminum cone for the midrange to eliminate cone flexing and be very durable.</p>

## 20mm Tweeter Features

<b>Voice Coil &amp; Terminals</b>	The coil is wound on a 20mm Kapton former and sits entirely in an underhung gap for 100% linearity and minimal distortion.
<b>Diaphragm</b>	We did not invent the inverted dome, but we wish we had. We chose an anodized aluminum inverted and self-suspended diaphragm. The dome is textured for rigidity and inverting the diaphragm yields more control over sound dispersion.

400Hz lowpass for the 6.5" driver. We chose all 12dB per octave roll-off slopes which keeps all drivers in phase with each other. Did you know that 6db and 18dB crossovers shift phase by 90 and 270 degrees? Not cool! For further protection of the Tweeters, some companies use a PTC capacitor which is basically a heat activated switch. Some other companies use a bulb to absorb excess power during transient peaks. We chose to use both for the ultimate protection for the Tweeter. All parts are top quality as we believe that the crossover is just as important as the rest of the speakers in generating audiophile quality sound reproduction.

## Crossover Design

There are a few of ways to crossover a set of 3-way components. A basic 3-way passive network would be the easiest. Some companies sell a 2-way kit with an "Add-A-Midbass" separate kit which combined requires 2 passive networks. Or you can use all active crossovers with an amplifier channel per each individual driver. While this allows the ultimate in flexibility and tuning, it also requires very skilled installers/tuners or damage can easily be done.

The crossover supplied with the 2-way and 3-way kits are one in the same. This reduces cost and simplifies installation. There is a push-button switch to go from 2-way to 3-way application. Pretty dang clever if we do say so ourselves!

In 2-way mode the crossover send a 12dB highpass signal to the 20mm Tweeter at 4kHz, and a 12dB lowpass signal to the 6.5" Midbass driver at 4kHz as well. When the button is switched to 3-way, the 6.5" Midbass speaker wires need to move down to the new location on the crossover to make room for the 2.5" Midrange. The Midrange section of the crossover now changes to a 400Hz highpass - 4kHz lowpass, creating a bandpass signal for the midrange with plenty of protection. The new Midbass section is a

## Speaker Placement

The quest for the perfect soundstage has always been a great challenge. The ultimate goal is to get the stage to sound as if you were there live! The perfect soundstage would be at least ear level or higher, wider than the vehicle itself and as far forward of the windshield as possible. Many people do not realize that it is very possible to hear the soundstage "outside of the vehicle" which means that the musicians and singers can be perceived as being on a larger stage than the dash. Much larger! In a well designed, built and tuned vehicle, the members can be heard in the middle of the hood and further out than the edge of the fenders.

Some people install their components in their doors while others want them on top of the dash. Some people started putting speakers in kickpanels to minimize pathlength differences from one side of the car to the other. Pathlength is the distance from the speaker to the ear or microphone. Obviously, if we are in the driver seat, the driver side sounds louder. This is because sound diminishes the further it gets away from us. If we sat in the middle of the car, both sides would be equally as loud and the stage would be dead center! But since that's not an option, speaker placement becomes critical to get the stage as