

DQ-61™

Six Channel Line Output Converter with Signal Delay, Equalization and AccuBASS® for interfacing with factory installed audio systems



The DQ-61 is your gateway to amazing sound from a factory head unit. It is a compact six channel, high-performance, line level converter with independent multi-channel equalization and signal delay to custom tune the system. AudioControl's patent pending AccuBass® system corrects for the factory bass roll-off present in so many of today's cars. In short; the DQ-61 can make every car sound its very best.

Key Features of The DQ-61

Here are some of the unique features of the AudioControl DQ-61:

- User friendly Signal Delay to control the acoustical alignment between the left and right channels **plus** the front and subwoofer channels
- Individual equalization controls for the front, rear and subwoofer channels for simple yet precise system tuning
- Six channels of active speaker level inputs – accept up to 400 watts per channel
- AccuBASS™- AudioControl's patented pending processing to correct the bass roll-off in factory source units
- ACR-3 Dash Control Remote allows for control of the subwoofer level plus processing bypass
- Internal Channel Summing – Easy interface with factory installed amplifiers with built-in crossovers
- Discrete Input **and** Output level controls
- GTO™ signal sensing inputs (selectable) to turn the DQ-61 on automatically and give you a 12 volt trigger to turn on your amplifier
- Bulletproof 5 year warranty (when installed by an authorized AudioControl dealer)

Quick Install Guide

If you are a seasoned audio enthusiast and are chomping at the bit to begin your experience with the DQ-61, we offer some Quick Install Guidelines below to help maximize your experience. Please refer to the system diagrams on page 8 as good guidelines.

❶ Physically mount the DQ-61 in a location that keeps it away from beverage spills, food crumbs, and curious fingers. You will want to select a location that allows you access to the top panel controls. In many cases you can find factory speaker leads in the rear of the vehicle or at the factory amplifier that are easy to access.

❷ The DQ-61 needs to be installed in the signal path between your OEM source unit (or factory amplifier) and an after-market amplifier and/or processor(s). **Do not connect the DQ-61 between the factory head unit and the factory amplifier.** Locate the amplified **speaker wires** that are coming from your factory source unit and/or amplifier and connect them to the speaker-level inputs on your DQ-61.

***Note:** If your source unit has front, rear, and subwoofer speaker-level outputs, connect them to the three sets of inputs on your DQ-61. If the source unit only has front and rear outputs, the Auto Mode circuitry in your DQ-61 automatically routes the Channel 2 input channels to the (Channel 3) subwoofer channels.*

❸ Use RCA connecting cables to connect the RCA outputs of the DQ-61 to your after market amplifier(s). If this is not obvious to you, quickly pack up your DQ-61 and run to your nearest authorized AudioControl dealer to have them perform the installation. You will thank us later.

❹ Connect +12 volt power, ground and turn-on wires as needed. Don't forget the fuse! Note: The DQ-61 has a 12-volt trigger input but normally you will just let the GTO turn on circuit take care of that by itself.

❺ Connect your amplifier trigger input to the 12-volt trigger output of the DQ-61

❻ Turn your amp gains fully down before turning on the system.

❼ Turn on the system and level match your DQ-61 to your source unit and amplifiers.

❽ On the chassis of the DQ-61, set **Signal Delay Mode** to **Set-Up**.

❾ Using the Dash Control, adjust the signal delay between the Left and Right channels for optimum sound. Check out our YouTube video for assistance.

❿ Tap the ACR-3 Dash Control and adjust the signal delay between the front and subwoofer outputs.

⓫ On the chassis, change **Signal Delay Mode** to **Normal**.

⑫ Set the equalization controls for the front, rear, and subwoofer channels. While your ears are a good reference point, we recommend using an audio analyzer whenever possible.

⑪ Adjust the AccuBASS setting for maximum bass.

⑭. Sit back and enjoy the sound



AudioControl Real Time Analyzer

If you have gotten to this point and you have no questions, then “Congratulations” With that said we certainly encourage you to set aside some time to grab a beverage or two and read through this entire manual as there is a tremendous amount of useful information. Plus we took the time to write it so it must be important.

We now interrupt your reading of this manual to highlight a very important feature of all AudioControl autosound products...

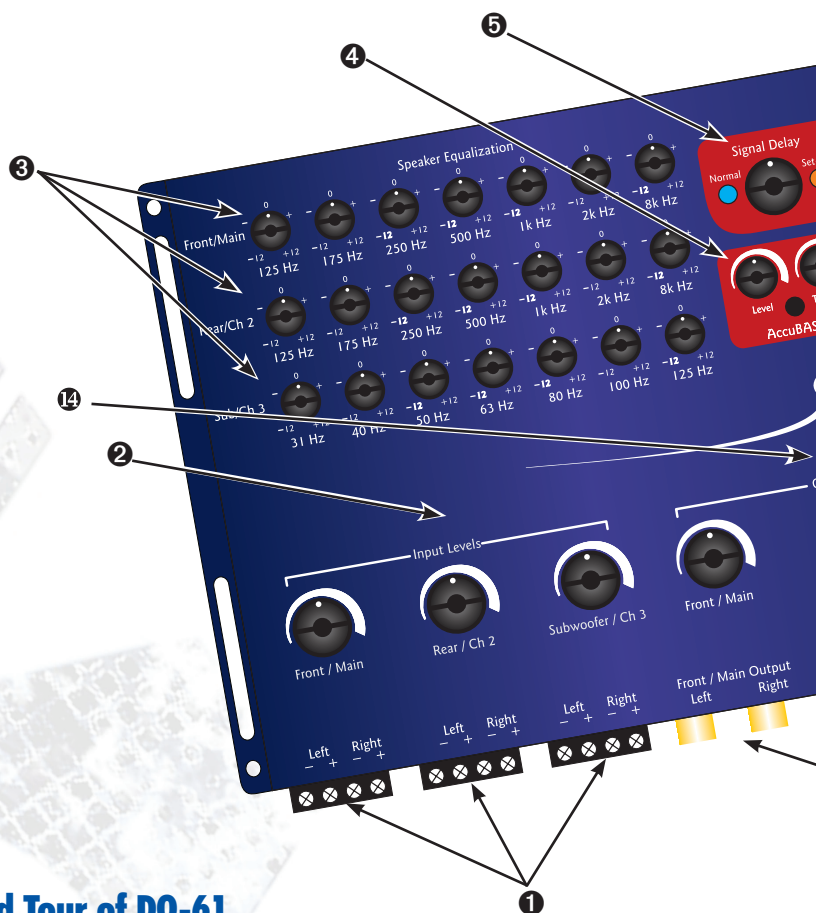
Our Bulletproof Warranty

AudioControl autosound products are designed and assembled at our factory in the Pacific Northwest, just outside of a little town called Seattle. By nature, our products are rather sophisticated so we spend a good deal of time training our dealers and their installation team. We do this so you will get the best possible results from your AudioControl components.

To reinforce this point, if you have an Authorized AudioControl dealer install your DQ-61, we will extend the normal one-year warranty to a full FIVE years parts and labor. Complete details of this warranty are listed at the end of this manual and on our website at www.audiocontrol.com.



We now return you to your regularly scheduled reading.



A Guided Tour of DQ-61

① Speaker-level Inputs: The DQ-61 has six speaker-level inputs. These inputs get their signals from the speaker-level outputs of your factory-installed source unit or amplifier. If your source unit has front, rear, and subwoofer signals, connect them to the corresponding inputs on your DQ-61. If your source unit only has front and rear signals, the AutoMode circuitry of the DQ-61 will route the Channel 2 signals to the Channel 3 (subwoofer) outputs.

② Input Level Controls: The DQ-61 is capable of receiving high wattage signals from factory installed source units and/or amplifiers. The input level controls allow you to adjust the input signal levels for maximum audio performance of the DQ-61.



3 Equalization Controls: To custom tune your system, the DQ-61 gives you dedicated equalization controls for the Front, Rear, and Subwoofer outputs. See the section on **Equalization Optimization**, page 9 for more details on how to set these for optimum performance.

4 AccuBASS® Settings: This patent pending circuit compensates for the bass roll-off characteristics of many factory installed source units. The **Threshold** and **Level** controls let you determine when the AccuBASS® circuit engages and what level of correction to apply. See page 9 for more information.

⑤ Signal Delay Mode: This allows the user to put the DQ-61 into a **Set-Up** mode and adjust the signal delay settings using the dash control. Turn knob to the right until the **Set-Up** LED comes on. When done, turn knob to the left, **Normal** setting for regular music listening.

⑥ Ground: Connect to a good, verified chassis ground (the battery comes to mind.) Warning: Factory ground wires typically have multiple devices connected to them so it is *not* recommended to use them.

⑦ +12V Power: Connect to a good source of 12-volt power (the battery comes to mind)

⑧ Remote In: In some unusual installations, you may not want to use the GTO™ to turn on your system due to secondary functions with factory installed source unit. For these cases the DQ-61 can be turned on remotely with a +12-volt trigger.

⑨ Remote Out: Outputs 12 volts with 1 amp of current when the DQ-61 is powered up, so you can turn on external devices like signal processors and amplifiers with this wire.

⑩ Maximized Indicator: This brightly colored LED indicates when the signal level coming into your DQ-61 is just below clipping. When properly level matched, this LED should flicker occasionally when your system is playing at its maximum volume level.

⑪ Power: If you have connected all of your power wires correctly, this light should be bright red when your system turns on.

⑫ Remote Level Control (ACR-3): In the **Set-Up** mode this control allows for setting the signal delays, and in the **Normal** mode, it gives the user control over the Subwoofer/Ch3 level output. Additionally, in the **Normal** mode, when you tap this switch you will bypass the equalization, signal delay, and Accu-BASS processing of your DQ-61 so you can compare the sound.

⑬ Pre-Amp Outputs: These RCA plugs should be connected to the next component after the DQ-61, such as a crossover or amplifier. Do not connect any speakers directly to your DQ-61. (Definitely don't connect to any home appliances, like your blender or toaster.)

⑭ Output Level Controls: These knobs allow you to adjust the signal level from your source unit to match the input of your after-market amplifiers.

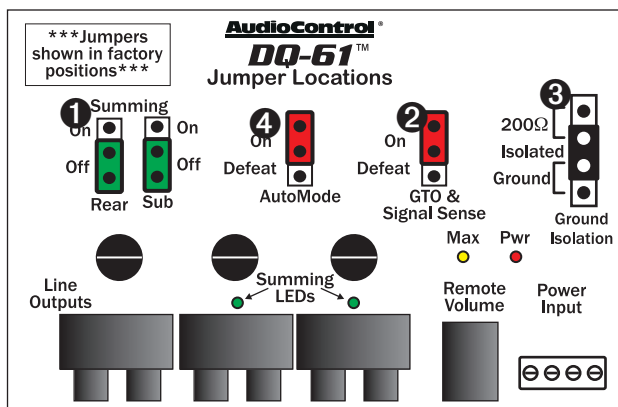
⑮ Channel Summed Indicators: These green (like our grass) LED indicators let you know which channels are being summed into the main inputs. Under the cover of your DQ-61 are jumpers that will allow you to sum selected channels into the main and rear (#1) channels.

Under the Covers - Internal Jumpers

You can optimize your DQ-61 using most of the controls mounted on the top of the chassis. However, we recognize there are situations where advanced users may have the need to configure the DQ-61 for specific applications. Therefore we have provided a few settings that are located under the chassis top for limited access.

① Output Summing Jumpers: Some factory installed audio systems include separate amplifiers that output limited bandwidth signals that are actively crossed

over and are connected directly to tweeters, mid-ranges, and/or woofers. For optimum performance you will want to combine (or sum) these separate signals into a single full range signal. The DQ-61 facilitates this internally via simple jumper settings that allow you to select which input signals will be summed into the **Front/Main** outputs.



An additional feature is that once you move the **Summing** jumpers to **On**, the audio signal coming from the **Main Output** will also come out of the **Channel 2 Output**. When the jumper is moved to the “On” position for a selected channel, the corresponding indicator light on the front of the DQ-61 will turn green. The shipped-from-the-factory setting is in the OFF or non-summed position.

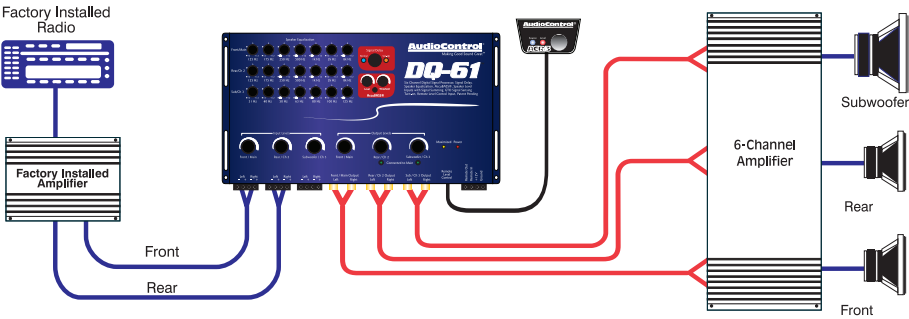
② GTO™ Signal Sense: In selected situations, factory installed audio systems may turn ON or “wake up” due to convenience features like doors chimes, alarms, and cell phone signals triggering the source. To prevent these from turning your audio system on unexpectedly, you can bypass the GTO™ circuit by moving the GTO™ jumper, and use a switched 12-volt signal connected to the **Remote In** terminal. The DQ-61 ships the GTO in the **On** position.

③ Ground Isolation Selector: Alternator noise may appear in a system because the source unit and amplifier(s) are using different grounding schemes. To help in this situation, we have provided alternative grounding connections. Make sure your system is turned OFF before you move these jumpers. *We ship them in the **isolated** position, which usually gives the best results.*

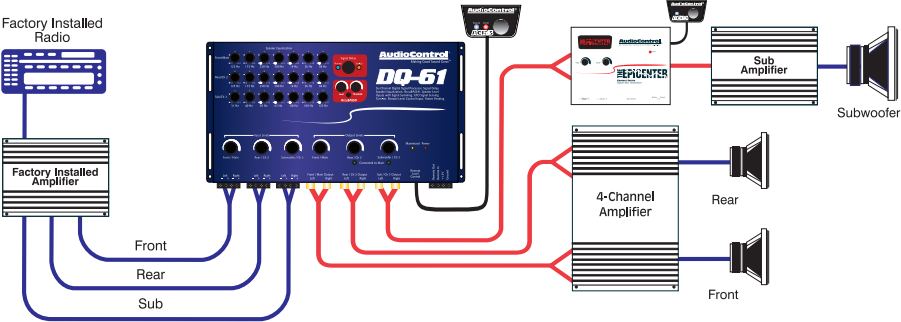
④ AutoMode: Some cars have low level or other unusual signals on their speaker leads that may not trigger the AutoMode circuit and result in signal switching. When this occurs you can manually turn off the **AutoMode** function. This is done by moving the internal **AutoMode** jumper to “Defeat”.

System Diagrams for The DQ-61

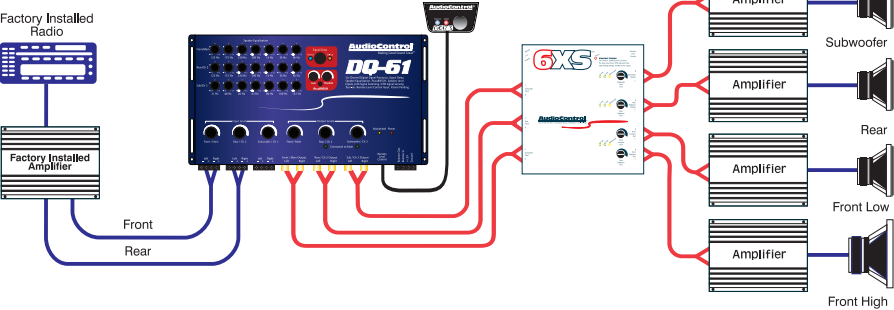
Typical DQ-61 Installation



DQ-61 Installed with The Epicenter



DQ-61 Installed with a 6XS



The DQ-61 Has A Number Of Great Features

Signal Delay Operation

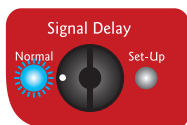
Because of speaker placement limitations and the seating position in a car the driver of the vehicle is in an incorrect acoustic alignment with the speakers. The following steps will help set up delaying the appropriate speakers for just a few milliseconds, so the DQ-61 is able to allow the different signals to arrive at the same time putting the driver in perfect acoustical alignment.

❶ For best performance and ease of set-up, go to our website at www.audiocontrol.com and download the DQ-61 Set-Up App for your Apple iPhone or iPad. It's FREE and will help take all the guesswork out of setting up the delay. However, if you do not have access to an iPhone or iPad you can set up the delay just by using your own two ears.

❷ After you have made all your power and ground connections, plug in all your inputs and outputs, turn the Signal Delay knob on the chassis all the way to the right to go into **Set-Up Mode**. You will notice that when you are in Set-Up mode the blue light will blink on the ACR-3 dash remote.

❸ You will need to make sure that all your delay settings are at zero. Start with the Left to Right setting (the Red light on the remote will be solid) and turn the knob completely CLOCKWISE until you no longer hear any Mute Clicks. Once you have verified your Left to Right is set to zero you want to now set your Sub to Front delay at zero. Simply push the dash remote to switch from Left to Right to Sub to Front. At this time the blue light will continue to blink and the red light will turn off. Again, turn the knob CLOCKWISE until you no longer hear any Mute Clicks. You have now set all of the delay in the DQ-61 to zero.

Normal Mode (Dash Knob Controls Sub Out)



Blue On Red On



Blue On Red Off

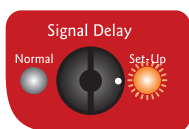
Both Lights ON

- Signal Delay Engaged
- Equalizer Engaged
- AccuBASS® Engaged

Blue Light Only

- Signal Delay Disengaged
- Equalizer Disengaged
- AccuBASS® Disengaged

Set-up Mode (Dash Knob Controls Signal Delay)



Blue Flashing Red On



Blue Flashing Red Off

Blue Light Flashing, Red Solid

- Signal Delay Adjustment Left to Right

Blue Light Flashing, Red Light Off

- Signal Delay Adjustment Sub to Front

④ Now you are going to want to choose your source material to listen to while setting the delay. Choose a song that has very strong vocals and limited instruments. This will make it much easier to “move” the image from down at your left knee where it currently exists to up on the center of the dash where it needs to be.

⑤ **Left / Right delay** Push on the dash remote until the blue LED is blinking and the red LED is solid. With the source material playing, slowly turn the dash control knob COUNTER CLOCKWISE. Each detent in the remote represents an amount of time (in milliseconds) that you are delaying the Left Front Speaker. We have added a small Mute Click along with the detent on the remote to help you determine your amount of delay. Keep in mind that if you think you have gone too far you can always start over. Just turn the knob all the way clockwise to start back at zero and slowly turn counter clockwise until you reach your desired result.

⑥ **Front/Subwoofer Delay** Once you have dialed in your Left / Right delay, it’s time to set up the sub. Push on the dash remote to switch delay modes and verify that the blue light continues to blink but the red light is off. Exactly like you did setting up the front left speaker, start by slowly turning the knob COUNTER CLOCKWISE to add delay to both of the front speakers. You will notice with each Mute Click of the remote the sub will move forward toward the driver. Again, if you think you have gone too far or missed that ‘sweet spot’ you can always start over by just turning the knob back all the way clockwise and repeat the process again.

Once you have everything where you want it you are done! Easy right? Now just go back to the Signal Delay knob on the DQ-61 and turn it counter clockwise back to **Normal** mode and you are ready to move to the next step of set-up.

Equalization Optimization

When it comes to music, everyone has his or her own particular taste. Some people want pounding bass and crisp, blood curdling highs. Others may prefer a “flat” response (whatever the heck that is). At the end of the day, most people just want their system to sound balanced and “just like it did in the store” or similar to their buddy’s car. The following equalization guidelines should help you achieve your own personal audio nirvana.

① For optimum performance, get your hands on a test compact disc that contains pink noise and a good quality RTA (real time analyzer); we happen to know someone who makes a really good one. If you cannot locate an RTA, you probably want to have your authorized AudioControl dealer perform the equalization adjustments as they will have one. You

can certainly adjust your DQ-61 using your ears, however an RTA will give you the best results.

② Begin playing pink noise through your system and place the microphone for your analyzer on a microphone stand in the drivers seat. Take a careful look at the “curve” on your analyzer and how one frequency combines with the next. There is no one curve that will satisfy every person, as we all have different tastes. How else can you explain Liberace or rice cakes? The key is to use your DQ-61 to help balance your system from one frequency to the next and give your speakers the sparkle, sizzle, detail or punch that the acoustics of the car have compromised.

③ You will want to start equalizing by removing or cutting any large bumps, peaks, or areas with too much energy at a particular frequency. Next, boost the ranges that do not have enough energy. We strongly recommend that you cut or decrease energy before you boost.

④ Although the plethora of knobs on your DQ-61 can be intimidating, fear not as they were designed to give enough control to maximize your systems performance but not enough to get you in trouble. Here is an explanation of the key areas you should focus on:

Sub-bass: 100 Hz and below – A car without bass is like a day without sunshine... unless you live where we do because most of the days in the Pacific Northwest do not have sunshine. This area is one of the more critical although it is also one of the most difficult to properly reproduce. Most people prefer their bass frequencies to be 6 to 9 dB louder than the rest of their system, although there are some crazy folks that prefer their bass substantially louder. The key in this area is to have enough speakers and power to produce the amount of bass you desire but don’t use the controls on the DQ-16 to try and force your speakers to produce sounds they can’t. Too much bass boost creates a condition called “speakerus explodus”, which is not pretty to hear or watch.

Midbass: 100 Hz to 300Hz – The phrase, “too much of a good thing” can certainly apply to the midbass frequencies. This is the transition area of the audio spectrum that is an octave above your sub-bass frequencies and several octaves below your midrange. Most autosound systems have too much midbass due to the fact that speakers mounted in the doors or kick panels cause resonance’s or peaks in the response curve. These peaks in the midbass can actually mask or block sounds in the all-important midrange area causing your system to sound dull or lifeless.

Midrange: 300Hz to 3Khz – Musical instruments, vocals, mid-range percussion and many things we associate with imaging and staging hap-

pen in this area of the bandwidth. For that reason you will want to keep this area as smooth and balanced as possible. Too much boosting can make you feel like your listening to your system in a tile bathroom. Not enough energy the midrange sounds empty and dry.

Treble: 3KHz and Up – If midrange is the cake, then these high or upper frequencies are considered the frosting. Many autosound systems start a gradual decline in this area which is why speaker placement is very important. The DQ-61 only gives you a few controls in this area because too much boosting can really make a speaker sound un-natural.

Signal Summing Inputs and Parallel Outputs

The DQ-61 has the capability to combine together multiple (2, 4, or 6) input signals from the factory source unit into 2 channels. Some factory audio systems produce actively crossed over signals from the amplifier feeding signals to the tweeter, midrange, and woofer. The DQ-61 lets you take all of those signals and sum them together to get a high quality, full range, pre-amp signal. Simply move the summing jumper for the desired channel into the “On” position. If the green LED for that channel is on, you know it is being summed into the main output. Additionally, when you **Sum** signals together, the signals coming from **Front/Main** and **Rear/Ch2** are now paralleled providing dual full range signals. This provides lots of flexibility in your system design.

AutoMode Inputs: Your DQ-61 is equipped with AudioControl’s unique AutoMode circuit input that allows for the **Rear/Channel 2** input signal to automatically feed the Sub/Channel 3 outputs, when there is no signal present on Channel 3. This allows your DQ-61 to accept front and rear inputs channels and give you three output channels (Front, Rear, and Sub).

Remote Level Control - ACR-3

The ACR-3 is a multi-function remote that used for making the initial signal delay adjustments in the **Set-Up** mode and then providing level control over the Channel 3/Subwoofer output in the **Normal** mode. This allows you to balance the bass level with the rest of the system and then increase or decrease as needed. An additional feature of the ACR-3 dash remote is that it allows the signal processing of the DQ-61 (equalization, signal delay, and AccuBASS) to be switched in and out of the audio circuit. That means that you can hear the system with and without the processing and hear the difference that the tuning makes in the sound of your system.

Dash Control Placement And Mounting

The ACR-3 dash control may be mounted under the dash using its own bracket or through a custom hole in the dash. It should be within reach of the driver and in a spot where the LED is plainly visible.

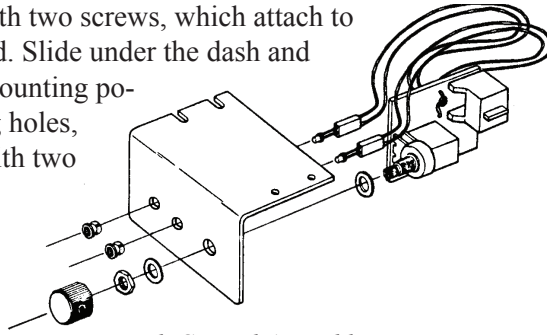
Bracket Installation

The dash control mounts with two screws, which attach to the underside of the dashboard. Slide under the dash and place the dash control in its mounting position, mark the two mounting holes, drill pilot holes, and secure with two screws.

Custom Installation

For that custom, finished look, the dash control can be flush mounted directly on the dash-board (or anywhere else).

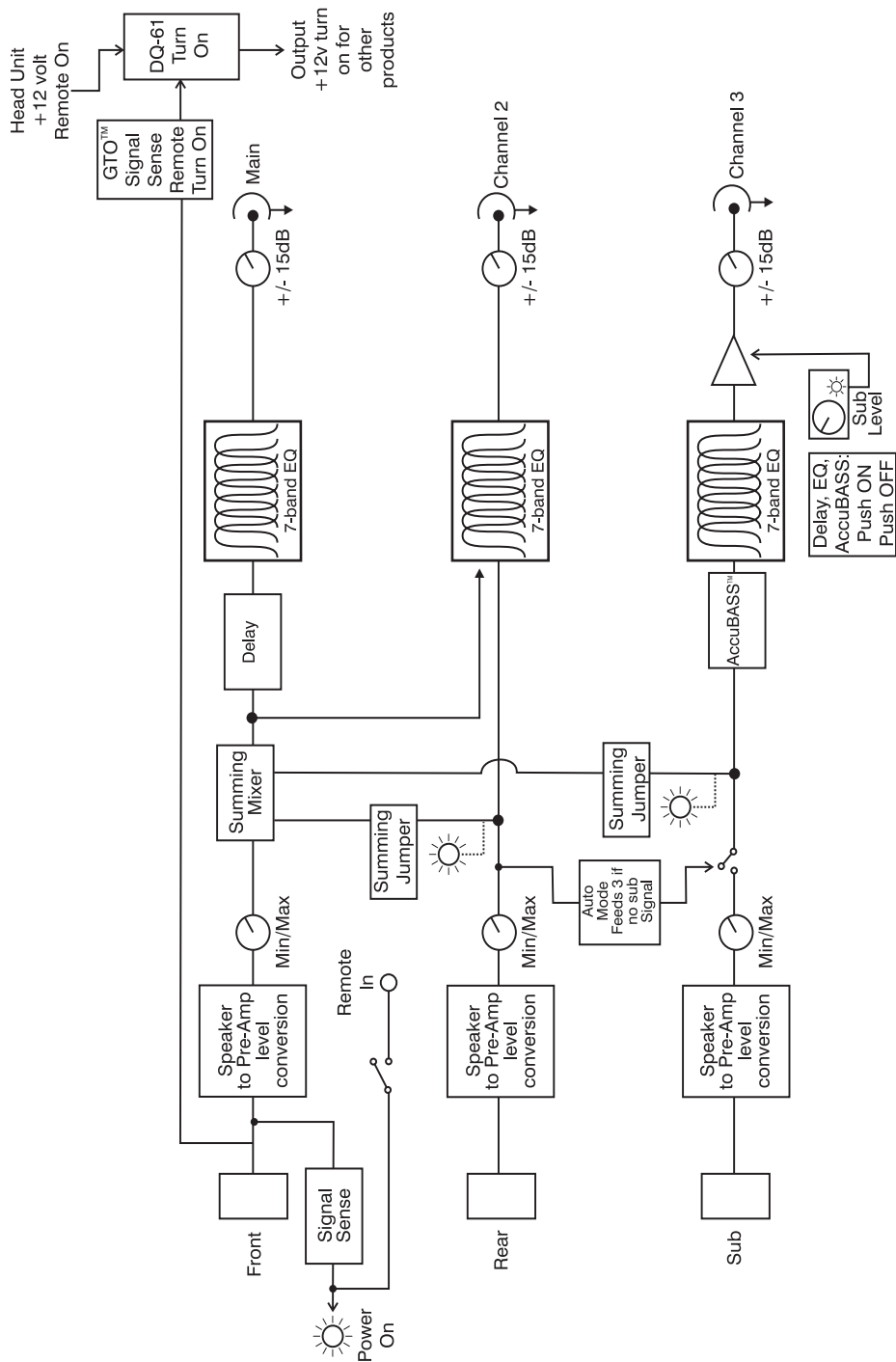
Referencing the figure above, disassemble the dash control from the mounting bracket. Start by pushing the LED from its holder followed by removing the circuit board and rotary control from the bracket. Drill a 9/32 hole in the dash board for the control along with a 1/8 hole for the lock tab and a 13/64 hole for the LED holder. Reassemble the dash control components on the dashboard.



Dash Control Assembly

Block Diagram of the DQ-61

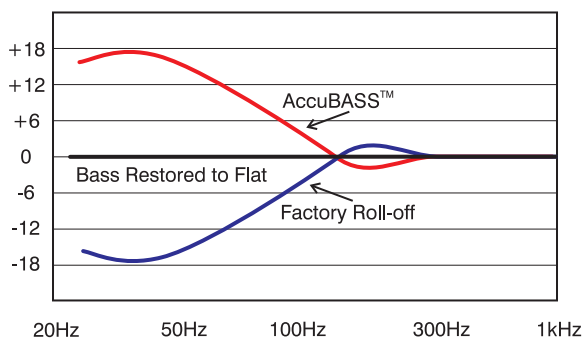
Feeling lost? Here's an internal "roadmap" to help you out. This simplified block diagram is a map of the paths your signals take inside the DQ-61. With this diagram you can follow each input through the processor. If you do have an issue with the hook-up of your DQ-61 and need to call for technical assistance, please have this diagram available so we can help you trace the problem and get your system up and running and sounding as awesome as we know it can.



AccuBASS®

Factory installed amplifiers and woofers are generally not designed to reproducing bass at medium to high volumes. Car manufacturers filter the bass out of the signal as you increase the volume in an effort to protect factory-installed speakers. That's why we developed the patent pending AccuBASS® circuit. After a quick and easy one-time setting, the AccuBASS® circuit takes over the bass just as the factory system rolls off. You get smooth, seamless, rock solid bass response regardless of volume

Setting AccuBASS For Optimum Bass Performance:



AudioControl's patent pending AccuBASS circuit correcting for bass roll-off

After you have hooked up the system and are playing music, play some tracks with good bass lines, and set the volume at low.

❶ On the DQ-61, set the AccuBASS **Level** to 12:00 and set all the EQ controls to flat

❷ Turn the **Threshold** all the way down (approximately 7:00)

❸ Gradually increase the volume on your factory source unit until you hear the bass start to drop out in relation to the high frequencies. Stop and go to the next step.

❹ Turn the Threshold control clockwise until you hear the bass come back up.

❺ Use the level control to fine-tune the amount of bass remix you want.

Smooth, more or less.

You're done! Now, every time your source unit gets to that level, the AccuBASS® will take over and re-equalize the bass. Smooth seamless bass at all volumes, and with the level control you can even give it a little extra kick if you want. Your music your way!

The WARRANTY

People are scared of warranties. Lots of fine print Months of waiting around. Well, fear no more, this warranty is designed to make you rave about us to your friends. It's a warranty that looks out for you and helps you resist the temptation to have your friend, "...who's good with electronics", try to repair your AudioControl product.

Go ahead and read this warranty, and then take a few days to enjoy your new DQ-61 before going on line to register your unit at **audiocontrolregistration.com**. We also look forward to your comments while you are registering your DQ-61. "Conditional" doesn't mean anything ominous. The Federal Trade Commission tells all manufacturers to use the term to indicate that certain conditions have to be met before they'll honor the warranty. If you meet all of these conditions, we will warranty all materials and workmanship on the DQ-61 for one year from the date you bought it (**five years if it is installed by an authorized United States AudioControl dealer**). We will fix or replace it, at our option, during that time. Here are the conditional conditions:

1. You have to go to www.audiocontrol.com warranty and register your DQ-61 within 15 days after purchase.
2. You must keep your sales receipt for proof of purchase showing when and from whom the unit was bought. We're not the only ones who require this, so it's a good habit to get into with any major purchase.
3. Your DQ-61 must have originally been purchased from an authorized AudioControl dealer. You do not have to be the original owner, but you do need a copy of the original sales slip.
4. You cannot let anybody who isn't: (A) the AudioControl factory; (B) somebody authorized in writing by AudioControl to service your DQ-61. If anyone other than (A) or (B) messes with your DQ-61, that voids your warranty.
5. The warranty is also void if the serial number is altered or removed, or if the DQ-61 has been used improperly. Now that may sound like a big loophole, but here is all we mean by it. Unwarranted abuse is: (A) physical damage (don't use the DQ-61 for a car jack); (B) improper connections (120 volts into the power jack can fry the poor thing); (C) sadistic things. This is the best product we know how to build, but if you mount it to the front bumper of your car, something will go wrong. If an authorized United States AudioControl dealer installs the DQ-61, the warranty is five years. Assuming you conform to 1 through 5, and it really isn't all that hard to do, we get the option of fixing your old unit or replacing it with a new one.

LEGALESE SECTION

This is the only warranty given by AudioControl. This warranty gives you specific legal rights that vary from state to state. Promises of how well the DQ-61 will perform are not implied by this warranty. Other than what we have covered in this warranty, we have no obligation, express or implied. Also, we will not be obligated for direct or indirect consequential damage to your system caused by hooking up the DQ-61. Failure to register warranty information negates any service claims.

DQ-61 SPECIFICATIONS

All specifications are measured at 14.4 VDC (standard automotive voltage.) As technology advances, AudioControl reserves the right to continuously change our specifications, like our Pacific Northwest weather although we are working on it.

Maximum speaker-level input	400 watts per channel
Maximum output level.....	7.5Vrms
Output gain	+/-12 dB
Frequency response	10Hz-22kHz
Total harmonic distortion.....	0.01%
Input Impedance	20 Kohms
Equalization Frequencies	
Front/Rear..	125Hz, 175Hz, 250Hz, 500Hz, 1kHz, 2kHz, 8kHz
Sub Output..	31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100HZ 125Hz
Signal Delay	
Left /Right Max Delay.....	10 ms
Front/Sub Max Delay	35 ms
Output Impedance	150 Ohms
Power supply	High headroom PWM switching
Power draw	350mA
Recommended fuse rating	2 Amps
Remote trigger max output current	1 Amp
Size	8.6"W x 5"D x 1.25"
Weight.....	3 lbs

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AudioControl, Making Good Sound Great, DQ-61, AccuBASS, GTO and AutoMode are all trademarks of AudioControl Inc. This manual was conceived, designed, and written on a muggy and overcast day in the Pacific Northwest which is what the locals from Seattle call "summer."

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