

Tone King

Ironman II Mini

User's Manual



Tone King Amplifiers
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Safety Instructions

Please keep this instruction manual for future reference and for the duration of owning this Tone King Attenuator. Please carefully read and understand the instructions inside this user's manual before attempting to operate your new attenuator. This instruction manual includes essential safety information regarding the use and maintenance of the attenuator. Take special care to heed all warning symbols and signs inside this manual and those printed on the attenuator itself.



WARNING!

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THE ATTENUATOR TO WATER OR MOISTURE. DO NOT OPERATE NEAR ANY WATER SOURCE



WHAT'S THE MEANING OF THIS?

The lightning flash with an arrow triangular symbol is intended to alert the user to the presence of non-insulated "dangerous voltage" within the products enclosure, and may be of sufficient magnitude to constitute a risk of electric shock



WHAT'S THE MEANING OF THIS?

The exclamation point triangular symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the user manual accompanying this amplifier!

1. Read Instructions – All the safety and operating instructions should be read before this product is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the attenuator and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The device should not be used near water – for example, a bathtub, washbowl, kitchen sink, laundry tub, wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The device should be used only with a cart or stand that is recommended by the manufacturer.
An attenuator and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the amplifier and cart combination to overturn.
7. Wall or Ceiling Mounting - The product should never be mounted to a wall or ceiling.
8. Heat – attenuator should be situated away from heat sources such as radiators, heat registers, stoves, or other amplifier (including amplifiers) that produce heat.
9. Power Sources – This product should be operated only from the type of power source indicated on the rating label.
If you are not sure of the type of power supply to your home, consult your product dealer or local power company.
10. Grounding or Polarization - This product may be equipped with a polarized alternation-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

11. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to the cord in correspondence of plugs, convenience receptacles, and the point where they exit from the amplifier.
 12. Cleaning – The attenuator should be cleaned only as recommended by the manufacturer. Clean by wiping with a cloth slightly damp with water. Avoid getting water inside the attenuator.
 14. Non-use Periods – The power cord of the attenuator should be unplugged from the outlet when left unused for a long period of time.
 15. Object and Liquid Entry – Care should be taken so that objects do not fall, and liquids are not spilled into the enclosure through openings.
 16. Damage Requiring Service – The attenuator should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the attenuator; or
 - C. The attenuator has been exposed to rain; or
 - D. The attenuator does not appear to operate normally or exhibits a marked change in performance; or
 - E. The attenuator has been dropped, or the enclosure damaged.
 - F. The attenuator needs tube replacement or biasing
 17. Servicing – The user should not attempt any service to the attenuator beyond that described in the operating instructions.

All other servicing should be referred to qualified service personnel.
 18. Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack.
 19. Attachments – do not use attachments not recommended by the product manufacturer as they may cause hazards.
 20. Accessories – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product.
 21. Lightning – For added protection for this product before a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power line surges.
 22. Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
 23. Safety Check – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
 24. FUSES – Always use the correct rating and type of fuse as indicated on the rear panel. Note the proper rating fuse is determined by the AC line voltage in the country this unit is being operated.
 25. AC SELECT SWITCH: This switch must be set to match the AC line voltage in the country this unit is being operated.
- To change the setting, loosen (do not remove) the two screws above and below the slide switch. Temporarily move the protective cover strip and slide the actuator to match the voltage in your country. Place the protective cover strip back over the switch and tighten the two screws.

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1. Introduction - Product Description

Purpose of an Attenuator

Many vintage tube guitar amplifiers need to be cranked up to full volume to achieve any amount of overdrive and distortion. This type of amplifier does not usually have a Master Volume control and is designed so that all overdrive and distortion happen in the output stage, and not in the preamp. An example of this type of amp is the Fender Deluxe, or Vox AC-30.

This type of amp can create difficulties in managing the volume level, since it needs to be running at full output power to achieve overdrive and distortion. A power attenuator solves this problem. It is connected between the output of the amplifier and the speaker, and it allows you to send a specified fraction of the amp's output power to the speaker. The remainder of the amp's output power is dissipated within the attenuator itself. This way, the amp can run at full output power, and control the volume level with the attenuator.

Tonal Quality

The tonal quality delivered by an attenuator depends on the design of the attenuator. A simple, low-cost attenuator will generally deliver less than spectacular results – muddy sound with blurred attack, buzzy artifacts, and other defects.

The Ironman II Mini utilizes Tone King's state-of-the-art Ironman II architecture, with proprietary design features which make it particularly effective at maintaining the natural sound and feel of your amplifier at even the lowest volume levels.

Technical Details

Here are a few of the technical features that make the Ironman II Mini a particularly transparent, natural sounding attenuator:

1. Tuned Reactive Load

To preserve the natural response and feel of an amplifier, it is critical that the output tubes see the proper loading. The Tuned Reactive Load of the Ironman-II mirrors the impedance curve of a real speaker, which results in a more natural tone and feel than the simple resistive load used in most attenuators.

2. Volume Compensation Circuitry

The ear perceives sound differently at low and high-volume levels, which is why many attenuators may sound thin and muffled at lower settings. The Ironman II overcomes this phenomenon with its' proprietary Volume Level Compensation Circuitry. This circuitry adjusts the tonal balance at each attenuation step, to ensure that the sound you hear is always as deep, rich, and present at low volume as it is at high volume.

3. Damping Factor Correction

A loudspeaker performs differently when driven with very little power, compared to its response at full power. The Ironman-II's Damping Factor Correction Circuitry compensates for this effect, making the speaker perform more naturally at low volume so it retains the feel of a cranked amp, even at bedroom volume.

2. Specifications

Power Handling 30W R.M.S. Maximum

Input Impedance Fixed Impedance; 8 Ohms only

Speaker Impedance Fixed Impedance; 8 Ohms only

Attenuation Levels A total of 18 distinct attenuation levels are available

The ATTENUATION dial selects one of 6 attenuation steps

For each attenuation step, three attenuation levels are available, as determined by the SOLO footswitch and the RANGE switch, as follows:

		Attenuation Step					
SOLO	RANGE	1	2	3	4	5	6
ON		0db	-4db	-8db	-12db	-22db	-32db
OFF	HI	-3db	-7db	-11db	-15db	-25db	-35db
OFF	LO	-6db	-10db	-14db	-18db	-28db	-38db

Attenuation Dial Selects between 6 different attenuation steps.

SOLO Function Selectable 3db/6db reduction in attenuation for solo volume boost

Range Switch Selects between the HI and LO attenuation ranges, to control the attenuation level when the SOLO feature is inactive.

Line Out Recording / D.I. output, impedance = 10K Ohms; level = -10dbu

Presence Switch Provides selectable 3db/6db reduction in upper midrange presence peak

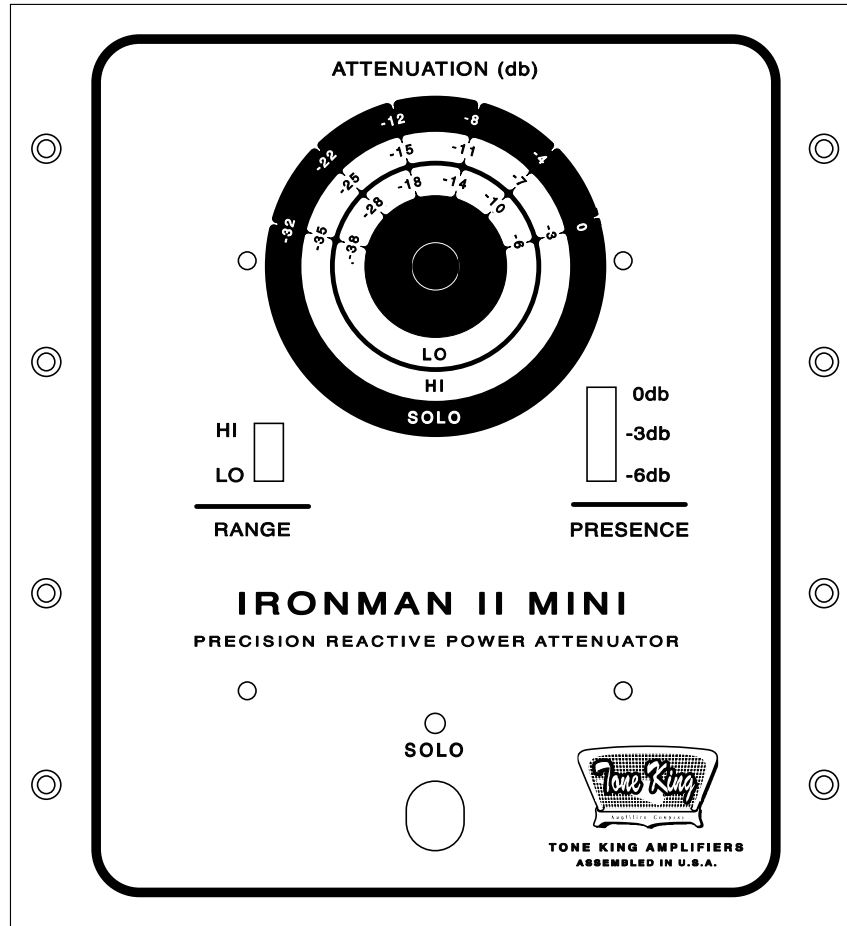
LED Indicator Indicates status of SOLO function

Power Source Used for LED indicator only. Power supplied by either internal batteries (2 x AA cells) or external 9V source.

Dimensions 7"W x 8"D x 1-5/8"T

Weight 5lbs

3. Front Panel Controls



Attenuation Knob

The Attenuation knob selects between the 6 available attenuation steps. For each attenuation step, there are three possible attenuation levels, as determined by the Solo button and the Range switch. This will be discussed in detail in section 4 below.

Range Switch

The Range switch selects the relative attenuation level when the Solo function is inactive, and therefore determines the amount of volume increase you get when the Solo function is activated. More detail will be provided in section 4.

Solo Button

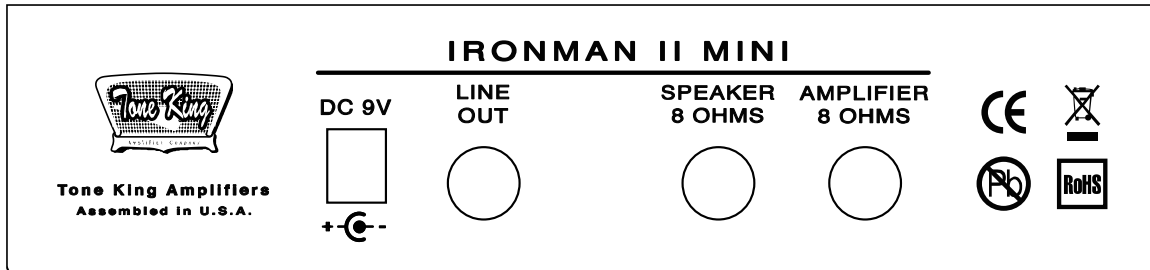
The Solo footswitch selects between two different attenuation levels, to provide a volume boost for soloing or other purposes. The use of the Solo function will be described in detail in section 4.

Presence Switch

The Presence switch provides subtle control of brightness and compression. It allows you to tailor the response to match your acoustic environment, and to correct for an

overly bright amplifier. Three settings are provided: 0db (brightest setting), -3db, and -6db (darkest setting).

4. Back Panel Controls



9V DC Power Input

The 9V DC power input is used to supply power for the Solo Indicator LED. When power is applied via the 9V DC input, the LED is powered by the external power source, and not from the internal batteries. If no external power source is connected, the LED is powered by the internal 2xAA batteries.

Power supplied by either the batteries or the external power source is only used to operate the Solo indicator LED. No other internal circuitry requires power to operate. Thus, the unit will be fully functional with no power source connected (neither battery nor external 9V supply), but the Solo LED indicator will not work without power.

NOTE: If an external 9v power supply is used, its ground MUST be isolated from the signal path ground. There are 2 ways to accomplish this:

1. Use a power supply with isolated ground on each supply output
2. Use a dedicated 9v supply that is only connected to the Ironman II (not shared with other effects devices).

Line Out

The Line-Out jack provides a line level signal which can be used to drive a mixing board, a guitar or instrument amplifier, or any line-level input.

Speaker Jack

The speaker is to be connected to the Speaker jack. This jack can be used to drive any 8-ohm speaker. It should be connected using a mono 1/4" speaker cable. You may need to use an adapter as well if the speaker is terminated with a 1/4" plug, as in a combo style amplifier.

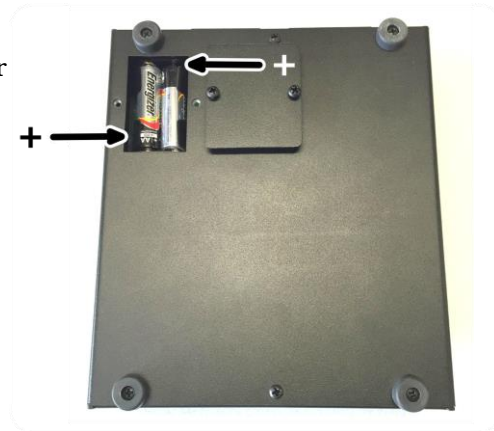
Amplifier Jack

The Amplifier jack is to be connected to your amplifier's "speaker" output, using a 1/4" mono speaker cable. The amplifier's impedance selector (if it has one) must be set to the 8-ohm position.

5. Battery Replacement

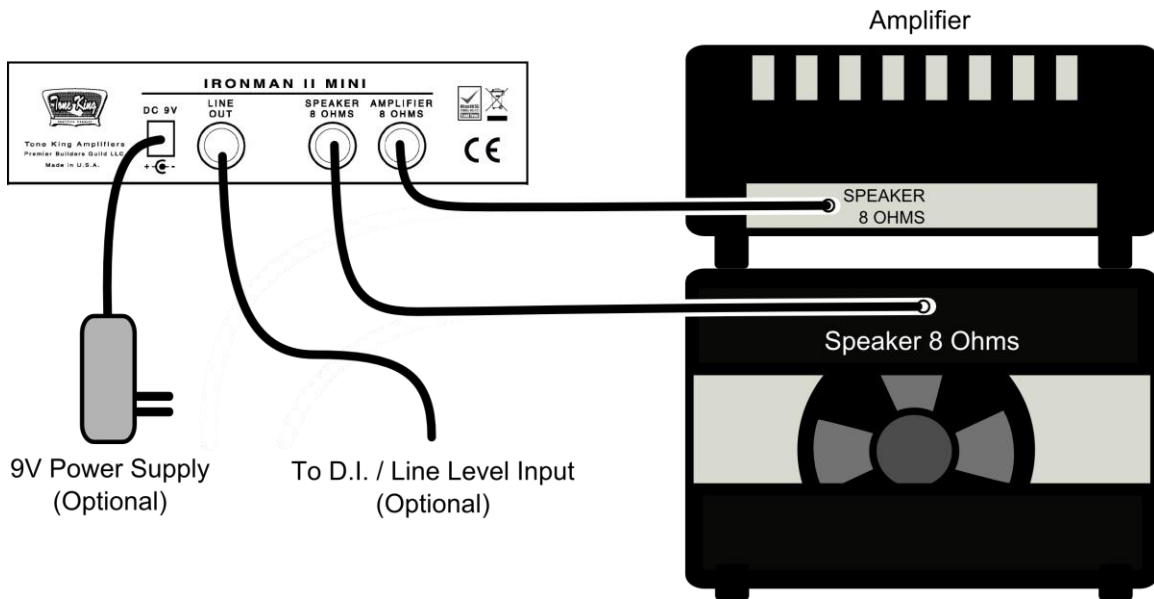
The Ironman II Mini requires either two AA batteries or an external 9V power source to power the Solo indicator LED. Power is not needed for any part of the attenuation circuitry. The attenuator is fully functional without a power source but operating without a power source makes it difficult to determine the status of the Solo feature.

To install or replace the batteries, first remove the battery cover on the bottom of the unit by removing the two screws. Install batteries in as shown here, then replace the battery cover.



6. Connecting the Ironman II Mini

The diagram below shows the proper connection of the Ironman II Mini. Proper 1/4" mono speaker cables must be used to connect both the amplifier and speaker. Standard instrument cables are not sufficient for this purpose and could result in damage to the amplifier.



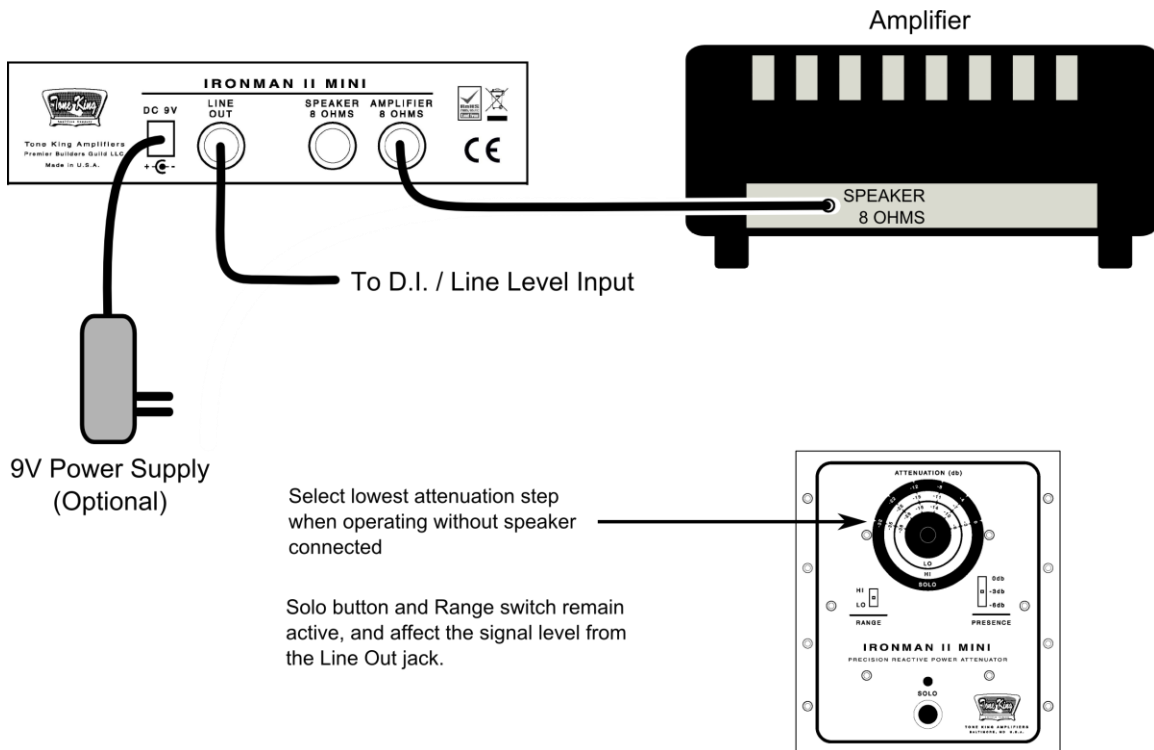
Speaker Connection for Combo Amps

The speaker connection in a combo amp (i.e., an amplifier with a built-in speaker) usually consists of a 1/4" mono plug attached to the speaker, which is plugged into the Speaker Out jack on the amplifier chassis. If the speaker cable is too short, you will need to use a female/female 1/4" adapter and additional mono cable to provide enough length from the speaker to the attenuator, and it looks like this:



Connection for Silent Recording / D.I.

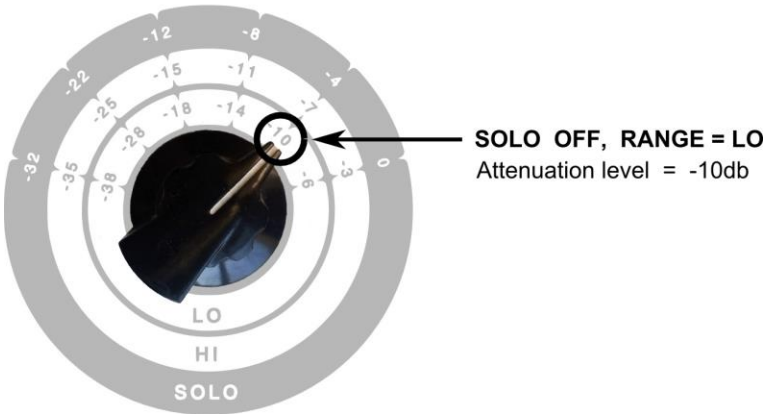
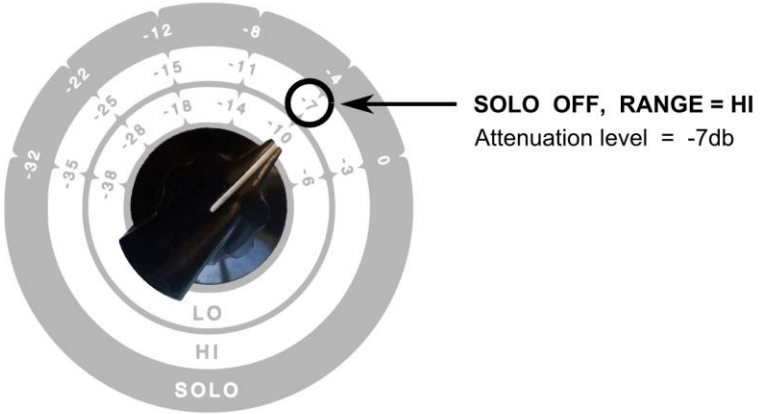
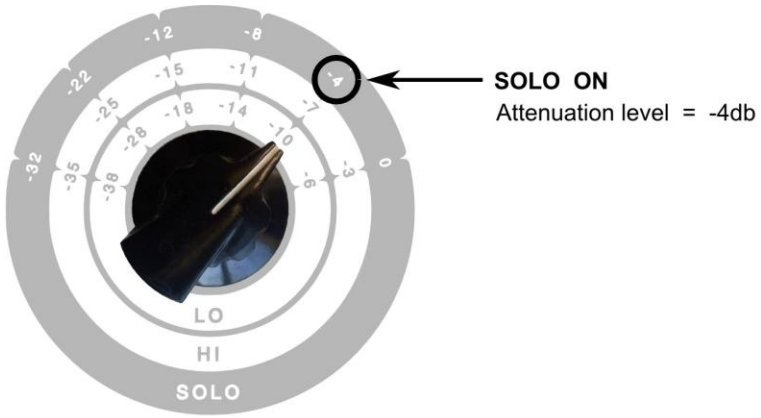
The Ironman II Mini may be used as a simple reactive load for silent recording or D.I. purposes. It will provide a proper load to your amplifier, with no speaker attached. The drawing below shows how to connect the Ironman for this purpose.



7. Attenuation Dial

The amount of attenuation is determined by three controls: the Attenuation dial, the Range switch, and the Solo button.

At each of the 6 steps of the Attenuation dial, three different attenuation levels are possible, depending on the state of the Range switch and Solo button. The example below shows how each of the 3 different attenuation levels are selected.



8. Getting a Great Sound at Home

The Effect of Your Acoustical Environment

When playing in a large room or on a big stage, getting a great sound from your amp is usually easy. In this type of setting, you can crank the amp up to full power, and it will generally sound great.

Playing at home, or in any small room, is a different story. In a case like this, the acoustic properties of the room can have a big influence on the sound you hear and can often cause problems.

There are many types of problems that can happen in a small room. Here are a few suggestions for how to deal with them:

Floor Reflections

If you have the amp sitting on a hardwood, tile, or concrete floor in a small room, it may sound harsh in the upper midrange, because of reflections off the floor directly in front of the amp. To help solve this problem, you might try placing a small piece of carpet (or a doormat, for example), directly in front of the amp.

Where to Place the Amp

Most small combo amps sound best when placed directly on the floor. However, if you find that your amp sounds too bassy or boomy in the low end, you might try raising it up at least 6" off the floor to even out the bottom end.

In a small room, you will find that the sound you hear is greatly influenced by the location of the amp in the room, and by the orientation of the amp with respect to the listening position (i.e., if the amp is pointing at you or away from you).

I strongly suggest experimenting by moving the amp around to different places in the room, playing through it at each location, to find the place that sounds the best.

Carpeting

Carpeting can cause problems as well, and it's not quite as simple as rolling off the high frequencies and making the amp sound dark. Often, the problem is that it causes a dip in a certain region in the midrange, leaving a hole in the lower midrange that makes the amp sound harsh and brittle in the top end. This generally can't be helped by moving the amp to a different location in the room. The only solution I've found is to raise the amp up a few inches off the floor. You may lose some bottom end in doing this, but the positive effect in smoothing the midrange response will more than make up for it.

TONE KING LIMITED LIFETIME WARRANTY

Thank you for choosing Tone King. Tone King manufactures some of the world's most reliable hand-wired, all-tube amplifiers, attenuators, and speaker cabinets. Tone King takes great pride in an extremely thorough testing procedure which is implemented on each product prior to shipment. In the unlikely event that you have a problem with your amplifier, please refer to warranty below. Tone King stands behind our products like no other and we're here to help you!

AMPLIFIERS: Tone King offers a limited lifetime warranty to the original purchaser that a Tone King amplifier will be free from defects in material and workmanship. A dated sales receipt will establish coverage under this warranty, PLEASE KEEP YOUR PROOF OF PURCHASE TO USE YOUR WARRANTY. This warranty does not cover service or parts to repair damage caused by accident, neglect, abuse, normal & wear, disaster, misuse, abuse, over-powering, negligence, inadequate packing or shipping procedures and service, repair or any modifications to the product which have not been authorized or approved by Tone King in writing. **ANY MODIFICATION TO THE AMPLIFIER WILL VOID YOUR WARRANTY.** If this product is defective in materials or workmanship as warranted above, your sole remedy shall be repair or replacement by Tone King as provided below.

CAUTION: Do NOT attempt to repair, modify, or service your amplifier by yourself!!! Please read the instruction manual for all safety notifications, warnings, and instructions. Tone King, like all tube amplifiers, have extremely high voltages that can cause serious injury or death. Do not remove the chassis from the amplifier. All repair and service work must be performed by Tone King or an authorized service center of Tone King. ANY UNAUTHORIZED REPAIRS WILL VOID YOUR WARRANTY.

TUBES: Tone King warrants the original purchaser that the specific tubes used in Tone King will be free from defects in material and workmanship for a period of 90 days from the original date of purchase. A dated sales receipt will establish coverage under this warranty. This tube warranty will automatically terminate 90 days after the original retail sales date. This tube warranty is in lieu of all other expressed warranties. If tubes fail within the 90-day warranty period, your sole remedy shall be replacement of tubes as provided below.

RETURN PROCEDURES: In the unlikely event that a defect occurs please call us at 323-277-4100. In most cases we can help you diagnose the problem over the phone. If a product must be sent to us, please follow the procedure outlined below.

- Defective products must be shipped, together with proof of purchase, freight pre-paid and insured to the Authorized Tone King Service Center or directly to Tone King.
- If a product must be returned to Tone King for warranty replacement/repair, a Return Authorization Number must be obtained from our Customer Service Department prior to shipping the product.
- Please contact Tone King Customer Service Department for the Authorized Tone King Service Center nearest you.
- Products must be shipped in their original packaging or its equivalent; in any case, the risk of loss or damage in transit is to be borne by the purchaser.
- The Return Authorization Number must appear in large print directly below the shipping address.
- Always include a brief description of the defect, along with your correct return address and telephone number.
- When calling to inquire about a returned product, always refer to the Return

Authorization Number.

If Tone King determines that the unit was defective in materials or workmanship at any time during the warranty period, Tone King has the option of repairing or replacing the product at no additional charge, except as set forth below.

- All replaced parts become a property of Tone King. Products replaced or repaired under this warranty will be returned via ground shipping within the United States or Canada - freight prepaid.
- Tone King is not responsible for costs associated with expedited shipping, either to Tone King or the return of the product to the customer.

All warranty repairs outside the United States and Canada must be directed to the dealer or distributor from which you purchased the product.

INCIDENTAL OR CONSEQUENTIAL DAMAGE: In no event will Tone King be liable for any incidental or consequential damages arising out of the use or inability to use of any Tone King product, even if a Tone King dealer has been advised of the possibility of such damages, or any other claim by any other party. Some states do not allow the exclusion or limitation of consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

FOR YOUR PROTECTION: Please complete the warranty registration online at www.toneking.com within (10) ten days of the date of purchase so that we may contact you directly in the event a safety notification issued in accordance with the 1972 Consumer Product Safety Act.

CUSTOMER SUPPORT: Our dedicated and friendly staff is ready to help you with any warranty or product questions you may have. Please call us at 323-277-4100 – Monday – Friday 9AM-4PM (Pacific Standard Time)

Thank you again for choosing Tone King!

Premier Builders Guild, LLC
201 S. Highland Avenue, Suite 204
Pittsburgh, PA 15206
412-362-0309



DECLARATION OF CONFORMITY

We, Premier Builders Guild, in coordination with CES Laboratories, declare, taking this declaration under our total responsibility, that the below models are in conformity with the provisions of the following EC Directive(s) when installed in accordance with the installation instructions contained in the product documentation:

2006/95/EEC Low Voltage Directive
2004/108/EEC EMC Directive
EN60065:2014
EN55013:2013

And that the standards and/or technical specifications have been applied to the following families of products:

Falcon
Falcon Grande
Imperial MK II
Sky King
Royalist 15
Royalist 45
Ironman II Mini

Manufacturer/Importer
CE Marking Date: 6/17/2015

Signature: *Christopher W. Fleming*

Name and Title: *Christopher W. Fleming*
V.P. PROJECT ENGINEERING

Signature Date: 8/25/2015
Issue Date: 8/25/2015
Approved By:
Chandra Garudachar
President
CES LABORATORIES

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