

# COMBO® 115

## OPERATING GUIDE





Intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

**CAUTION:** Risk of electrical shock — DO NOT OPEN!

**CAUTION:** To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

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**WARNING:** To prevent electrical shock or fire hazard, do not expose this appliance to rain or moisture. Before using this appliance, read the operating guide for further warnings.



Este símbolo tiene el propósito, de alertar al usuario de la presencia de “(voltaje) peligroso” sin aislamiento dentro de la caja del producto y que puede tener una magnitud suficiente como para constituir riesgo de descarga eléctrica.



Este símbolo tiene el propósito de alertar al usuario de la presencia de instrucciones importantes sobre la operación y mantenimiento en la información que viene con el producto.

**PRECAUCION:** Riesgo de descarga eléctrica ¡NO ABRIR!

**PRECAUCION:** Para disminuir el riesgo de descarga eléctrica, no abra la cubierta. No hay piezas útiles dentro. Deje todo mantenimiento en manos del personal técnico cualificado.

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**ADVERTENCIA:** Para evitar descargas eléctricas o peligro de incendio, no deje expuesto a la lluvia o humedad este aparato. Antes de usar este aparato, lea más advertencias en la guía de operación.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur la présence d'une tension dangereuse pouvant être d'amplitude suffisante pour constituer un risque de choc électrique.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur qu'il ou qu'elle trouvera d'importantes instructions concernant l'utilisation et l'entretien de l'appareil dans le paragraphe signalé.

**ATTENTION:** Risques de choc électrique — NE PAS OUVRIR!

**ATTENTION:** Afin de réduire le risque de choc électrique, ne pas enlever le couvercle. Il ne se trouve à l'intérieur aucune pièce pouvant être réparée par l'utilisateur. Confiez l'entretien et la réparation de l'appareil à un réparateur Peavey agréé.

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**AVERTISSEMENT:** Afin de prévenir les risques de décharge électrique ou de feu, n'exposez pas cet appareil à la pluie ou à l'humidité. Avant d'utiliser cet appareil, lisez attentivement les avertissements supplémentaires de ce manuel.



Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von Ausreichender Stärke sind, um einen elektrischen Schlag verursachen zu können.



Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.

**VORSICHT:** Risiko — Elektrischer Schlag! Nicht öffnen!

**VORSICHT:** Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung entfernen. Es befinden sich keine Teile darin, die vom Anwender repariert werden könnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.

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**ACHTUNG:** Um einen elektrischen Schlag oder Feuergefahr zu vermeiden, sollte dieses Gerät nicht dem Regen oder Feuchtigkeit ausgesetzt werden. Vor Inbetriebnahme unbedingt die Bedienungsanleitung lesen.

# ENGLISH

## **Combo® 115** **Bass Amplifier**

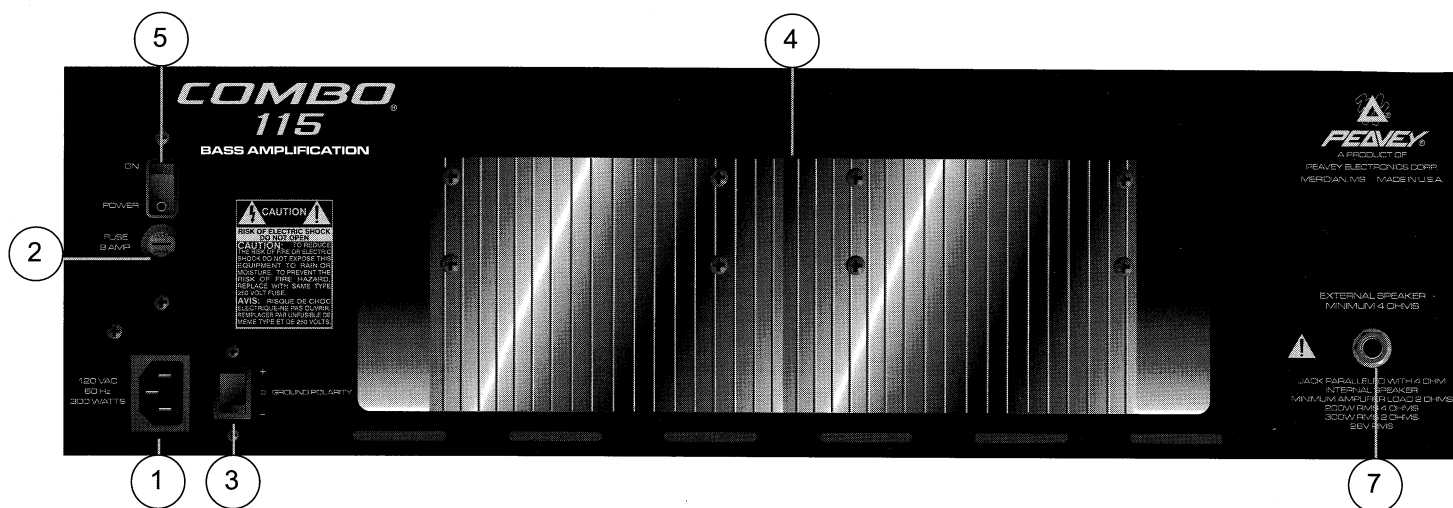
Congratulations on your purchase of the new Combo® 115 bass amp by Peavey. The Combo® 115 represents the finest in bass amplification available today. Utilizing the latest in semiconductor technology and power amp design, the Combo 115 sets the standard for its competition.

Featuring an Eminence speaker with an 80-ounce magnet and cast aluminum frame, the Combo 115 packs a heavy punch into a compact “combo” package. The following list reflects the many features of the Combo 115. Please read this guide carefully to ensure your personal safety as well as the safety of your Combo 115 amplifier.

### **FEATURES:**

- Input pad switch
- Pre and Post (Volume) gain controls
- Bright switch
- Contour bypass switch
- Send/Return patch
- Tuner send
- Bass shelving control
- Treble shelving control
- Seven-band graphic EQ
- EQ In/Out switch
- Crossover with variable frequency
- Preamp Out
- Power Amp In
- Power/Status LED
- DDT speaker protection

## REAR PANEL



### I. AC POWER AND EXTERNAL SPEAKER

Before you begin to play through your Combo 115, it is very important to ensure the product has the proper AC line voltage supplied. You can find the proper voltage for your Combo 115 printed next to the IEC line (power) cord on the rear panel of the unit. On 220 - 240 V models a voltage selector switch is provided. It is important to set this switch in the position which corresponds to your applicable AC power. In this section, all features related to AC power are explained. Some are found on the rear of the unit and some are found on the front.

In addition, an external speaker jack is provided for the additional use of an external bass enclosure. This feature is located on the rear panel as well and is also explained in this section.

Each Combo 115 feature is numbered. Refer to the front and rear panel diagrams in this manual to locate the particular features by their number.

#### 1. REMOVABLE AC POWER CORD



This receptacle is for the IEC line cord (included), which provides AC power to the unit. Connect the line cord to this connector and to a properly grounded AC supply. Damage to the equipment may occur if an improper line voltage is used. (See voltage marking on unit). Never remove or cut the ground pin of the line cord plug. This unit is supplied with a properly rated line cord. When lost or damaged, replace this cord with one of the proper ratings.

#### 2. FUSE



The fuse is located in the cap of the fuse holder. If the fuse should fail, IT MUST BE REPLACED WITH A FUSE OF THE SAME TYPE AND VALUE IN ORDER TO AVOID DAMAGE TO THE EQUIPMENT AND TO PREVENT VOIDING THE WARRANTY. If the amp repeatedly blows fuses, it should be taken to a qualified service center for repair.

**WARNING:** THE FUSE SHOULD ONLY BE REPLACED WHEN THE POWER CORD HAS BEEN DISCONNECTED FROM ITS POWER SOURCE.

#### 3. GROUND POLARITY SWITCH (120 V models only)

The ground switch is a three-position rocker switch which, in most applications, should

be operated in its center or zero position. There may be some situations when audible hum and/or noise will come from the speaker. If this situation arises, position the ground switch to either the positive or negative (+/-) position or until the noise is minimized. (On 220 - 240 V models, this switch is replaced by a voltage selector switch. The voltage selector switch should be set to match the provided AC power rating.)

#### 4. AC POWER CORD RETAINER

The heatsink on the unit is designed to allow storage of the AC power cord when not in use. Always allow space behind the unit for good ventilation of the heatsink.

#### 5. POWER SWITCH

Press to "ON" position to turn on the amp.

#### 6. POWER/STATUS LED (See Front Panel diagram below)

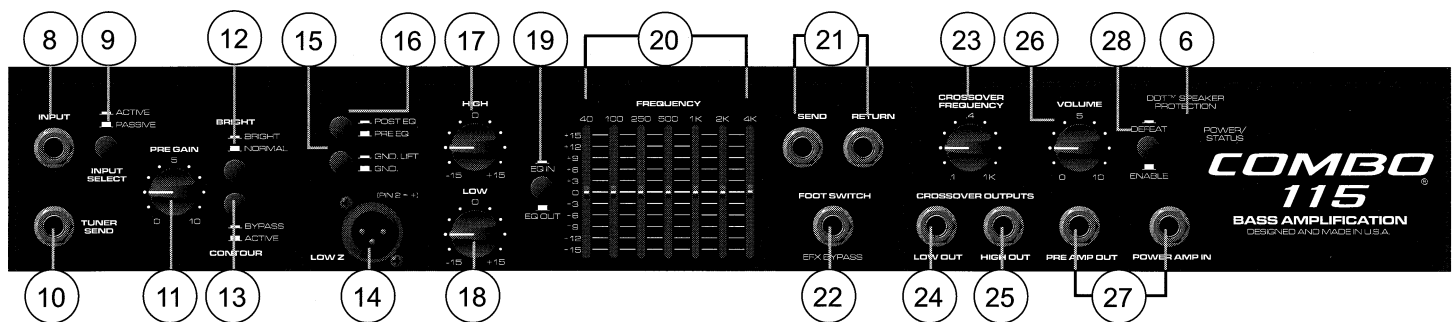
Illuminates GREEN when AC power is being supplied to the amp and illuminates RED when DDT™ is active. **Note:** that when the DDT™ Speaker Protection System Switch (28) is in the "DEFEAT" position (IN), the Status LED illuminates RED when power amplifier clipping occurs.

#### 7. EXTERNAL SPEAKER JACK



An external speaker cabinet may be connected to the amplifier. THE IMPEDANCE OF THE CABINET MUST **NOT** BE LOWER THAN 4 OHMS. Note that the external speaker jack is in parallel with the internal 4 ohm speaker to produce maximum power (300 watts) into the resultant 2 ohm load.

## FRONT PANEL



## II. FRONT PANEL/PREAMP FEATURES

In this section each feature of the Combo 115 preamp is explained. These preamp features all function to develop and/or process your tone. For the best results, always use quality shielded instrument cables and patch cables when connecting to the Combo 115. Refer to the Block Diagram on page 10 for a visual representation of how the signal flows through the preamp section to the power amp.

### INPUT

#### 8. INPUT JACK

This 1/4" mono input will accept signals from all types of bass pickups.

#### 9. INPUT SELECT

When placed in the "ACTIVE" position, this switch activates a -10 dB pad for use with

those bass guitars with active pickups. Often, the signal produced by active pickups is so strong that it overdrives the input stage of the preamp. In order to prevent this type of distortion this function is provided. Standard bass guitars with passive pickups (no battery) should use the "PASSIVE" position.

**10. TUNER SEND**

This 1/4" mono output is provided for use with external tuning devices. Simply connect a patch cable from this output to the input of a tuner and turn the guitar up. The guitar's signal will be sent from the Combo 115 input stage to the tuner. If you wish to mute the guitar during tuning, turn down the Pre Gain (11) control. This Tuner Send is taken before the Pre Gain control.

**11. PRE GAIN**

Controls the input gain of the preamp. If distortion is heard, this Pre Gain control may be set too high. In this situation, decrease the Pre Gain control (turn counterclockwise) and increase the Master Volume (26) control.

**12. BRIGHT SWITCH**

Placing this switch in the "BRIGHT" position provides an 8 dB boost to treble frequencies. To activate, press the switch to the "in" position.

**13. CONTOUR BYPASS SWITCH**

Placing this switch in the "BYPASS" (in) position defeats the preset special EQ curve. Leaving the switch in the "ACTIVE" position allows for the popular Contour EQ curve to be present in the signal chain. The Contour EQ curve offers high frequency enhancement to complement the clarity and attack of your instrument. Experiment with this switch position to find the voicing that best complements your desired tone.

## **LINE OUT**

**14. LOW Z BALANCED OUTPUT**

Provides an electronically balanced, low impedance signal source for use with external equipment. Though this source can be used to trigger lights or go to an effects rack, its designed function is to provide a direct balanced signal to the Low Z inputs of a mixer (thereby eliminating the need for a "direct box". This eliminates the need for external direct boxes.

**15. GROUND LIFT SWITCH**

Place this switch in the "GND LIFT" (in) position to lift the ground on the Low Z Balanced Output (14). This is used to prevent hum when connecting the output to external equipment.

**16. POST EQ/PRE EQ**

This switch changes the position of the Low Z Balanced Output (14) in the signal chain. As indicated, placing this switch in the POST EQ (in) position allows the equalized signal to be sent out of the Low Z Balanced Output.

## **EQUALIZATION**

**17. HIGH**

An active tone control (shelving type,  $\pm 15$  dB) that varies the high frequency boost or cut.

**18. LOW**

An active tone control (shelving type,  $\pm 15$  dB) that varies the low frequency boost or cut.

**19. GRAPHIC IN/OUT SWITCH**

The "in" position of this switch routes the instrument signal through the seven-band equalizer. The "out" position removes the graphic equalizer from the signal path.

**20. GRAPHIC EQUALIZER**

This seven-band, graphic equalizer provides 15 dB of boost or cut at each center frequency.

## **EFX LOOP**

**21. SEND/RETURN**

This is a low-level (0.3 V RMS) post-EQ effects patch. To patch an effects unit, connect the SEND jack to the input of the effects unit. Next, connect the output of the effects unit to the RETURN jack. Remember to always use high-quality shielded cables for these connections.

**22. REMOTE SWITCH JACK**

A single switch footswitch (mono 1/4" plug) can be used to switch the effects loop off and on. The recommended footswitch for this application is the Peavey model # 00051000.

## **CROSSOVER**

**23. FREQUENCY**

The Frequency control varies the crossover frequency from 100 Hz to 1 kHz. Set this control to the desired crossover frequency, keeping in mind manufacturer's recommendations for the speakers being used. To set up the COMBO 115 for biamp operation, a separate amplifier and speaker cabinet will be necessary.

Biamp Example: Connect the HIGH output of the crossover to the PWR AMP IN of the COMBO 115. Next, connect the LOW output of the crossover to the input of an external power amplifier. Connect the speaker output of the external power amplifier to a separate speaker enclosure. Set the crossover frequency to suit your taste, keeping in mind the manufacturer's recommendations for the equipment being used.

**24. LOW OUT**

This mono 1/4" jack provides an output for the low frequency signal produced by the internal crossover. The bandwidth of the signal present at this jack is determined by the Frequency (23) control.

**25. HIGH OUT**

This mono 1/4" jack provides an output for the high frequency signal produced by the internal crossover. The bandwidth of the signal present at this jack is determined by the Frequency (23) control.



## **MASTER**

### **26. VOLUME**

Controls the overall volume level of the amplifier. The final level adjustment should be made with this control after the desired tone has been achieved.

### **27. PREAMP OUT/POWER AMP IN**

These mono 1/4" jacks are provided for in-line patching of effects units. To patch an effects unit, connect the PREAMP OUT jack to the input of the effects unit. Next, connect the output of the effects unit to the PWR AMP IN jack. The preamp output can also be used to route the amplified signal to a mixing console, tape recorder, etc. Connect the PREAMP OUT jack to the input of the console or tape recorder, etc. This will not affect the operation of the amplifier. Remember to always use high-quality shielded cables for these connections.

### **28. DDT™ SPEAKER PROTECTION SYSTEM SWITCH**

The COMBO 115 utilizes our DDT compression circuit to effectively eliminate the possibility of clipping (square wave) the power amplifier. The amplifier should be operated such that the DDT display is NOT lit constantly, but is lit intermittently. When the display is on all the time, this is an indication that the power amplifier is being driven excessively hard. To avoid this situation, either reduce the gain or reduce the EQ settings until the DDT display lights intermittently. To defeat the DDT speaker protection system, place the switch in the "DEFEAT" (down) position.

The "status" LED lights "green" when the power is on and will only light "red" when DDT is active (when DDT switch is in the "in" position.)

**NOTE:** It is highly recommended to utilize the DDT speaker protection system.



# COMBO® 115

## SPECIFICATIONS

### SYSTEM SPECIFICATIONS:

- Mains fuse = 8 amps
- Mains voltage = 120 VAC 60 Hz
- Power Consumption = 300 watts
- Hum and noise: Typically greater than -89 dB unweighted
- Internal speaker: Professional Cast frame, 3 inch Voice Coil, 4 ohm impedance

### POWER AMPLIFIER SECTION:

#### PROTECTION:

- Current limit protection circuit
- Thermal protection circuit
- DC crowbar
- DDT speaker protection circuit with defeat switch

#### GENERAL INFORMATION:

- Minimum load = 2 ohms
- DDT dynamic range: +16 dB
- Input sensitivity: 1.0 V RMS
- One 1/4" external speaker jack.

#### POWER OUTPUT:

- 300 watts (24.49 V RMS) into 2 ohms with no more than 1% THD+N
- 210 watts (28.98 V RMS) into 4 ohms with no more than 1% THD+N
- 130 watts (32.25 V RMS) into 4 ohms with no more than 1% THD+N

#### NOISE:

- Typically greater than 105 dB below full power @ 4 ohms unweighted

#### DDT DYNAMIC RANGE:

- Typically greater than 15 dB

#### FREQUENCY RESPONSE

- +0/-1 dB, 100 mW to 180 W RMS 20 Hz to 20 kHz into 4 ohms typically below 0.08% THD

### PREAMPLIFIER SECTION:

#### SETTINGS FOR FOLLOWING MEASUREMENTS

##### UNLESS OTHERWISE NOTED:

- Pre-Gain = 5 (12 o'clock)
- Bass = 0 (12 o'clock)
- High = 0 (12 o'clock)
- Graphic switch out
- All graphic sliders at 0 (centered)
- Master Volume = 10
- High Boost = out
- Contour = in
- Pad = out

### INPUT SENSITIVITY (Level to achieve full power)

#### With Pad Out:

- Nominal input: 250 mV RMS
- Minimum input: 20 mV (pre-gain and master fully CW)
- Maximum input: 3.3 V (maximum signal at input before clipping occurs)

#### With Pad -10 dB In:

- Nominal input: 790 mV RMS
- Minimum input: 63 mV (pre gain and master fully CW)
- Maximum input: 10 V (maximum signal at input before clipping occurs)

#### EQUALIZATION:

- **Bass:** ±15 dB @ 30 Hz, Shelving type EQ.
- **High:** ±15 dB @ 8 kHz, Shelving type EQ.
- **Bright boost:** + 8 dB @ 5 kHz
- **Graphic EQ:** Provides ±15 dB of boost at each center frequency
- **Contour:** Special frequency compensation.

#### EFFECTS LOOP:

- Set for -10 dB (0.315 V RMS) with pre @ 5, Master @ 10
- Controlled via footswitch

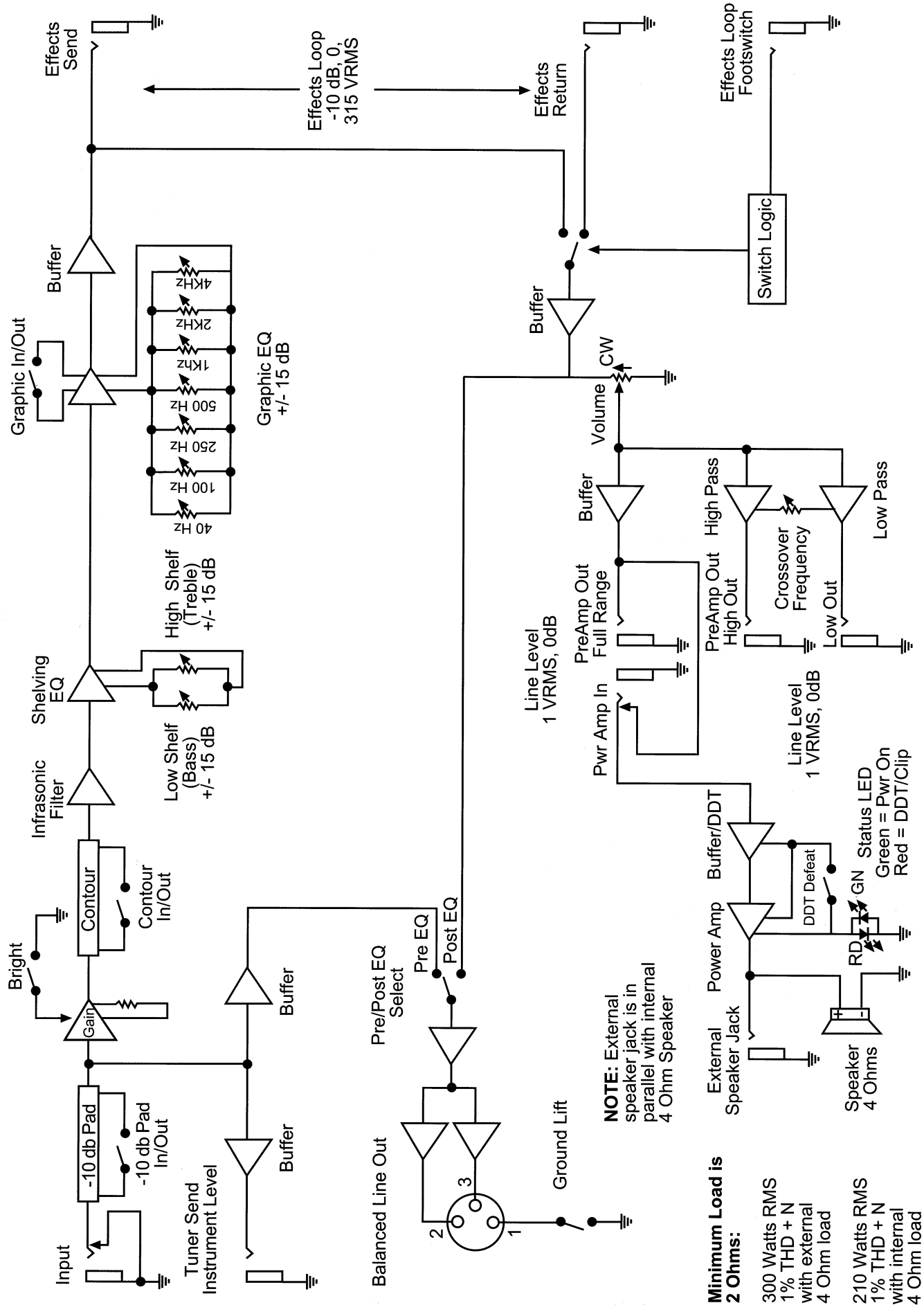
#### PREAMP OUTPUTS:

- Full range output 1 V RMS nominal
- High range output 1 VRMS nominal
- Low range output 1 VRMS nominal

#### CROSSOVER:

- Frequency: Adjustable frequency 100 Hz-1 KHz
- Slope : 40 dB/decade (12 dB/octave)

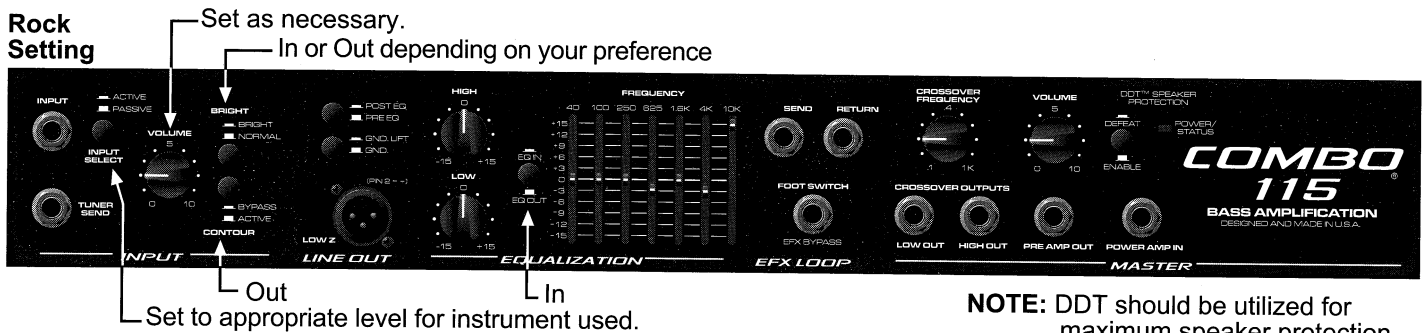
# COMBO® 2000 BLOCK DIAGRAM



# COMBO® 115

## RECOMMENDED HOOKUP FOR BIAMP OPERATION

### Rock Setting



**NOTE:** DDT should be utilized for maximum speaker protection.

### Slap Setting



**NOTE:** DDT should be utilized for maximum speaker protection.

### Blues/ Country Setting



**NOTE:** DDT should be utilized for maximum speaker protection.

## IMPORTANT SAFETY INSTRUCTIONS

**WARNING:** When using electric products, basic cautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water. For example, near or in a bathtub, swimming pool, sink, wet basement, etc.
6. Clean only with a damp cloth.
7. Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions. It should not be placed flat against a wall or placed in a built-in enclosure that will impede the flow of cooling air.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding plug. The wide blade or third prong is provided for your safety. When the provided plug does not fit into your inlet, consult an electrician for replacement of the obsolete outlet. Never break off the grounding. Write for our free booklet "Shock Hazard and Grounding". Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
11. Only use attachments/accessories provided by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. If this product is to be mounted in an equipment rack, rear support should be provided.
16. Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational and Health Administration (OSHA) has specified the following permissible noise level exposures:

Duration Per Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Ear plugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

**SAVE THESE INSTRUCTIONS!**

# PEAVEY ELECTRONICS CORPORATION LIMITED WARRANTY

*Effective Date: July 1, 1998*

## What This Warranty Covers

Your Peavey Warranty covers defects in material and workmanship in Peavey products purchased and serviced in the U.S.A. and Canada.

## What This Warranty Does Not Cover

The Warranty does not cover: (1) damage caused by accident, misuse, abuse, improper installation or operation, rental, product modification or neglect; (2) damage occurring during shipment; (3) damage caused by repair or service performed by persons not authorized by Peavey; (4) products on which the serial number has been altered, defaced or removed; (5) products not purchased from an Authorized Peavey Dealer.

## Who This Warranty Protects

This Warranty protects only the original retail purchaser of the product.

## How Long This Warranty Lasts

The Warranty begins on the date of purchase by the original retail purchaser. The duration of the Warranty is as follows:

<b>Product Category</b>	<b>Duration</b>
<b>Guitars/Basses, Amplifiers, Pre-Amplifiers, Mixers, Electronic Crossovers and Equalizers</b>	<b>2 years *(+ 3 years)</b>
<b>Drums</b>	<b>2 years *(+ 1 year)</b>
<b>Enclosures</b>	<b>3 years *(+ 2 years)</b>
<b>Digital Effect Devices and Keyboard and MIDI Controllers</b>	<b>1 year *(+ 1 year)</b>
<b>Microphones</b>	<b>2 years</b>
<b>Speaker Components (incl. speakers, baskets, drivers, diaphragm replacement kits and passive crossovers) and all Accessories</b>	<b>1 year</b>
<b>Tubes and Meters</b>	<b>90 days</b>

*[\*denotes additional warranty period applicable if optional Warranty Registration Card is completed and returned to Peavey by original retail purchaser within 90 days of purchase.]*

## What Peavey Will Do

We will repair or replace (at Peavey's discretion) products covered by warranty at no charge for labor or materials. If the product or component must be shipped to Peavey for warranty service, the consumer must pay initial shipping charges. If the repairs are covered by warranty, Peavey will pay the return shipping charges.

## How To Get Warranty Service

(1) Take the defective item and your sales receipt or other proof of date of purchase to your Authorized Peavey Dealer or Authorized Peavey Service Center.

**OR**

(2) Ship the defective item, prepaid, to Peavey Electronics Corporation, International Service Center, 412 Highway 11 & 80 East, Meridian, MS 39301 or Peavey Canada Ltd., 95 Shields Court, Markham, Ontario, Canada L3R 9T5. Include a detailed description of the problem, together with a copy of your sales receipt or other proof of date of purchase as evidence of warranty coverage. Also provide a complete return address.

## Limitation of Implied Warranties

ANY IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WARRANTY.

***Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.***

## Exclusions of Damages

PEAVEY'S LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT, AT PEAVEY'S OPTION. IF WE ELECT TO REPLACE THE PRODUCT, THE REPLACEMENT MAY BE A RECONDITIONED UNIT. PEAVEY SHALL NOT BE LIABLE FOR DAMAGES BASED ON INCONVENIENCE, LOSS OF USE, LOST PROFITS, LOST SAVINGS, DAMAGE TO ANY OTHER EQUIPMENT OR OTHER ITEMS AT THE SITE OF USE, OR ANY OTHER DAMAGES WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE, EVEN IF PEAVEY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

***Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.***

***This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.***

If you have any questions about this warranty or service received or if you need assistance in locating an Authorized Service Center, please contact the Peavey International Service Center at (601) 483-5365 / Peavey Canada Ltd. at (905) 475-2578.

*Features and specifications subject to change without notice.*



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