

HIWATT

AUTHENTIC BRITISH SOUND



HIWATT
Custom Shop

Universal
OWNERS MANUAL



IMPORTANT SAFETY INSTRUCTIONS



Please read these instructions carefully before switching your amplifier on.

- Please ensure that the voltage selector/indicator and fuses match the supply voltage of the country in which the amplifier is being used.
- Do not switch the amplifier on without the loudspeaker connected. It is important that the amplifier and speaker are matched at the correct impedance. Failure to do so can result in damage to the amplifier or speaker.
- Never attempt to by-pass fuses or fit ones of incorrect value.
- Never use an amplifier in wet or damp conditions.
- Protect the power cord from being walked on or pinched. Do not modify.
- All servicing should be carried out by a professionally qualified service technician.
- Always ensure free movement of air around the amplifier to prevent overheating.
- Do not attempt to remove the amplifier chassis, there are no user serviceable parts inside.
- Always use the supplied mains lead provided with your amplifier. If a replacement is needed, please contact your Hiwatt Dealer.
- Always unplug this amplifier during lightning storms or when unused for prolonged periods of time.

WARNING – if used improperly or without proper safeguards this equipment can cause hearing damage or loss of hearing.

Servicing is required when the apparatus has been damaged in any way, such as when the power supply 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.

Follow all instructions and warnings

Please keep instructions in a safe place

Register product online: Hiwatt.co.uk



Hiwatt.co.uk/downloads

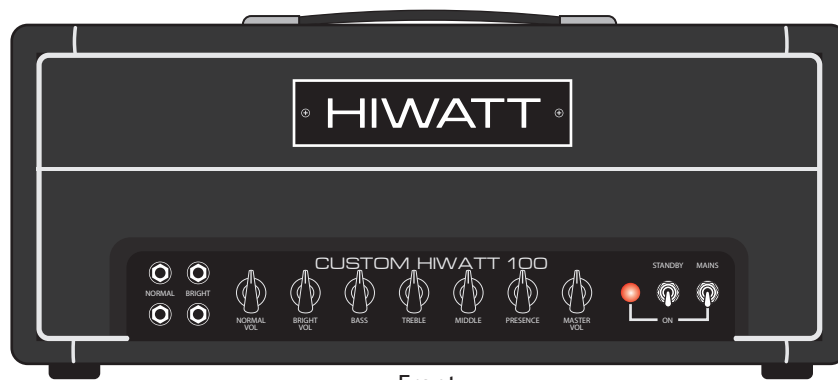
IMPORTANT SAFETY INSTRUCTIONS
 IMPORTANTI ISTRUZIONI DI SICUREZZA
 CONSIGNES DE SÉCURITÉ IMPORTANTES



HIWATT UK CUSTOM SHOP MANUAL

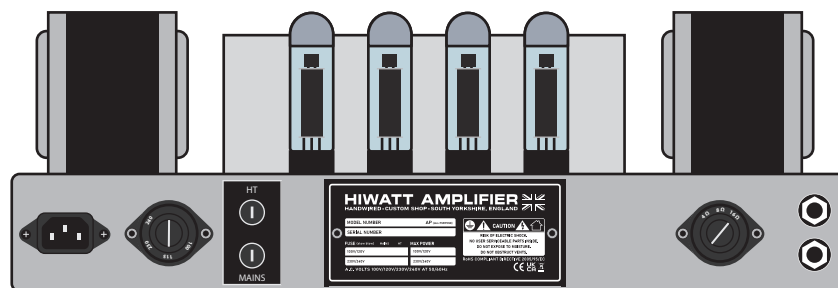
Welcome to Hiwatt Custom Shop - Proud builders of the world's greatest hand wired valve amplifiers and historic loudspeaker enclosures from 1966 to present. Still situated in Historic South Yorkshire England, Hiwatt continues to build on Dave Reeves original amplifier circuit using traditional methods, vintage correct layouts and the best components and materials. Our goal is to produce amplifiers that sound just like they did from Hiwatt in the late 60's and early 70's when they originally exploded onto the British scene in London, England. Legendary headroom and crystal clear tones with rich harmonics, Hiwatt has carved out its place in tonal history. Rugged enough for use on the world's biggest stages and immortalized on some of the world's greatest albums.

Please read this manual in it's entirety before using your amplifier to ensure you get the most out of your Hiwatt amplifier in the safest manner possible. This is a professional quality guitar and instrument amplifier (the AP stamped on the serial plate stands for 'all purpose') - built to last a lifetime of playing both on and off the road if used responsibly and properly serviced. **Please register your product with us online at Hiwatt.co.uk and keep this manual in a safe place for future reference.**



*Custom
Hiwatt DR103
featured*

Front



Back Panel

SPECIFICATIONS: Hiwatt Custom DR103

Type: All Purpose Guitar/Bass/Instrument

Cabinet: 18mm Baltic Birch Ply head box

Valve Complement:

- 4 x EL34 in the power amp
- 4 x ECC83 (modern player, more gain in preamp)
- or 3 x ECC83 – 1 X ECC81 (vintage correct)

Voltage: Switchable Voltage (100v, 115v, 230v, 240v)

Impedance: Switchable Impedance (4 Ω, 8 Ω, 16 Ω)

Speaker Outputs:

- 2 x Parallel Speaker output sockets on ¼" Jacks

Power output: 100 Watts

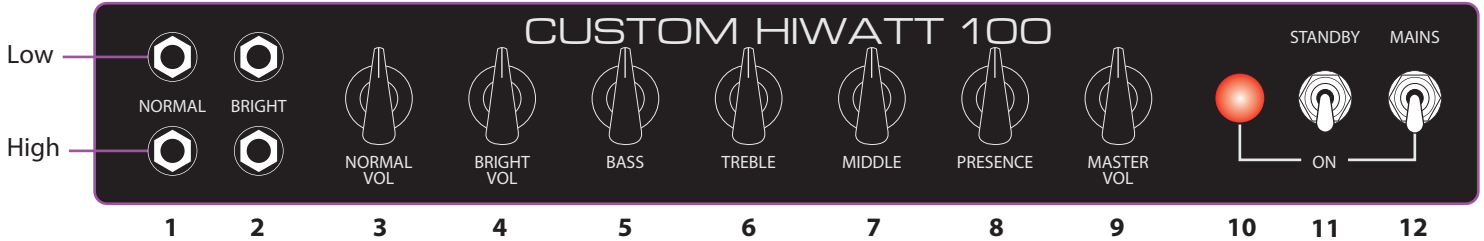
Dimensions: Height 280mm,
Width 631mm,
Depth 280mm

Weight: 23.15kg

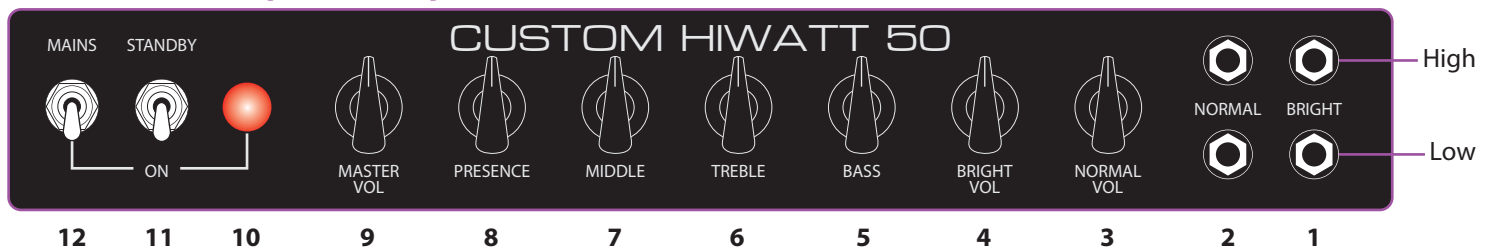
USER GUIDE

This Hiwatt amplifier is designed to be intuitive to set up: The front and back panels of this amplifier are laid out in a logical manner so that the controls, switches, and jack connectors are easy to use and understand.

Front Panel (Head)

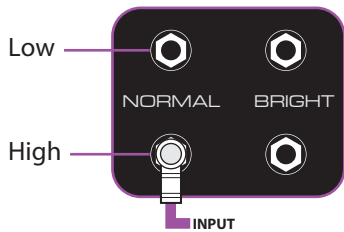


Front Panel (Combo)



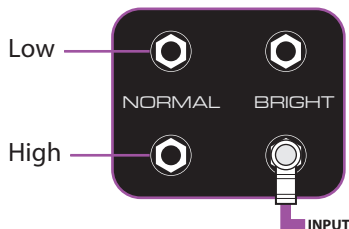
This amplifier has two channels, **Normal Channel** and **Bright Channel**, each with its own Volume control and two inputs. The **high input** on each channel is brighter and has more level than the **low input**. The **low input** is typically used for linking channels (see below) or if you prefer a cleaner and warmer sound. The other controls include **Bass**, **Treble**, **Middle**, **Presence** and **Master Volume**. These controls are shared by both channels. Also included on the front panel are the **Standby Switch**, **Mains Switch** and a **Mains Lamp**. Let's go through the functions.

DR103/DR504 Head



1. Normal Channel: The Normal channel has less high frequencies and more bass when compared to the Bright Channel. It is typically used with brighter guitars including those with single coil pickups. Plug into the **high** input of the Normal Channel. Use the Normal Vol to control the sound level.

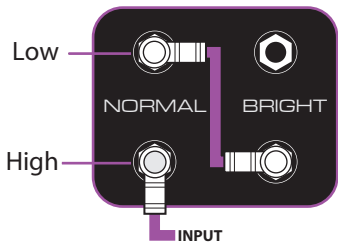
The Normal Channel serves as a great pedal platform channel due to its "flatter" response and fuller sound. Typically, you plug into the **Normal High** input for most pedals but the **Normal Low**, for example, is perfect for a bright overdrive pedal.



2. Bright Channel: The Bright channel is more aggressive than the Normal channel. It has more highs, more upper mids and less bass. This is **great for cutting through on stage** when playing with a full band. This channel loves **humbucker pickups**. Plug into the **high** input of the Bright channel and use the Bright Vol to control the sound level.

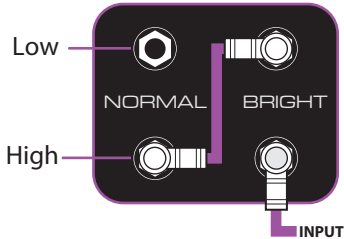
Blending Channels: Many players blend the two channels. This is done by plugging your guitar into the **high** input jack of the Normal Channel and then a short cable from the **low** input jack of the Normal Channel to the **high** input of the Bright Channel. This allows you to use both Volume controls and blend the sound from both channels. For example, set the Bright Channel volume to the level you want and then bring up the Normal Volume to fill out the bottom end.

DR103/DR504 Head



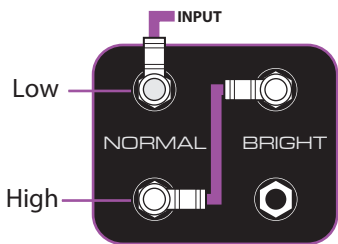
High Channels Linked

Plug your instrument into the NORMAL **high** input and then plug your link cable into the NORMAL **low** input and the BRIGHT **high** input. This method is often used for guitars with passive pickups.



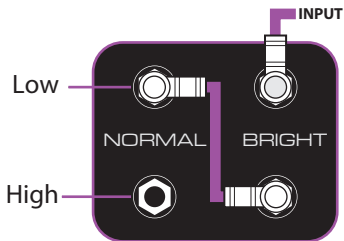
High Channels Linked

Plug your instrument into the BRIGHT **high** input and then plug your link cable into the NORMAL **high** input and the BRIGHT **low** input. This method is often used for guitars with passive pickups.



Low Channels Linked -Great for active pickups!

Plug your instrument into the NORMAL **low** input and then plug your link cable into the NORMAL **high** input and the BRIGHT **low** input. This method is often used for guitars with active pickups/line level signals/bright drive pedals.



Low Channels Linked -The Gilmour method

Plug your instrument into the BRIGHT **low** input and then plug your link cable into the NORMAL **low** input and the BRIGHT **high** input. This setting was historically used by bands like Pink Floyd in conjunction with boost pedals and hotter pickups.

Lorem ipsum

- 3. Normal Volume:** (Normal channel) Start with knob tuned fully counterclockwise. Increase volume by turning clockwise.
- 4. Bright Volume:** (Bright channel) Start with knob turned fully counterclockwise. Increase volume by turning clockwise.
- 5. Bass:** This control is used to set the amount of bass. Turn the control clockwise for more bass and counterclockwise for less bass. A Hiwatt amplifier is capable of a very full sound and will remain tight and sound full even at high volumes.
- 6. Treble:** This control is used to set the amount of Treble. Turn the control clockwise for more treble and counterclockwise for less treble.
- 7. Middle:** This control is used to set the amount of Middle. Turn the control clockwise for more mids and counterclockwise for less mids.
- 8. Presence:** This controls the level of negative feedback reintroduced into the signal path just before the master volume. In practical terms, 'It is like a treble control effecting the power/output section' to sculpt the high frequencies of your tone.

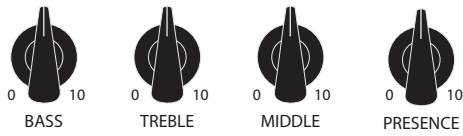


Turning the presence control clockwise adds high end to cut through the mix and add more immediacy of guitar/player interaction 'A feel thing.'



Turning the presence control counter-clockwise tames and smooths out spiky highs and hiss from pedals. This also reduced a certain amount of treble from the over all tone of the amplifier.

Note: Each EQ control on a custom Hiwatt amplifier is additive. A good place to start is setting each EQ control to Noon and cutting or boosting each control to taste!



9. Master Volume: Once you've set the volume level and tone control settings to your liking, use the Master Volume to control the overall level depending on where you are playing and how much volume you want to push. When the Master is turned fully counterclockwise there will be no sound.

Approximate master volume setting:  10:00 for normal play/setup.  2:00 to full-on for onstage play.

10. Mains Lamp: Indicates when the amplifier is turned on

11. Standby Switch: Toggles Standby mode ON/OFF. Standby allows the valves to heat to the optimum working temperature.

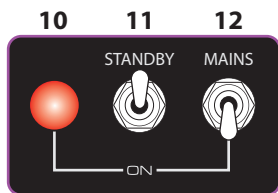
12. Mains Switch: Turns the amplifier's power ON/OFF. Turn on Mains with Standby mode engaged.

Warning! This amplifier can be loud! We do not recommend using the amp at high sound levels especially for long periods of time. The amp can damage your hearing as well as that of your audience. Hearing protection is recommended for you and your audience.

BEFORE TURNING YOUR CUSTOM HIWATT AMPLIFIER ON

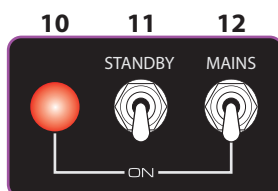
1. Please read the Manual in it's entirety first
2. Check that the voltage selector (Back Panel #2) matches the voltage of the country you are playing in.
3. Check that the fuses are correct for the voltage selected. See page 6 - Fuse Chart QR code.
4. Check that the Speaker Cabinet you are connect to is matching the impedance set on the impedance selector of the Amplifier (Back Panel #5) **Note: Tube amps require a Speaker load or equivalent to avoid damage to the amp.**
5. Always have the master volume turned fully counterclockwise when turning the Amplifier On/Off. Adjust slowly clockwise after tubes warm up.

TO TURN THE AMPLIFIER ON, leave the Standby switch in the up position and switch the Mains switch to the down position. The amp is now on in "Standby" mode. The Mains lamp will light up to let you know the amp is on.



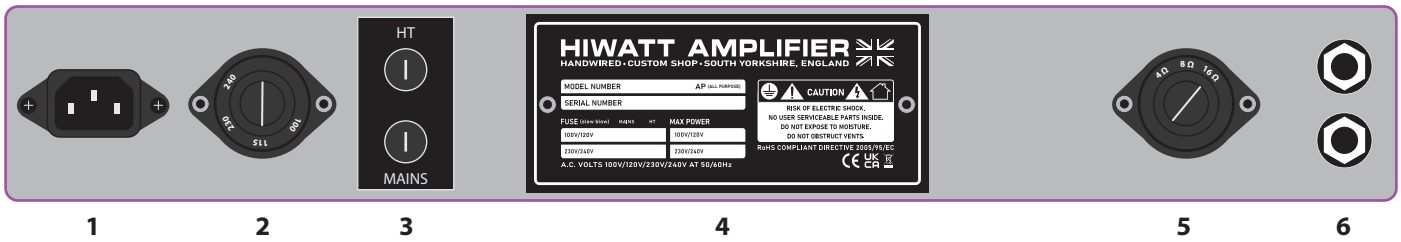
STANDBY mode engaged

Wait a minimum of 60 seconds to let the valves warm up to operating condition, then switch the Standby to the down position (disengaged). This will ensure longer valve life for your amplifier.

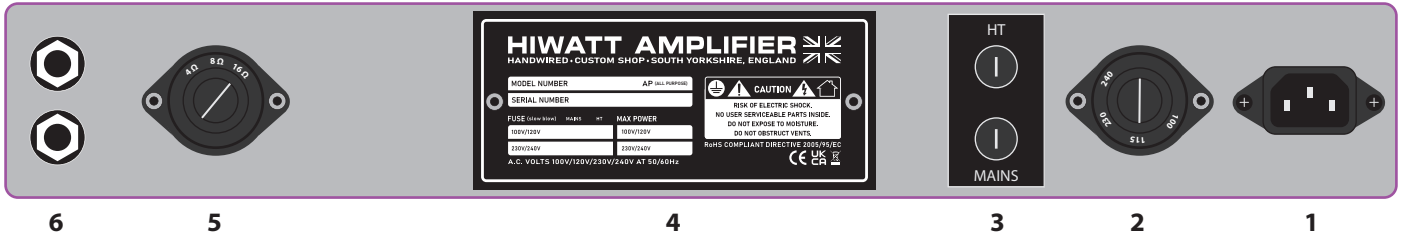


STANDBY mode disengaged

Back Panel



Back Panel (combo)



- 1. IEC Mains Socket:** As with all equipment that uses wall voltage to operate, plug your mains lead from this IEC socket to the mains socket in order to power up the amp.
- 2. Voltage Selector:** As a highly professional amplifier that is commonly used by touring bands who travel, this Custom Hiwatt includes a voltage selector so it can be used in just about every country around the world. This selector needs to be set to the proper Mains voltage in your country. Setting this switch incorrectly can cause damage to the amplifier and will void the warranty! **Note: when changing the voltage on the voltage selector the corresponding fuse must also be changed. See Back Panel #3 - Fuse Plate for more info or Fuse Chart QR code below.**
- 3. Fuse Plate:** This amplifier includes two fuses to protect the amplifier. One or both fuses will “blow” if there is something wrong inside or outside the amplifier. **If a fuse blows, please take the amplifier to a qualified amplifier technician for service.** Fuses with proper ratings should always be used. Do not use fuses of high ratings or bypass the fuse by putting something in the fuse holder that will bypass the fuse. Doing so will potentially cause damage to the amp, can be dangerous to operate the amplifier and void the warranty! **Warning - make sure your mains lead is unplugged from the wall receptacle or IEC mains socket (back panel #1) while working with fuses.**
 - Please check the voltage selector is correctly set and the fuses are the correct value for the voltage selected.
- 4. Serial Plate:** This is where you will find the model and serial numbers of your amplifier as well as some technical info. Please register this amplifier hiwatt.co.uk.
- 5. Impedance Selector:** The impedance selector switch allows you to set the amp to 4, 8 or 16 ohms. Set this switch correctly depending on your speaker cabinet(s) impedance. Setting this switch incorrectly can cause damage to the amp and void your warranty! There is more information on how to set impedance in the following section.
- 6. Speaker Jacks:** There are two parallel speaker jacks for convenience in setting up your amplifier with your speaker cabinets. There is more info on how to hook up your speaker cabinets on the next page.



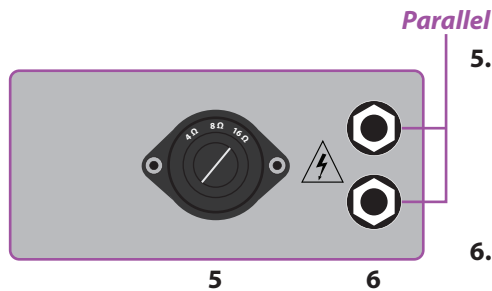
Fuse Chart

CONNECTING YOUR AMPLIFIER TO A SPEAKER CABINET

IMPORTANT: You should never turn your amplifier on without having it connected to a speaker load that matches the impedance selected on the rear of the amplifier. If you do, you risk damaging the output transformer and thus voiding your warranty.

NOTE: It is recommended that all audio cables, except for the speaker lead, used to connect to the amplifier are of a high-quality screened type. These should not exceed 10 meters in length.

***Always use a non-screened speaker lead when connecting a speaker cabinet to this amplifier.**



5. Impedance Selector: The impedance selector switch allows you to set the amp to 4, 8 or 16 ohms. Set this switch correctly depending on your speaker cabinet(s) impedance. Setting this switch incorrectly can cause damage to the amp and VOID YOUR WARRANTY! There is more information on how to set impedance in the following section.

6. Speaker Jacks: There are two parallel speaker jacks for convenience in setting up your amplifier with your speaker cabinets.

Impedance Information:

Before you decide to connect your amplifier to your speaker cabinet, you will want to know about impedance first! Impedance is the electronic load that the speaker puts on the power amplifier and is measured in Ohms. (Ω)

RULE OF IMPEDANCE:

- When two speakers are wired, "parallel" the total impedance is cut in half and when two speakers are wired in "Series" the total impedance is the sum of the speakers' individual impedance.

For example: Two 8 Ω speakers wired in parallel become 4 Ω . Two 8 Ω speakers wired in series are 16 Ω .

- The actual impedance of your cabinets could be different than the individual speaker's impedance.
- Make sure that the correct impedance is selected on the back of the amplifier to match the cabinet's impedance (speaker configuration) you are using. Be sure to check the manufacturer's recommended impedance for the cabinets you are using to avoid any damage to your amplifier and voiding your warranty.
- If you use more than one cabinet, the cabinets must all be of the same impedance. *For example:* If you use two cabinets, then if one cabinet is 16 ohms (Ω), the other cabinet must also be 16 ohms (Ω).

If the cabinets are not of the same impedance then you will damage the output transformer and void the warranty.

RULE OF SPEAKER WATTAGE:

- When setting up your amplifier with a speaker cabinet ensure that your amp head's power output does not exceed 3/4 of the wattage of your speaker cabinet. Speakers are typically tested and sonically designed to perform at 2/3 - 3/4 of their total rated power. Exceeding this level for prolonged lengths of time can cause the speakers to fail.

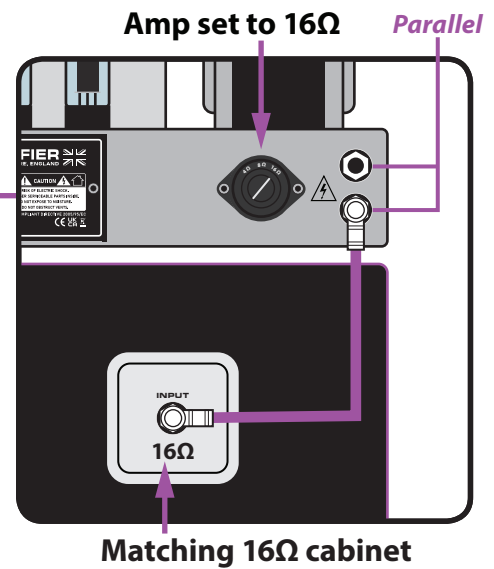
- The rating of your speaker cabinet is determined by the sum of the wattage of the speakers in the the cabinet. One Fane F75 speaker is rated at 75 Watts, there for a 2x12 cabinet loaded with F75 speakers is rated at 150 Watts and a 4x12 cabinet is rated at 300 Watts.



Connecting Your Amplifier to a Single Cabinet

IMPORTANT: always match the impedance of your amplifier with the impedance of the speaker cabinet(s).

- The connections are made with a good quality 1/4" **unshielded speaker cable** (Never use an instrument cable).
- Connect one of the amplifier **outputs** (back of amp) to the correct **input** on the speaker cabinet (rear terminal plate).

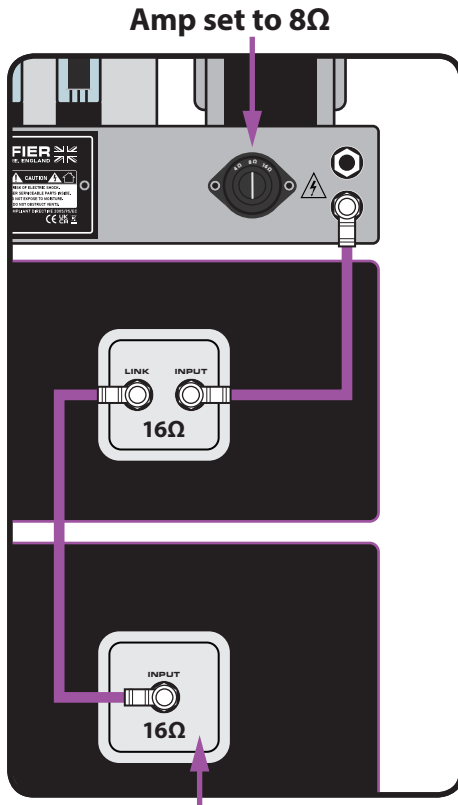


Connecting Your Amplifier to Two Cabinets in Parallel

(if speaker cabinet has parallel extension output)

IMPORTANT: always match the impedance of your amplifier with the impedance of the speaker cabinet(s).

- Both connections are made with a 1/4" **unshielded speaker cable**.
- Connect one of the amplifier **outputs** (back of amp) to the correct **input** on the speaker cabinet (rear terminal plate).
- Many speaker cabinets come with a convenient **parallel extension output** for connecting additional cabinets in parallel. The second cabinet is connected by running an additional speaker cable from the **parallel output** of the first cabinet to the input of the second cabinet.



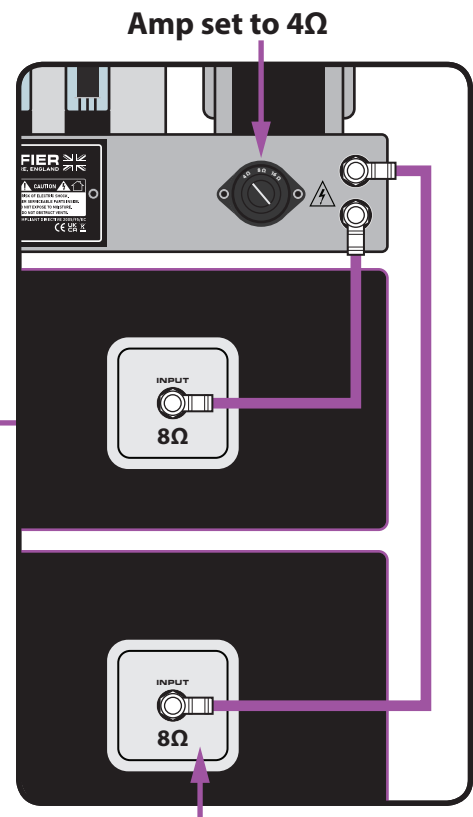
Two 16Ω cabinets linked in parallel = 8Ω

Connecting Your Amplifier to Two Cabinets in Parallel

(if speaker cabinet does not have parallel extension output)

IMPORTANT: always match the impedance of your amplifier with the impedance of the speaker cabinet(s).

- Both connections are made with a 1/4" **unshielded speaker cable**.
- Connect one of the amplifier **outputs** (back of amp) to the correct **input** on the speaker cabinet (rear terminal plate).
- Connect the second of the amplifier **outputs** (back of amp) to the correct **input** on the second speaker cabinet (rear terminal plate).



Two 8Ω cabinets linked in parallel

GETTING STARTED

Setting Up Your Amplifier

A Great Starting Point Before Powering On!

MASTER VOL - Set just above zero.
BASS/TREBLE/MIDDLE/PRESENCE - Set to Noon
NORMAL/BRIGHT VOL - Set to approximately 7 o'clock. The amp will produce sound when the tubes warm up and the **STANDBY** is disengaged (switched to the ON position).



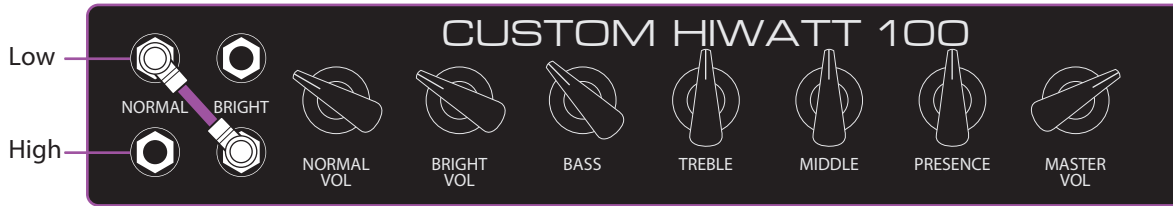
HIGH HEADROOM = ENDLESS POSSIBILITIES

Hiwatt is famous for its high headroom and its ability to take signal into the preamp without distorting or colouring the tone. This allows pedals to be heard as intended by the manufacturer and allows the artist full control over distortion, colouring and effects of their sonic landscape.

Hi-Headroom

Low Channel Volume, High Master Volume

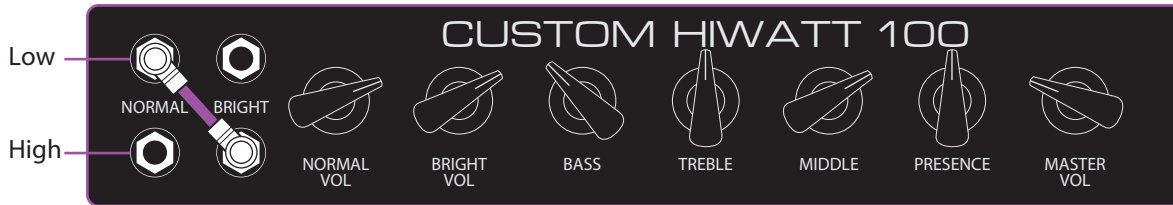
NORMAL/BRIGHT VOL - Set low input level.
BASS/MIDDLE/TREBLE - EQ set to taste.
PRESENCE - Set desired negative feedback level.
MASTER VOL - Set volume to desired headroom.



Edge of Breakup

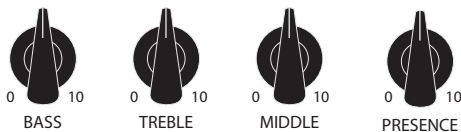
High Channel Volume, Low Master Volume

NORMAL/BRIGHT VOL - Set to edge of break up.
BASS/MIDDLE/TREBLE - EQ set to taste.
PRESENCE - Set desired negative feedback level.
MASTER VOL - Set to desired overall volume. Lower volume results in more breakup.



UNDERSTANDING HOW HIWATT'S TONE STACK WORKS

Note: Each EQ control on a custom Hiwatt amplifier is additive. A good place to start is setting each EQ control to Noon and cutting or boosting each control to taste!



Presence: This controls the level of negative feedback reintroduced into the signal path just before the master volume. In practical terms, 'It is like a treble control effecting the power/output section' to sculpt the high frequencies of your tone.



Turning the presence control clockwise adds high end to cut through the mix and add more immediacy of guitar/player interaction 'A feel thing.'



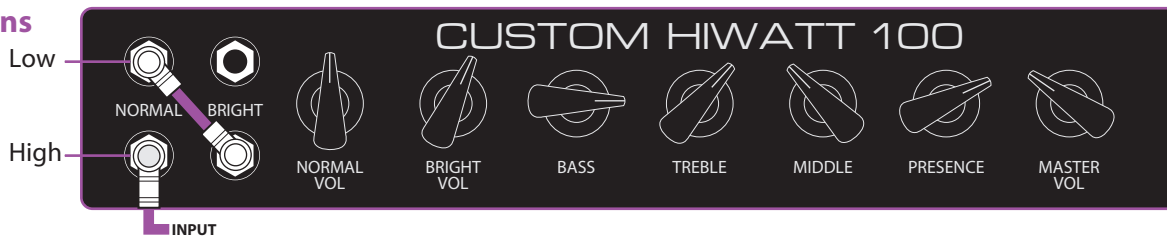
Turning the presence control counter-clockwise tames and smooths out spiky highs and hiss from pedals. This also reduced a certain amount of treble from the over all tone of the amplifier.

SIGNATURE HIWATT ARTIST PRESETS

Hiwatt Amplifiers are super versatile and allow you to explore many options to dial in your perfect tone. Here are some famous presets to demonstrate Hiwatt's vast sonic range. From Blues Rock to Rock n' Roll to pedal influenced Heavy Metal - Hiwatt has been the tool of choice in all of these genres over generations.

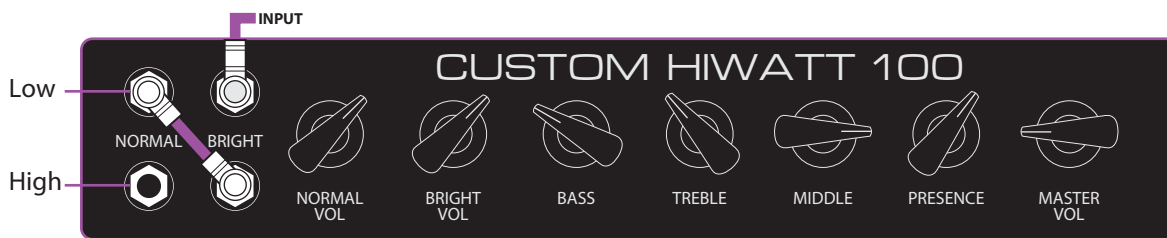
Linked Channels - Spanky Cleans

- INPUT - Normal High, High inputs linked
- NORMAL VOL - Set to Noon
- BRIGHT VOL - Set from 2-4 o'clock
- BASS/TREBLE/MIDDLE - Scooped Mids
- PRESENCE - Set to 2 o'clock
- MASTER VOL - Set to 10 o'clock



Linked Input - Shine On!

- INPUT - Normal Low, Low inputs linked
- NORMAL VOL - Set to 2 o'clock
- BRIGHT VOL - Set to 2 o'clock
- BASS/TREBLE/MIDDLE - Cut Bass and Treble, boost Middle
- PRESENCE - Set to taste
- MASTER VOL - Set to 9 o'clock



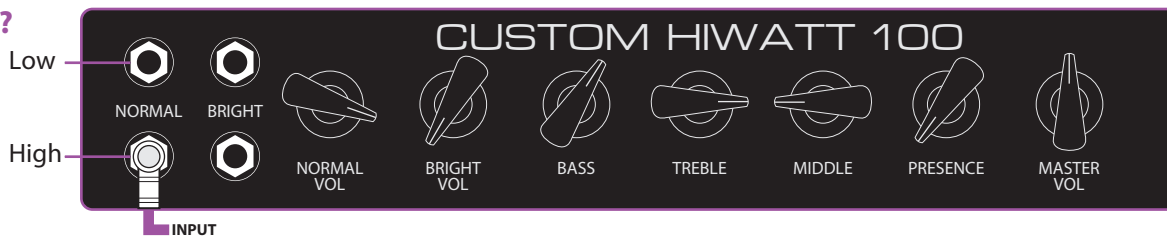
Normal Channel - Fat Clean Tone

- INPUT - Normal High
- NORMAL VOL - Set to 2 o'clock
- BASS/TREBLE/MIDDLE - Cut Middle and Treble
- PRESENCE - Set to 9 o'clock
- MASTER VOL - Set to 11 o'clock



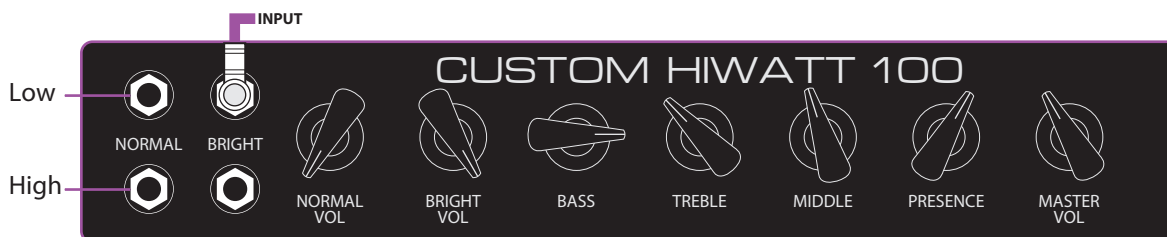
Normal Channel - Who Are You?

- INPUT - Normal High
- NORMAL VOL - Set from 4 o'clock to maximum
- BASS/TREBLE/MIDDLE - Scooped Mids
- PRESENCE - Set to zero
- MASTER VOL - Set to desired volume level



Bright Channel - Cuttin' Thru

- INPUT - Bright Low
- BRIGHT VOL - Set to maximum
- BASS/TREBLE/MIDDLE - Boost Bass, cut Treble and Middle
- PRESENCE - Set to taste
- MASTER VOL - Set to desired volume level



PEDALS LOVE HIWATT

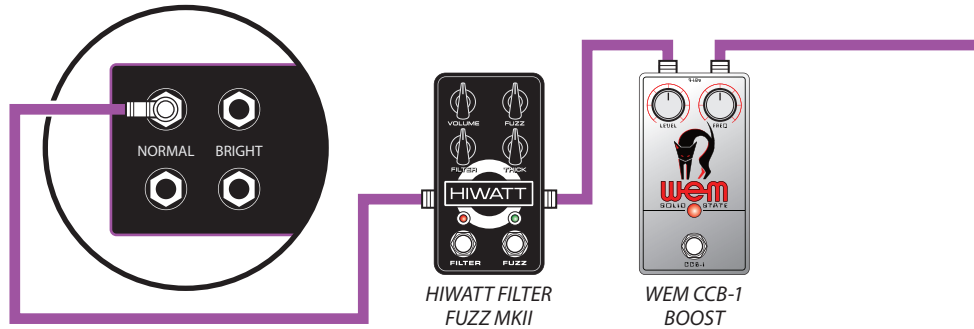
“The sound of Hiwatt amps is bold, with plenty of headroom and bottom end. They are especially great platforms for a pedal based rig.”

- Guitar Aficionado magazine 2015

Setting-up a Pedal/Pedal Board into a Single Channel

Normal Channel - plug in pedal(s) or pedal board for effects that sound good with this channel's warmer tone like some bright Overdrive and Distortion Effects.

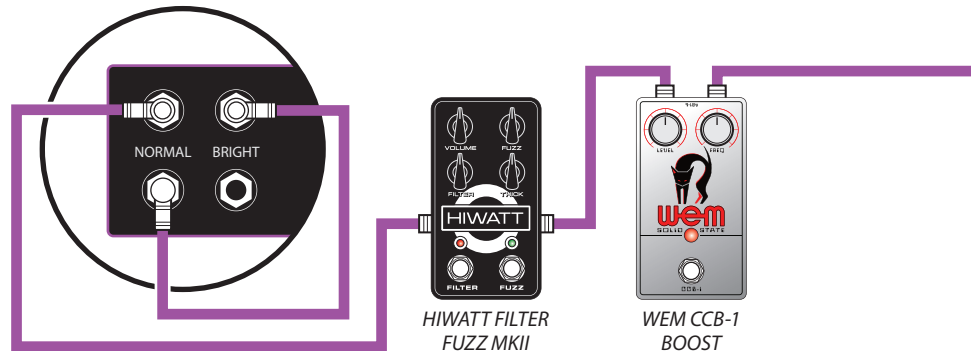
Bright Channel - plug in pedal(s) or pedal board when you need the extra punch to cut through the rest of the band



Setting-up a Pedal/Pedal Board into a Linked Channel

The link allows you to blend the Normal and Bright Channels

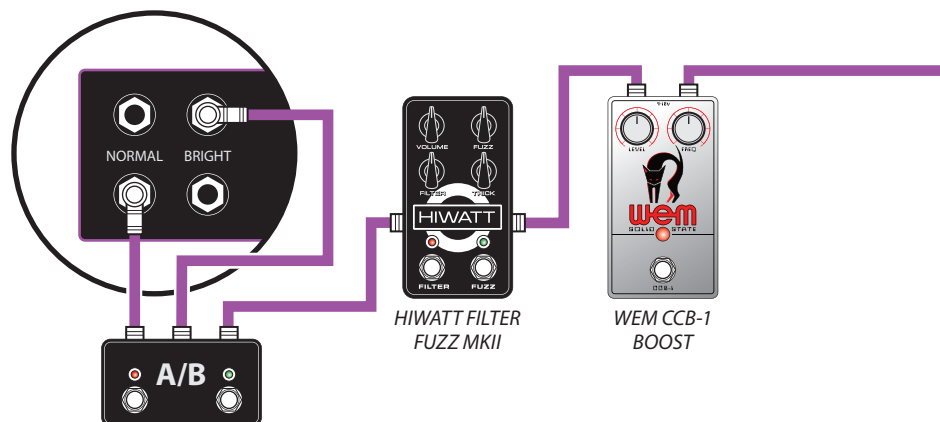
Experiment with your pedals to obtain your unique sound



Setting up a Foot-switchable A/B box so you can Switch Channels

A - Normal channel will be warmer

B - Bright channel will be brighter (for example, set this up louder than the Normal channel so you can instantly switch between two very different sounds and levels)



NOTE ON THE TWO CHANNELS:

Your Hiwatt amp is one of the best amps for effects pedals because of its high headroom and harmonically rich sound. Since the two channels are voiced differently, you have two tonal options to match the sound of your pedals, especially overdrive and distortion pedals. Try your pedals in both channels to see which one sounds best for your particular pedals. Then use the tone controls to further shape the sound.

HIWATT

MADE IN ENGLAND



HIWATT CUSTOM SHOP

- Tip-Top: Your hand built Hiwatt Amplifier has been thoroughly inspected and rigorously 'soak tested' prior to leaving our Workshop in Doncaster, England. Your Hiwatt product is guaranteed to perform to it's desired and correct specifications.
- Hiwatt amplifiers are warranted against defects in materials and workmanship for a period of 3 years. Speakers, speaker enclosures and reverb tanks for 1 year, tubes/valves for 90 days.
- Note - it is your responsibility to use/operate the equipment safely and properly without modification and with a safe power supply - failure to do so is dangerous and will result in voiding your warranty - always read, reference and follow the 'important safety instructions' before turning on or operating your amplifier.
- Note - the Limited Warranty provided is to the original purchaser and is non-transferable. It is an important responsibility of yours to register your product online with us (Hiwatt.co.uk) and to retain your sales receipt and original packaging.
- Authorization needs to be obtained by Hiwatt Electronics (Hiwatt.co.uk) before any service work is completed by a Professionally Qualified Service Technician.
- Shipping costs incurred obtaining warranty service are the responsibility of the purchaser and the purchaser must obtain permission to ship any/all product before doing so.
- Authorised returns are subject to a restocking and shipping fee.
- Note - Any damages incurred in all shipping matters must be reported to the shipper and Hiwatt Electronics immediately upon receipt of the product.

Follow all instructions and warnings
 Please keep instructions in a safe place
 Register product online: **Hiwatt.co.uk**

Serial Number: _____

Date of Purchase: _____

Store Contact Info: _____



RECYCLING INFO

Hiwatt Electronics Limited
 Unit 3, Plumb Units, Sandall Stones Road
 Kirk Sandall, Doncaster
 DN3 1QR

SALES@HIWATT.CO.UK



REGISTER PRODUCTS