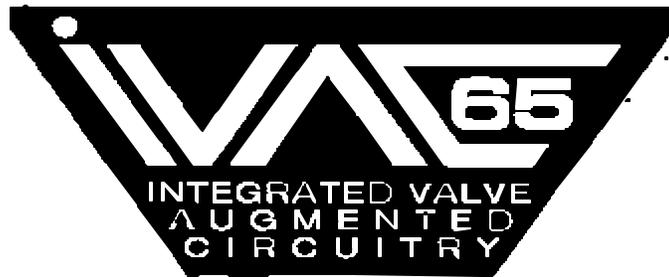


TUBE WORKS



OPERATION MANUAL

IVAC65-112

IVAC65-HEAD

This exciting new guitar amplifier design offers dynamic versatility from its user friendly analog topology. The focal point of the most sought after tone in guitar amplification is the character and warmth of the 12AX7 tube. Our INTERGRATED VALVE AUGMENTED CIRCUITRY utilizes the tube (valve) as the center point in the design and enhances its tone with unique circuits that shape the tonality, gain and saturation. The result is a highly versa- tile guitar amplifier with traditional analog knobs that allow the performer to use the amp as an extension of the instrument.

The 5 gain stages in the preamp are coupled to our high-output 65 watt solid-state amplifier design that features true high-fidelity audio reproduction and include complete short circuit, VI limiting overload curves and precise thermal tracking protection. A patented "SPIKE" thermal management system is built into the power transistor, providing an elegant form of management and protection of all vital amplifier parameters.

This amplifier is rated at a "real world" 65 watts RMS @ 4 ohms but with dynamic headroom in excess of 100 watts! The complete design and features combine to make the IVAC an uncompromising guitar amplification system.

FEATURES AND OPERATION OVERVIEW:

INPUT - The IVAC-65 is equipped with a standard 1/4" input. The input impedance is approximately 500k ohms, which we determined provides the best response from all pickups currently available. An added benefit of this 500k impedance is the smoothness of the tonal response, consistency of sustain and an overall reduction of noise. Additionally, the precision input scaling preamp contains a 40 Hz, 12 dB/octave high pass filter (more effective and less intrusive than the more common 6 dB filters) and an "RFI" filter (radio frequency interference) to eliminate bleed-through from those pesky DJ's and truckers.

CLEAN CHANNEL -The IVAC-65's clean channel is constructed using a monolithic FET amplifier for a clean, sweet, non-distorted sound. The tone is natural and open, lending itself readily to any musical style. The CLEAN GAIN control uses "loop feedback" style circuitry for wide dynamic range and an exceptionally low noise floor. Whether playing soft or hard, the responsiveness of the clean preamp is punchy and articulate, with a big bottom end that is not muddy or overpowering. Mixing this signal with the overdrive channel will give the player endless possibilities.

TUBE DRIVE CHANNEL - This channel and its associated TUBE TEXTURE section contains one of the most musical preamps and comprehensive overdrive control circuits ever included on a guitar amplifier in this price range. Using a real 12AX7 dual triode preamp tube and direct-driving the control grid using "servo-feedback" control technology (aerospace and rocket science influence here from our resident rocket control engineer), we can make this tube do things previously considered impossible. The TUBE GAIN control uses "loop feedback" to control the drive level to the tube over a very wide range. This allows for many subtle settings that are completely responsive to your individual playing style. Set for clean or overdrive, this preamp is warm, rich and full of natural harmonics. The TUBE VOLUME control sets the overall volume of this channel. The noise floor of this tube circuit is exceptionally low, even at super-high gain settings.

TUBE TEXTURE SECTION - This unique control section (including 4 front panel Switches and 4 button foot switch) affects only the TUBE DRIVE channel, and allows tailoring and customizing of several circuit parameters important in defining your individual tone. The following discussion of these features will help you understand this powerful section and will enable you to create your own custom tones quickly and easily. Once you see how versatile this preamp is, you won't want to play anything else!

FET/TUBE SWITCH - Switches between the CLEAN and TUBE channels. This function uses noiseless dual FET switches for studio quality operation. Pushing the switch "in" lights the LED indicator and switches the preamp from the CLEAN channel to the TUBE channel.

MIX SWITCH - Mixes the CLEAN and TUBE channels together. When the amplifier channel switch is set in the FET position, engaging the MIXSWITCH adds the TUBE channel to the CLEAN channel and lights the corresponding LED. When the amplifier channel switch is set in the TUBE position, engaging the MIX SWITCH adds the CLEAN channel to the TUBE channel. As you can see, these two function switches work together to layer the different gain stages in different ways for different effects. Adding clean signal to an overdrive signal will generally improve definition and add a bit of sparkle to the sound. Adding the overdrive signal to the clean signal will generally fatten up the sound and give it a more aggressive texture. Of course, this will depend on gain and tube overdrive function switch settings.

BOOST SWITCH - When engaged, this function adds as much as 26 dB of additional drive, depending on the TUBE GAIN control setting. The BOOST curve tracks the TUBE GAIN control setting, therefore the maximum boost is at the fully clockwise position of this control. This tracking function maintains the overall "feel" of the tube channel and makes the amp more responsive to varied playing styles. *USE CAUTION WHEN ENGAGING THE BOOST SWITCH WHILE USING HEADPHONES.*

ATTACK SWITCH and ATTACK CONTROL - This unique function could also be called a "harmonic multiplier", and serves to increase the bite or attack of the sound. Turning the ATTACK control clockwise increases the ratio of the harmonic content (and overdrive components) in the waveform. This is one way to increase aggressiveness and sustain without muddying the sound, which is a useful tool when working with heavy overdrive and full chords. Changes will be more distinct and "in your face" without mush or slop. This function is switched with the ATTACK switch and corresponding LED indicator.

BODY and PRESENCE CONTROLS - These two controls act as a form of shelving equalizer with carefully chosen break points to enhance TUBE channel sound. The BODY control is especially useful in creating the thick and heavy chunk (about 125 Hz) found in modern rock and alternative guitar styles, and is also useful in thinning out a bottom heavy, muddy instrument. The PRESENCE control will add snap and spank to the tone (about 3 kHz), allowing it to stand out in the mix. It will also mellow an over-edgy or harsh guitar. These controls have a gain range of approximately 18 dB.

SWITCH FUNCTION OPERATION - The switches on the amplifier affect only the tube channel (other than the obvious channel switching and mixing), allowing layering of the functions as "pre-sets" or additional gain stages. Pushing the switch in engages the function, and the corresponding LED will illuminate. Also provided is a 4-button footswitch. The switching logic has been designed so that the function can be selected by either the amplifier switch or the footswitch. When either the amplifier or footswitch button is pressed, the function will be engaged. Therefore, the same switch must be used to de-select that function, so be sure all four of the amplifier switches are in the "out" position to enable the footswitch to function properly. The amplifier indicator LED's and the footswitch indicator LED's follow the actual amplifier switching function, allowing easy confirmation of the mode selected.

MASTER 4 BAND ACTIVE EQUALIZATION –The IVAC's main equalization is a true 4 frequency summed active band pass filter network. This unique filter set provides 4 non-resonant bands of control for smooth, musical adjustment of tonal content. The response is gentle and useable over the entire range of the control position.

REVERB MASTER - This knob controls the amount of reverb present in the output signal. The IVAC-65 uses a premium Accutronics® 3 spring shielded reverb tank with impedance matched send and receive spring transducers. The sound is full, the tail decays smoothly and the clarity remains solid throughout the mix range. The reverb signal mixes with the effects return signal so that both effects may be used simultaneously. If the on-board reverb is not desired, just turn the reverb master down to zero.

MASTER VOLUME - This control adjusts the master volume of both channels. It also controls the level of the frequency compensated direct output for more consistent PA send results, otherwise, with radical changes of the channel gain stages, the direct out would vary without corresponding master volume controls.

POWER SWITCH - Turns the AC mains power on and off, indicated by green LED above switch.

FOOT SWITCH INPUT - This rear panel mounted 5 pin DIN connector is used with the accompanying 4 button footswitch. Four LEDs indicate function selection. *It should be noted that this is not a MIDI device and connection of a MIDI device to this connector will damage the MIDI device.*

EFFECTS SEND/RECEIVE JACKS - The 1/4" send jack provides a nominal –10dB output signal (postmaster volume control) to drive any common effects processor. This jack can also be used as an unbalanced line output. The 1/4" return jack is used to return the processed signal back into the amplifier. This jack contains a switch that automatically opens the signal loop when processing is used. The “mix” control on the effects device is now used to set the balance between the “wet” (processed only) and the “dry” (unprocessed) signals.

DIRECT OUTPUT - XLR, electronically balanced and frequency compensated, this output is used for sending a signal to a PA system (live application) or sending a signal to a recording console (studio application). A frequency compensated signal is commonly mixed with a mic'd signal to allow more sound options. Personal preference will dictate use. For live use, often the direct out will work better than a mic, especially when the amplifier is located next to a loud drum kit. Frequency compensation means that several equalizing filters are used to tailor the signal response to more closely resemble that of a speaker. A ground lift switch is provided to lift pin 1 on the XLR connector in the event of ground loop hum on the direct output. Signal level is nominally -30 dB. This output is short circuit and phantom power protected.

HEADPHONE OUTPUT & SWITCH - Used to connect standard headphones (8 - 600 ohm). Switch shuts off signal to speaker jacks, allowing private practice or studio work with a minimum of fuss and bother, not to mention noise! This output is short circuit protected. Use common sense when playing through headphones to protect your hearing. Use caution when engaging the BOOST switch while wearing headphones.

SPEAKER OUTPUTS - Two 1/4" speaker outputs are provided, one usually used for the on-board speaker (8 ohm combo version) and the other for an 8 or 16 ohm extension cabinet. Alternately, the on-board speaker may be disconnected (unplugged) and a single 4 ohm (or two 8 ohm) speaker cabinet may be used. This output is short circuit protected and rated to drive a minimum 4 ohms total load. *CAUTION-THIS AMP IS LOUD!! PROTECT YOUR EARS!!*

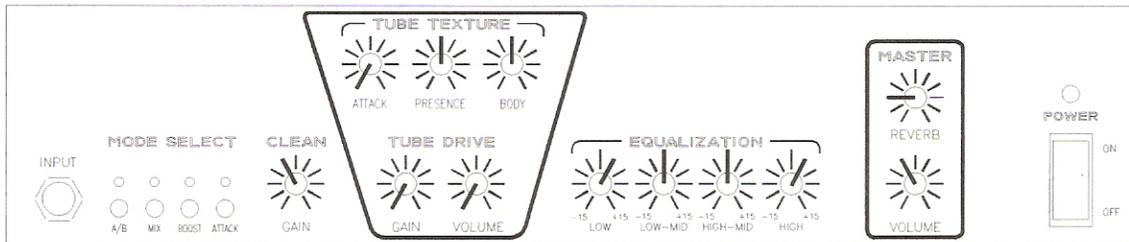
POWER INLET, VOLTAGE SELECTOR & FUSE - An IEC style power inlet connector is used to connect the AC mains power to the amplifier. Various cord sets are available, depending on the destination country. An internal fuse (with spare) is provided in a small pull-out tray at the bottom of the connector. Match the value of this fuse to that specified in the fuse chart (on the back of the unit) for the selected input mains voltage. The Mains (line) voltage may be selected between a nominal 115 volts and 230 volts AC (±10%).

WARNING!!! THERE ARE NO USER SERVICEABLE PARTS INSIDE THIS UNIT. ALWAYS CONSULT A QUALIFIED SERVICE AGENT FOR SERVICE.

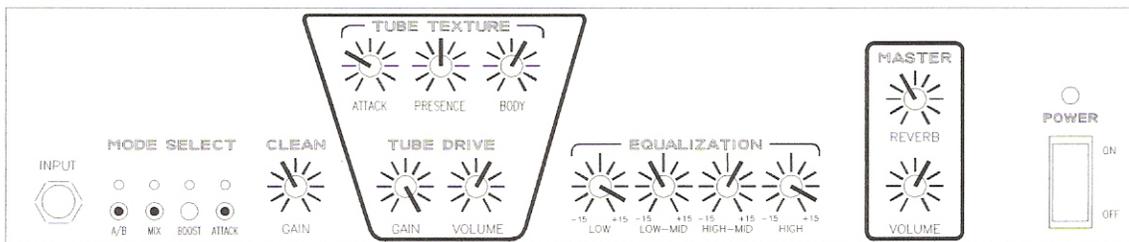
The use and operation of this device constitutes an agreement of full release of any and all liability connected with its use. In addition, by the use of this device, user agrees to hold both GENZ BENZ ENCLOSURES, INC and its designers, sales agents and all other affiliates and related parties harmless in the event of any accident, injury, damage or loss resulting from such use.

SUGGESTED TONE SETTINGS

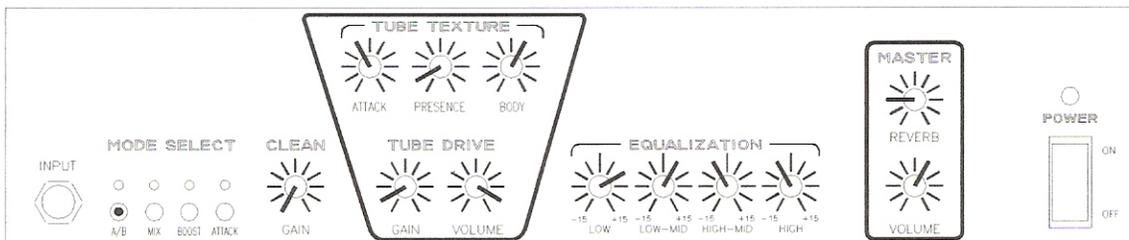
These settings are offered as a starting point for the variety of sounds possible with the IVAC65. Take time and experiment with your own tone from this versatile guitar amplifier.



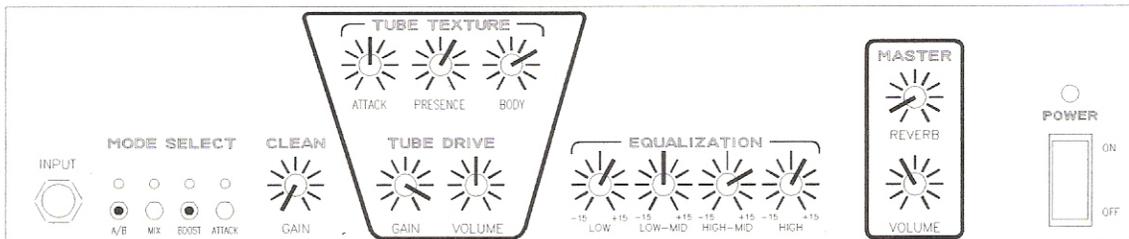
SPANKIN' CLEAN (played with a Fender Strat)



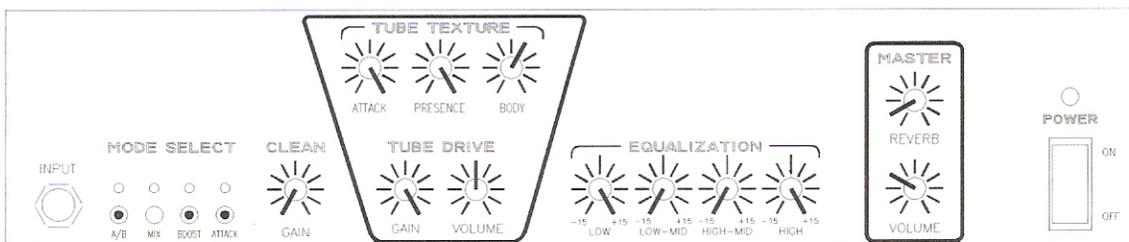
TEXAS BLUES (played with a Fender Strat)



JAZZ (played with a Gibson Les Paul and Bill Lawrence jazz pick-ups)



CLASSIC ROCK (played with a Gibson Les Paul, middle pick-up position)



HEAVY METAL (played with a Gibson Les Paul and Ibanez Artist, middle pick-up position)

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