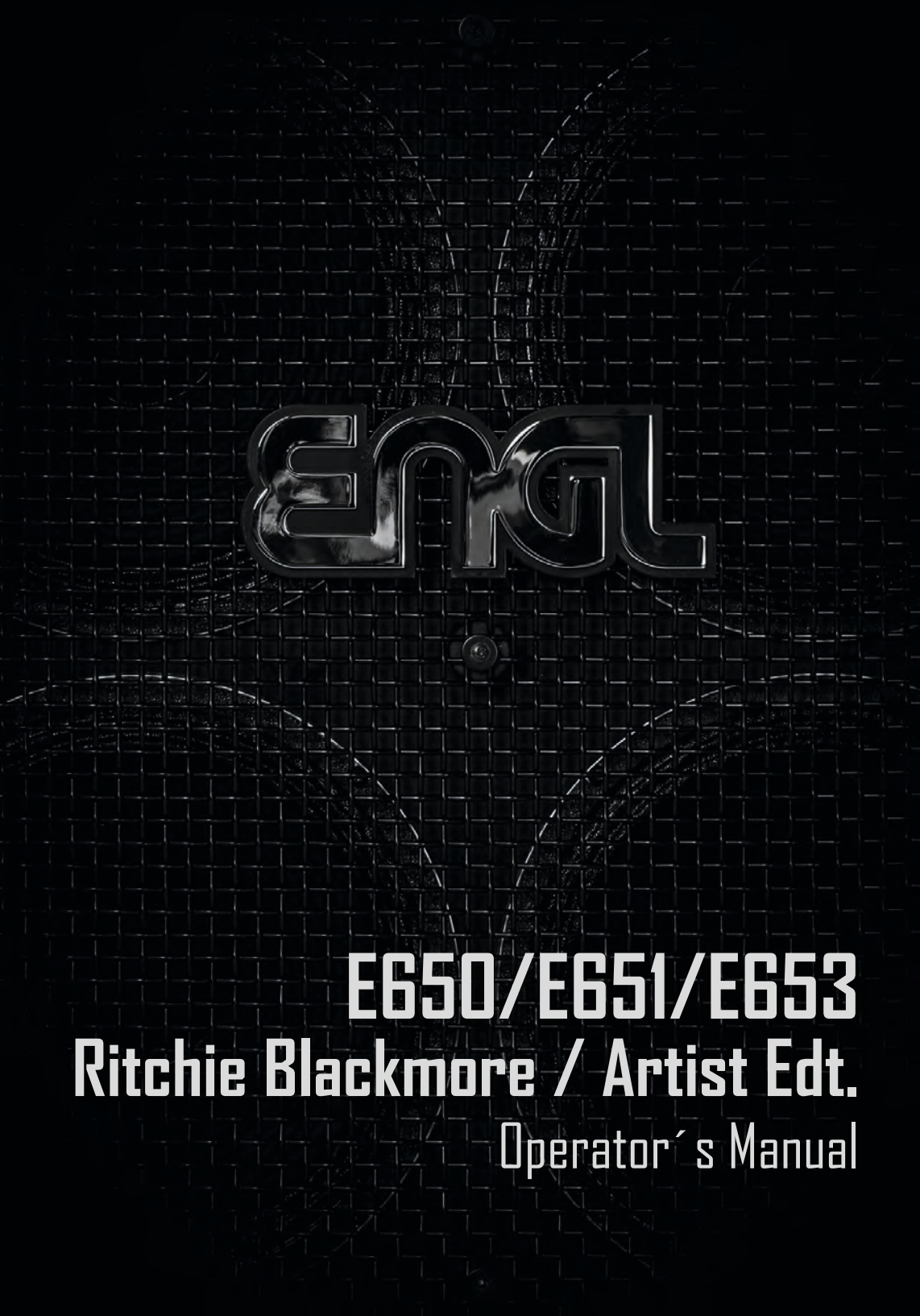
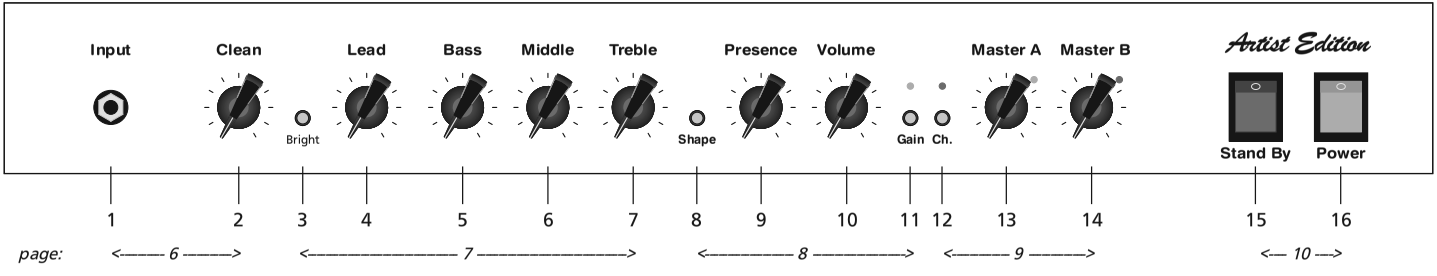


E650/E651/E653
Ritchie Blackmore / Artist Edt.
Operator´s Manual


Input
Clean
Lead
Bass
Middle
Treble
Presence
Volume
Master A
Master B
Bright
Shape
Gain
Ch.
Artist Edition
Stand By
Power
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
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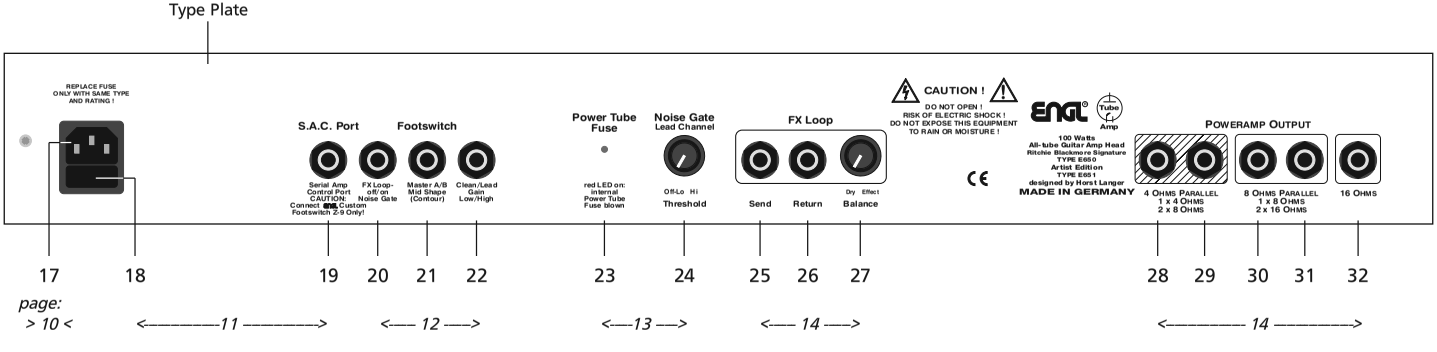
Type Plate
REPLACE FUSE ONLY WITH SAME TYPE AND RATING !
S.A.C. Port
Footswitch
Serial Amp Control Port CAUTION: Connect Custom Footswitch 2-9 Only!
FX Loop- off/on Noise Gate
Master A/B Mid Shape (Contour)
Clean/Lead Gain Low/High
Power Tube Fuse
red LED on: internal Power Tube Fuse blown
Noise Gate Lead Channel
Off-Lo Hi
Threshold
FX Loop
Send
Return
Dry Effect
Balance
CAUTION !
DO NOT OPEN !
RISK OF ELECTRIC SHOCK !
DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE !
ENGL
Tube Amp
100 Watts
All-tube Guitar Amp Head
Ritchie Blackmore Signature
TYPE E600
Artist Edition
TYPE E651
designed by Horst Langer
MADE IN GERMANY
POWERAMP OUTPUT
4 OHMS PARALLEL
1 x 4 OHMS
2 x 8 OHMS
8 OHMS PARALLEL
1 x 8 OHMS
2 x 16 OHMS
16 OHMS
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
page:
> 10 <
<———11 ———>
<—— 12 ——>
<—13 —>
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<———— 14 ————>

Table of Contents

CAUTION! Please read and heed the following:

You'll find an ancillary pamphlet accompanying this owner's manual entitled Instructions for the Prevention of Fire, Electrical Shock and Injury.
Be sure to read it before you plug in and power up the amp!
Note: Technical specifications are subject to change without notice.

Congratulations on your decision to go for the ENGL Artist Edition (E651) or the Ritchie Blackmore Signature (E650-2) amplifier!
Both of these spectacular sound machines were specifically designed and acoustically tuned to precision to meet the demands and needs of professional guitarists. Tailored to an unmistakably unique sound character, each of these amp heads follows the tonal visions and influences of great guitarists and were put into practice by my decades of experience as an amp designer at ENGL. As early as the mid-90s I already engineered the first prototype for Ritchie Blackmore. In the following years, numerous well-known world class guitarists were asking me for a special version equipped with EL34 power amp tubes, additionally refined with a tonal fine-tuning custom-tailored to the artist's individual sound ideas. Precisely this concept , in turn, lead to the Artist Edition Amp.
And in keeping with the ENGL tradition of engineering excellence, these amps sports a host of hip features: a second master volume (*Master A/B*), a switchable and adjustable FX Loop and a built-in Noise Gate that helps stifle the annoying hiss often generated when *High Gain* is engaged in Lead mode at very high gain levels.
But that's not the last word on this ENGL head's innovative features: you also get two different mid sound voicings, via the *Shape (Contour* - E650-2) feature. We created this voicing feature to extend the range of sounds you have at your disposal by shaping mid-range response to suit different playing styles and applications.
There are few more handy features to rave about: This amp sports our Serial Amp Control Port, or S.A.C. Port for short for connecting remote control units like the ENGL Z-9 Foot Controller or the ENGL Z11-S.A.C. as a MIDI Interface to the amp.
Plug an ENGL Z-9 Custom Foot Controller into to the S.A.C. Port and get hip to some very convenient remote control options. This footboard lets you activate the two channels directly in combination with the Gain Low/High feature and Master A/B switching simply by tapping its four footswitches. And that affords you instant access to four sound variations at two different volume levels each. Moreover you can access further prominent features like *Shape (Contour)* and *FX Loop off/on*; the build in Noise Gate is switchable via the Z-9 footswitch too.
In addition, the amp comes with three stereo jacks designed to accept dual footswitches like the ENGL Z-4 or a MIDI switching system (e.g. ENGL Z11-S.A.C.) for selecting the channels and other crucial Amp features.
Old world craftsmanship and highest quality components are part of what makes ENGL amps so special, and the *Artist Edition* and the *Ritchie Blackmore Signature* are no exception. On that note, please read and heed the guidelines on handling all-tube amps. The ENGL team is convinced that this amps will delight and inspire you.

Your ENGL Artist Edition (or R.B.S.) Amp puts at your disposal:

1. a logical control feature array, utmost **ease of use** and **remarkably intuitive handling**;
2. **Top-shelf sound-shaping options** and **remarkable versatility** with two channels, two Gain stages each channel and an additional midrange sound sculpting feature.

3. **A broad tonal palette**: s**urgically precise sound-sculpting functions** are at your fingertips, and a tap of your foot on the conveniently compact footboard. This gives you very **powerful remote control options**.
4. **Four first-rate fundamental sounds in glorious all-tube tone:**
   Clean Channel @ Low Gain takes you from clean to a touch of mean at high Gain control settings.
   Clean Channel @ High Gain adds some grit to the mill for **sweet crunch tones** with a touch of preamp overdrive.
   Lead Channel @ Low Gain takes you deeper into the saturation zone with **plenty of headroom** to spare.
   Lead Channel @ High Gain offers an immense range of **gain potential for creamy, singing lead tone with plenty sustain** or for **massive powerchords**.
5. Even more **tone-tweaking power** courtesy of diverse sound shaping features: *Bright* for the Clean channel and *Shape (Contour,* E650-2) to obtain different accentuation of a specific mid range.
6. An **ultra-advanced, tone-generating machine** that will give you years of **playing pleasure** and **value to boot**.

Features and Functionality at a Glance

-> **Two channels** and **two gain stages**: Clean channel and Lead channel; *ea*ch channel with separate Gain knobs and Lead with additional Lead Volume control. Low Gain and High Gain option each channel.
-> The **voicing section specially tuned for each channel**: One three-band EQ in the preamp plus the Presence control pot for *Lead* in the poweramp section.
-> **Two sound switching options in the preamp section:** *Bright* for the Clean channel and the Shape (Contour) button in the EQ section for *Clean* and *Lead*.
-> **Switchable and adjustable *FX Loop***. You can control the *FX Loop* remotely via a footswitch and use this circuit as a hardware bypass for connected FX.
-> **Two power amp Master knobs**. You can footswitch these knobs to activate two different power amp volume settings on the fly without twisting a knob.
-> **The optional Z-9 Custom Footswitch**. It lets you select *Clean Low Gain*, *Clean High Gain*, *Lead Low Gain*, *Lead High Gain* directly and control two additional (sound-shaping) features of your choice. Three ¼" stereo jack plugs accept three dual footswitches that let you control remotely channel, *Low/High Gain*, *Shape (Contour)*, *Master A/B*, *FX Loop*, and *Noise Gate*.
-> **A Noise Gate for the Lead Channel.** Activate it at the amp or via footswitch to suppress excessive noise when *High Gain* is engaged in Lead mode at very high gain settings.

Among the hallmarks of this fine amp are painstaking workmanship and finishing as well as rigorously tested and carefully selected quality components. You'll find guidelines on care and maintenance of tube amps on page 15 and 16. Under the heading Tips from the designer, you'll come across practical tips on the aforementioned features throughout the manual. All critical information concerning the operation of this amp is preceded by "NOTE", "CAUTION", "Read and heed" or some

other eye-catching comment. We're calling your attention to these remarks for reasons of safety or other compelling motives, so please give them due consideration.

Everyone at ENGL is confident that this **tube amp's extraordinary versatility** and **outstanding features** are sure to delight you: **Simply plug in, play and be inspired by the tone of your great ENGL Amp!**

A few words of wisdom from the designer:

Though this amplifier is relatively easy to handle and you're probably raring to give it a go, I recommend that you read the owner's manual thoroughly before you power your new amp up. It is equipped with several safety features that require further explanation to prevent malfunctions.

Contents:

1. ENGL Artist Edition (A.E.) Tube Amp Head type E651
   or ENGL Ritchie Blackmore Signature (R.B.S.) Tube Amp Head, type E650-2;
2. mains cord;
3. this manual;
4. a pamphlet entitled *Instructions for the Prevention of Fire, Electrical Shock and Injury*.

Front Panel Features

On page 2 of the manual, you'll find diagrams of the front and rear panels.

1 Input

¼" unbalanced input jack. Plug your guitar in here using a shielded cord.

A tip from the designer:

Depending on the type of cord and its shielding, you may occasionally encounter interference from sources such as radio stations or powerful magnetic fields. When this occurs, try connecting your guitar to the amp using different cords. What's more, to minimize signal degradation due to high-frequency loss, use the shortest cords feasible (as a rule, the shorter the cord, the less susceptible it is to high-frequency attenuation).

2 Clean

Gain control for the Clean channel. This knob determines the preamp's input sensitivity when the Clean channel is selected and, by extension, the preamp signal's saturation level. It and the activated Master (13, 14) knob determine the Clean channel's volume.

A tip from the designer:

The amount of distortion depends on your guitar's pickups and the Gain (11) setting *Low* or *High*. In Clean mode, single-coil pickups may begin saturating the preamp when the Clean Gain knob is set to about the four o'clock position; pickups with very high output levels (humbuckers or active pickups) will evoke mild overdrive at even lower settings. If you want squeaky clean tone (a pure guitar tone without preamp

distortion, that is), simply back off the Clean Gain knob accordingly and set the Gain (11) feature to *Low Gain* (off position).
If your guitar sports single-coils and you want to add some grit to your tone and bite to your riffs, set the knob somewhere between 12 and 4 o'clock. For higher output pick-ups such as humbucking or active jobs, dial in settings between 10 and 2 o'clock and activate Gain (11).
CAUTION: Extremely high gain and volume levels can produce powerful feedback. Avoid feedback squeals; they can lead to hearing loss and damage speakers! At higher volumes, back off the Gain and Treble levels in order to prevent unchecked feedback!

3 Bright
This feature boosts the upper end of the high frequency range in the Clean channel (or Clean mode, if you prefer). Its intensity decreases as gain settings increase.
A tip from the designer:
For a crisp or glassy tone, activate the Bright feature. It brightens the sound of humbucking or muddy pickups. Use it to tweak the amp's tone to taste, activating it to boost top-end frequencies or deactivating it to dampen high end response.

4 Lead
Gain control for the Lead channel. This Control knob determines input sensitivity when the Lead channel is active. Use it to dial in the desired amount of preamp saturation level.
A tip from the designer:
You can achieve a moderate preamp saturation or overdrive if you prefer for typical rock riffs or for rhythm work with Lead Gain knob settings prior to the 1 o'clock's position; ideally in the 9 to 1 o'clock range, depending on the output of the guitar pickup, with the sound function Gain (11) deactivated *(Low Gain)*. Activating the Gain function *(High Gain)* at similar Lead Gain control settings produces a remarkably rich sustain and a singing lead tone, perfectly suited for playing solos and lead guitar for example. I would only recommend very high Gain levels at lower volume to get additional sustain. In other words, you should avoid Lead Gain knob settings beyond the 1 o'clock's position at high output power in order to prevent interaction between guitar and speakers that possibly causes undesirable feedback. Moreover the noise floor rises noticeably at Lead Gain settings beyond the 1 o'clock position. When playing the amp at high volume levels rich sustain is already produced with lower Lead Gain control settings , supported by an increased amplification factor in the poweramp.

5 Bass
Bottom end voicing control of the preamps´s passive EQ.

6 Middle
Mid-range voicing control of the preamps´s passive EQ.

7 Treble
Upper range voicing control of the preamps´s passive EQ.

A tip from the designer:
To help you get acquainted with the amp's fundamental sounds, I recommend that you set all tone controls to the center or 12 o'clock position. For higher-gain, high-volume lead sounds, your best bet is to turn the Treble knob (7) and the Lead Presence knob (9) well down to prevent the pickups and speakers from interacting at high levels and generating feedback (the recommended setting is somewhere in the 10 to 1 o'clock range).
Bear in mind that you also have the Bright (3) button and the Lead Presence (9) control knob at your disposal for shaping the high frequency range.
This means that you can tweak the top end of each of the two channels separately to suit your taste and the given sonic scenario. You will find that grittier tones generally sound better with a touch less treble because preamp saturation makes higher frequencies figure more prominently in the signal.

8 Shape (E651), Contour (E650)
This voicing feature influences specific midrange frequencies in the preamps´s EQ section. The sound-shaping button operates globally, affecting both channels. When activated, frequencies between 300 Hz and 2 KHz are boosted varyingly strong. The LED above the button lights up to indicate *Shape (Contour)* is activated.
The *Shape (Contour)* sound feature may also be switched using a Z-9 Custom Footswitch connected to the S.A.C. Port (19) or a footswitch connected to jack (21).The button (8) on the amp's front panel is disengaged when you switch the Shape (Contour) function via footswitch (21). For more details see the chapter 19 and 21 on page 11 and 12 !
A tip from the designer:
The *Shape (Contour)* button voices specific midrange frequencies that are instrumental in fine-tuning a guitar's sound. The amp's sound will be thicker and much more pronounced in the mid frequency range when it is activated. If you want a less dominant midrange, leave this feature deactivated; that is, don't push this button.

9 (Lead) Presence
This power amp voicing knob's setting determines the amount of high-end frequencies and affects the Lead channel only.

10 Lead Volume
Volume control for the Lead channel. Use this knob to dial in the desired balance of levels between the Lead and Clean channels. Because this volume control is located pre effects loop, it also determines the effects send level for the Lead channel.
The red LED above the mode selector button (12) lights up to indicate *Lead channel* is activated.

11 Gain Low/High
Press this button to increase the gain level (amplification factor) in both channels considerably. The yellow LED above the button lights up to indicate High Gain mode is activated. As soon as you select *High Gain* via button 11, Master B (14) is activated simultaneously. The Gain button (11) on the amp's front panel is disengaged when you switch the Gain function via footswitch (19, 22). The Gain function may also be

switched via an ENGL Z-9 Custom Footswitch connected to the S.A.C. Port (19) or via a footswitch connected to jack 22. For more details, see chapters 19 and 22 on page 11 and 12 !

A tip from the designer:

Activating *High Gain* in the Clean channel increases the gain level significantly, enough to push the preamp into overdrive. This brings out and tightens up the middle frequencies to conjure a more assertive sound for classic-style rhythm workouts.

Activating *High Gain* in the Lead kicks up the gain level considerably, saturating the preamp to give you far more sustain and much thicker tone. This means you can coax blazing lead tone out of the amp without having to connect an outboard gain enhancer or overdrive pedal. And the sound quality may well send your stomp-boxes into retirement.

12 Clean/Lead

This channel switching button selects the Clean channel or the Lead channel. Press it to activate the Lead channel. The red LED above the button lights up to indicate Lead mode is active. Channels may also be switched via the ENGL Z-9 Custom Footswitch connected to the S.A.C. Port (19) or via a footswitch connected to jack 22. The Clean/Lead button (12) on the amp's front panel is disengaged when you select channels via footswitch (19, 22). For even greater convenience, you could also use the optional ENGL Z-9 Custom Footswitch to select the two channels in combination with the two Gain stages directly by simply tapping the Z-9's four channel-switching buttons. For more details, see chapters 19 and 22 on page 11 and 12 !

13 Master A

Master A volume knob. Located post effect loop, it controls power amp output. The red LED to the right of the knob lights up to indicate Master A is enabled and determining the master level. The Master A knob is selected whenever you activate *Low Gain* via button 11 and no footswitch is connected to jack (21).

You can switch between *Master A* and *Master B* using a Z-9 Custom Footswitch (S.A.C. F1-1, page 22) connected to the S.A.C. Port (19) or a footswitch connected to jack (21). For more details see the chapter 19 and 21 on page 11 and 12 !

14 Master B

Master B volume knob. Located post effect loop, it controls power amp output. The green LED to the right of the knob lights up to indicate Master B is enabled and determining the master level. The Master B knob is selected whenever you activate *High Gain* via button 11 and no footswitch is connected to jack (21).

You can switch between *Master A* and *Master B* using a Z-9 Custom Footswitch (S.A.C. F1-1, page 22) connected to the S.A.C. Port (19) or a footswitch connected to jack (21). For more details see the chapter 19 and 21 on page 11 and 12 !

A tip from the designer:

If you want to experience real remote control convenience, try an ENGL Z-9 foot controller. You can dial in different levels for *Master A* and *Master B*, assign these settings to any channel and access them directly via the four channel switches on the ENGL Z-9 foot controller. This gives you a range of alternatives that you can apply to

different playing styles and musical genres to great dramatic effect. What's more, you can use the Clean channel *Low Gain* or *High Gain* mode for rhythm or cleaner lead lines and the Lead channel's overdriven preamp stage for power chords and soloing, and go from soft to loud at the touch of a button. Beyond that, you can also broaden the volume and tonal ranges by working your guitars' volume knob. If your arsenal includes MIDI gear - for instance, the Z11-S.A.C. ENGL MIDI Switcher in combination with the Z-9 Custom Footswitch - you may use the amp's Master A/B circuit to swiftly and conveniently set the power amp's volume to two different levels, and then access these volume presets in combination with preamp voicing features such as *Shape (Contour)*. The mind boggles...

15 Stand By
Power amp standby switch: Use this switch to silence (0 position) the amp when you take longer break. The amp's tubes stay nice and toasty, and the amp is ready to roll immediately when you ramp it back up to full power.
A tip from the designer:
I suggest you get into the habit of using standby during short breaks. In this mode, current is not piped through the power tubes, so they don't get as hot (due to the lack of anode dissipation) and are spared considerable wear. The amp is ready to run when you flip the Standby switch because the tubes are already warm and don't require time to heat up. For breaks of 20 minutes and longer, I recommend that you switch the amp off in order to conserve energy.

16 Power
Mains power on/off.
Please note: ensure that the Stand By switch (15) is set to *Stand By* (0 position) before you switch the amp on. Let the tubes heat up for about 30 seconds before you activate the power amp. This procedure spares the tubes.
CAUTION: After an extended period of operation and higher ambient temperatures the amps's chassis can become very hot, therefore avoid touching the rear panel surface !

Rear Panel Features

On page 2 of the manual, you'll find diagrams of the front and rear panels.

17 Mains Connector (AC Power Inlet; IEC - C14 connector)
Plug the mains cord in here. For European models, use a standard non-heating equipment connector cable.
CAUTION: Make sure you use an intact mains line cord with a grounded plug! Before you power the amp up, ensure the voltage value printed alongside the mains socket is the same as the current of the local power supply or wall outlet.
Please also heed the guidelines set forth in the separately included pamphlet, *Instructions for the Prevention of Fire, Electrical Shock and Injury*.

18 Mains Fuse Box:
The rear chamber contains the mains fuse and in the front chamber, a spare fuse.
CAUTION: ALWAYS make sure replacement fuses are of the same type and have the same ratings as the original fuse! Please refer to the fuse ratings table.

19 Footswitch: Serial Amp Control Port (S.A.C.)
This serial data input serves to control six of the amp's switching functions remotely. It accepts the optional ENGL Z-9 Custom Footswitch as well as the optional ENGL Z11-S.A.C. MIDI Switcher for use as a MIDI interface. Use a cord equipped with stereo 6.3 mm (¼") jack plugs to connect this input to the S.A.C. Out on the Z-9 Footswitch or Z11-S.A.C. MIDI Switcher. The custom-designed Z-9 and the MIDI Switcher (in MIDI interface mode) let you switch every amp feature designated as footswitchable in this manual. You can configure the Z-9 Footswitch to control the two channels in combination with *Gain Low/High* and *Master A/B* and two further features directly.
To learn if a given feature may be controlled remotely, refer to its description herein. You'll find a configuration table showing the Artist Edition (R.B.S.) Amp's functions on page 22. The ENGL Z-9 Custom Footswitch is optional.
Heads up: Plugging a jack plug into the S.A.C. Port disables the *Gain Low/High* and the Channel switching functions controlled by the buttons (11, 12) arrayed on the amp's front panel. What's more, it also disables the footswitch jacks' (22) remote-control capability. In other words, when a Z-9 board is plugged in, it has priority over the amp's *Gain Low/High* and Channel switching controls as well as *Gain Low/High* and Channel switching via a footswitch connected to jack (22).
CAUTION: Connect only the ENGL Z-9 Footswitch or the ENGL Z11-S.A.C. MIDI Switcher (S.A.C. Out) to this 6.3 mm (¼") stereo jack! Connecting any other switching device may damage it and/or the amp's circuitry!
Insert and remove the Z-9's cable to and from the S.A.C. Port only when the amp is switched off!
Please note: Never link two S.A.C. Ports of Engl amps via an Y-adaptor to a Z-9 Custom Footswitch; this can cause ground hummming noise and damage the internal circuits!
A tip from the designer:
Try out the ENGL Z-9 Custom Footswitch - chances are you'll love the remote-control convenience for your Artist Edition or R.B.S. amp. Based on a rather clever switching concept, it features four switches that afford you direct access to *Clean* and *Lead* in combination with the two Gain stages *Low* and *High*: Clean & Low Gain, Clean & High Gain, Lead & Low Gain and Lead & High Gain.
Alongside selecting channels, you can opt to control any other two switchable amp functions such as *Shape (Contour,* E650-2) and *Master A/B* or *FX Loop* and *Noise Gate*, and so forth.
Another tremendous benefit of this microcontroller-driven footboard is that it connects to the amp via an easily obtained, standard stereo cord. But that's not the last of the Z-9's advantages: At some point, you may decide to ramp up or connect to a MIDI system using the ENGL Z11-S.A.C. MIDI Switcher. This won't render the Z-9 obsolete because it also serves as a simple MIDI footboard with a MIDI OUT (5-pin DIN connector) that selects 10 MIDI patches (or presets, if you prefer). Again, I want to emphasize that you should never connect another footboard to this jack: The Z-9 and the Z11-S.A.C. control the amp via a proprietary ENGL serial data protocol, and the

Serial Amp Control Port was developed exclusively for ENGL amps. No other footboard will work and in fact is likely to damage the footboard or the amp's circuitry!
You can use the ENGL Z11-S.A.C. MIDI Switcher to integrate the amp straight into a MIDI system. You can also opt to control two amps in parallel using the Z11-S.A.C. MIDI Switcher and MIDI commands. The Z11-S.A.C. Switcher is equipped with six switching loops (accessed via three stereo jacks) and the S.A.C. Out (stereo jack) for precisely this purpose!

20 Footswitch: FX Loop, Noise Gate
Use this jack to connect a conventional footswitch with two switching functions, for example, the ENGL Z-4 (2 x off/on - Single Pole Single Throw or SPST for short). This type of footswitch lets you access *FX Loop* on/off and *Noise Gate* on/off. One of the two switches enables or bypasses *FX Loop*, while the other switches the Noise Gate on and off (in the Lead channel with High Gain engaged only).
Note also: A footswitch may be equipped with LEDs indicating the given switching status. Each of the two switches is provided with approx. 10 milliamperes current, which suffices to power a standard LED. The jack's mono terminal controls *FX Loop* on/off, while the stereo terminal controls *Noise Gate* on/off (for pin assignments, see page 22).

21 Footswitch: Master A/B, Shape (Contour, E650-2)
Use this jack to connect a conventional footswitch with two switching functions, for example, the ENGL Z-4 (2 x off/on - Single Pole Single Throw or SPST for short). This type of footswitch lets you access *Master A/B* and *Shape (Contour)*. One of the two switches activates Master A or B, while the other switches the voicing feature *Shape (Contour)*; it alters the mid range frequency response in the EQ section of the preamp. Plugging a footswitch into this jack disables onboard Master A/B (via button 11) and Shape (Contour) switching.
Note also: A footswitch may be equipped with LEDs indicating the given switching status. Each of the two switches is provided with approx. 10 milliamperes current, which suffices to power a standard LED. The jack's mono terminal selects *Master A/B*, while the stereo terminal controls the Shape (Contour) feature (for pin assignments, see page 22).

22 Footswitch: Clean/Lead, Gain Low/High
Use this jack to connect a conventional footswitch with two switching functions, for example, the ENGL Z-4 (2 x off/on - Single Pole Single Throw or SPST for short). This type of footswitch lets you access the two channels Clean and Lead.
This type of footswitch lets you access the two channels and *Gain Low/High*. One of the two switches activates *Clean* or *Lead*; the other activates *Low Gain* or *High Gain*. Plugging a footswitch into this jack disables onboard channel (12) switching and *Gain Low/High* (11).
Note also: A footswitch may be equipped with LEDs indicating the given switching status. Each of the two switches is provided with approx. 10 milliamperes current, which suffices to power a standard LED. The jack's mono terminal selects *Clean/Lead*, while the stereo terminal controls the *Gain Low/High* feature (for pin assignments, see page 20).

23 Power Tube Fuse
This red LED lights up to indicate one of the internal power tube fuses (4 pcs.) has blown. You can continue playing, but the amp's performance will be diminished. Normally the loss of a power tube results in an unbalanced signal.
Be sure to have a specialist look over the power amp as soon as possible; the fuse probably blew because of a defective power tube. Once a fuse has blown, it must be replaced by a new fuse.

24 Noise Gate Threshold Level
This control activates an onboard Noise Gate serving to suppress any excess noise generated when both *Lead* and *High Gain* are active. To this end, twist the knob clockwise, near or just beyond the 9 or 10 o'clock position.
In addition the Noise Gate can be controlled remotely (on/off) via a footswitch connected to jack 20 (for details refer to chapter 20) or via the ENGL Custom Footswitch Z-9 (refer to chapter 19 for details). If you want to control the Noise Gate remotely via footswitch, you must set the Threshold knob to 10 o'clock or beyond.
Use this knob to set a threshold value (that is, the noise level) at which the Noise Gate activates to suppress the signal within the 9 to 5 o'clock range. The further you twist the knob to the right, the higher the signal level at which the Noise Gate kicks in. If you set the knob to the 5 o'clock position, the Noise Gate reacts to extremely high levels (suppresses high noise levels), meaning that there's not much of a margin between the guitar signal and background noise.
A tip from the designer:
Noise is a definite no-no in many situations. For example, studio etiquette demands that you keep a lid on extraneous noise during short breaks. It's in the nature of high-gain rigs to generate undesirable peripheral noise in overdriven (high gain) channels. This is attributable to the physical properties of an amp's constituent components, in particular its active components. That's right; those cherished tubes are the culprits. The Noise Gate is a tool that lets you silence this noise during breaks by way of signal mute circuit. Note that electric guitars pick up interference signals, and these are amplified tremendously at high gain levels (Lead channel with *High Gain* activated). The most common source of noise is 50 Hz or 60 Hz (hertz/cycle) mains hum, particularly when the guitar is positioned near transformers and power units. Because in worst-case scenarios this humming can attain extremely high levels, the Noise Gate can hardly distinguish between the musical signal and noise. This makes it hard to find the right Threshold setting. It is entirely possible for this humming and other noise to rise to a level that deactivates the Noise Gate and therefore becomes audible. My advice is to stay as far away from transformers and power units as space allows.
IMPORTANT note; please read and heed: The *Noise Gate* may open up inadvertently when the *Noise Gate* is activated, the high-gain Lead channel is selected, and the volume exceeds the Threshold knob setting. At very high volume and gain settings, this may generate instant feedback, particularly if your guitar is facing the speakers. Rather than musical and controlled, this is the shrill, unpleasant and potentially harmful variety of feedback squealing that sends your audience and fellow musicians packing. Though the amp is not more susceptible to feedback when the *Noise Gate* is activated, the fact that it suppresses extraneous noise means you can't hear those

telltale signs that feedback is swelling and consequently can't take measures to suppress it. For this reason, make an extra effort to be careful when the *Noise Gate* is activated: Before you approach the amp and speaker cabinet with your guitar in hand, turn the guitar's volume knob to the far left position (to 0 so that no signal is audible) to prevent the pickups and speakers from interacting!

25 FX Loop Send
Connect the FX Loop output to a signal processor's input/return jack using the shortest possible shielded cord equipped with 1/4" plugs. The FX Loop can be controlled remotely (: on/off) via a footswitch connected to jack 20 (for details refer to chapter 20) or via the ENGL Custom Footswitch Z-9 (refer to chapter 19 for details). In the signal path, the FX Loop is located post preamp and pre the two power amp Master knobs.

26 FX Loop Return
Connect the FX Loop input to a signal processor's output/send jack using the shortest possible shielded cord equipped with 1/4" plugs. The FX Loop can be controlled remotely (: on/off) via a footswitch connected to jack 20 (for details refer to chapter 20) or via the ENGL Custom Footswitch Z-9 (refer to chapter 19 for details). In the signal path, FX Loop is located post preamp and pre the two power amp Master knobs.

27 FX Loop Balance
FX mix control for the *FX Loop*. When the knob is set to *Dry*, the amp signal is routed through with no processed signal (0% wet balance) added to the mix. Twist the knob clockwise to blend in the processed signal (parallel/passive, wet balance 1-99%, depending on knob position). When the knob arrives at the Effect position, only the wet signal (that is, the processed signal generated by the connected effect device) is patched to the power amp (serial, 100% wet).
NOTE: Set this knob to *Dry* when this loop is not in use! Settings between the 9 and 3 o'clock position reduce the signal level.

28, 29 Poweramp Output, 4 Ohms Parallel
4 ohms speaker output jacks, internal connected parallel. For diverse cabinet options see the chapter *Cabinet options* on page 15 !

30, 31 Poweramp Output, 8 Ohms Parallel
8 ohms speaker output jacks, internal connected parallel. For diverse cabinet options see the chapter *Cabinet options* on page 15 !

32 Poweramp Output, 16 Ohms
16 ohms speaker output jack. For diverse cabinet options see the chapter *Cabinet options* on page 15 !
IMPORTANT NOTE, please read and heed: Never operate the power amp without a sufficient load, otherwise you may damage or destroy it! Always check the connected cabinets' impedance to confirm it matches the amp's output impedance! For example, if you are connecting a cabinet to one of the two 8-ohms output, make sure the

speaker system is indeed rated for 8 ohms. You'll find the various speaker and cabinet options listed in the nest section. I cannot stress enough the importance of proper impedance matching when connecting one or more cabinets to your amp. Impedance mismatching can damage the power amp!

Cabinet options

1. One 4-ohm cabinet connected to a 4-ohm jack;
   Summary: 4 Z, -> connected to 4-ohm output.
2. Two 8-ohm cabinets connected to the 4-ohm jacks;
   Summary: 8 Z + 8 Z, -> connected to 4-ohm + 4-ohm output.
3. One 8-ohm cabinet connected to an 8-ohm jack;
   Summary: 8 Z, -> connected to 8-ohm output.
4. Two 16-ohm cabinets connected to the 8-ohm jacks;
   Summary: 16 Z + 16 Z -> connected to 8-ohm + 8-ohm output.
5. One 16-ohm cabinet connected to the 16-ohm jack;
   Summary: 16 Z -> connected to 16-ohm output.
6. An 8-ohm cabinet connected to one of the 4-ohm jacks in combination with a 16-ohm cabinet connected to one of the 8-ohm jacks
   Summary: 8 Z + 16 Z -> connected to 4-ohm + 8-ohm output.

Handling and Care:

* Keep the amp safe from hard knocks and shocks. Tubes are fragile and tend to suffer when exposed to mechanical stress!
* Let the amp cool down before you transport it. Ten minutes or so will spare the tubes.
* Tubes take some 20 seconds to warm up after you switch the power on, and about two to three minutes before they are able to pump out full power. Make a habit of giving your amp plenty of time to get toasty and flipping the Standby switch for short breaks.
* In order to spare the power tubes and prolong their lifetime, we recommend to set the Stand By switch to *Stand By* (0 position, that is) before you switch the amp on. After a period of 30 seconds you may activate the poweramp by flipping the Stand By switch.
* Avoid storing the amp in damp or dusty rooms to spare jacks, switches and potentiometers. If you don't use the amp all the time, I recommend that you drape a covering over it to prevent the intrusion of dust. Even better, keep it in a transport cover or flight case.
* Never use caustic or scouring detergents to clean the amp's housing, front or rear panels. Use a soft, damp cloth or sponge with diluted soapsuds or a standard brand of mild dishwashing liquid instead. Never use solvents they can corrode the amp's vinyl skin and dissolve the front and rear panel labels. Keep liquids well away from the amp, particularly the interior of the housing.

* Make sure air can circulate at the rear and top of the amp to allow for adequate cooling, which increases component life.
* Never operate the amp without an adequate load (a speaker, cabinet or suitable terminating resistor).
* High ambient temperatures place an additional strain on diverse components; so if at all possible, avoid operating the amp at temperatures far higher than 30°C (86° F) for longer periods. Running the amp at mains voltages exceeding the nominal mains input voltage over longer periods can also shorten component life.
* Replace tubes with selected tubes that satisfy ENGL selection criteria to forestall microphonic properties, undesirable noise and unbalanced power amp signals. Because power tubes' idle current (bias) must checked and possibly adjusted when replacing tubes, this is a job best left to experienced and authorized specialists.

Troubleshooting

*** Some features that may be controlled remotely using a Z-9 or Z-4 footswitch fail to respond when you change settings:**

-> Powerful static charges, strong radio signals, or mains voltage spikes can affect microcontroller-driven systems, setting them to an undefined status commonly called a hung chip. In this event, your only choice is to reset the system. Simply switch the amp off and on again.

-> If a reset doesn't solve the problem, there is a defect in the control system, probably on the logic board holding the microcontroller or merely a faulty contact on one of the four stereo footswitch jacks (19, 20, 21, 22). In this case, consult an authorized service center or a professional specialist.

*** The amp fails to respond when you try to control switching functions remotely via the Z-9 footboard or the ENGL MIDI Switcher Z11-S.A.C. as MIDI Interface.**

-> Is the Z-9 footboard or the Z11-S.A.C. connected to the S.A.C. Port (19)?

-> Is the cord you are using stereo, intact, and wired properly?
(Refer to page 20 for pin assignments.)

*** The amp fails to respond when you try to control switching functions remotely using a footboard such as the Z-4 or a MIDI switcher such as the ENGL Z11-S.A.C.**

-> Are the footboards or switching loops connected to the corresponding footswitch jacks (20, 21, 22)?

-> Are the cords you are using stereo, intact, and wired properly?
(Refer to page 20 for pin assignments.)

-> If you are using footswitches other than an ENGL Z-4 or Z11-S.A.C., are the switches or relays inside the boards or switching loop systems off/on

Single Pole Single Throw (SPST) switches? In other words, do these switches continuously connect to GND when you wish to activate the given function? If you're unsure about the answers to these questions, consult an authorized service center or a professional specialist.

*** The amp is not providing an output signal / no sound is emanating from the speaker.**

-> Is at least one speaker connected to the speaker outputs 4 ohms, 8 ohms or 16 ohms (28, 29, 30, 31, 32) ?
-> Is the power amp activated (Standby switch to ON) ?
-> Are all cords (guitar, effect, and speaker) connected properly and are they functional ?
-> Unplug connected effectors and see if the preamp works fine without these peripheral devices.
-> Is the Noise Gate activated in one of the Lead channels and the Threshold (24) knob set to a high value? Deactivate the Noise Gate (24) for a quick check.
-> Are the active Master knob and the Gain and Volume knobs set to a value greater than 0 ? If any of these knobs is set to 0 (far left position), no signal is routed to the amp's outputs.
-> You may be looking at a faulty tube or another defect. In this case, be sure to take the preamp to an authorized, professional service center.

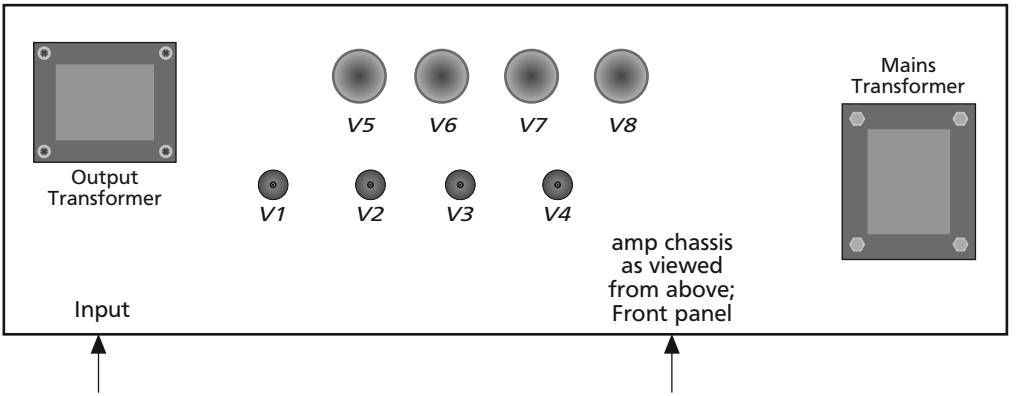
*** The speaker is emitting humming noises:**

-> Is there a connection (for example, via a shielded circuit) between the amp and another device that is grounded via a power plug of its own? Two or more circuits sharing a common electrical ground line can cause audible hum. If low-frequency noise is emanating from your rig, be sure to consult a specialist.
-> The amp and mains grounds are not connected properly or are altogether disconnected. Have an experienced specialist check this.
-> Cords connected to the input or effect loops may not be shielded properly. Replace them to check if this is indeed the case.
-> The amp or speaker cords may be picking up interference from powerful magnetic fields (for example, of nearby power transformers or electrical motors). Reposition the amp and connector cables.
-> The amp or speaker cords may be picking up radio signals, for example, from activated mobile telephones or powerful local transmitting stations nearby. Switch off mobile phones while troubleshooting noise problems.

Technical Data

Output power:	approx. 100 watts; adjusted accordingly to 4, 8 and 16 ohms;
Input sensitivity levels	
Input:	range: –40 dB to -10 dB (Clean), max. 0 dB
Effect Return:	range: -20 dB to 0 dB, max. 5 dB
Output levels	
Effect Send:	range: -20 dB to 0 dB, max. 5 dB
Power consumption:	approx. 420 Watt (500 VA) max.
Fuses:	
at 220/230/240 mains voltage	2 AT L (T: slo-blo);
at 100/115/120 mains voltage	4 AT L
Power Tube Fuses:	4 x 160 mAM (M: medium-blo);
Important:	**Replace these with fuses of the same type and rating only!**
Tubes	
V1:	ECC83 F.Q., input tube;
V2, V3:	ECC83 selected;
V4:	ECC83 standard;
V5, V6, V7, V8:	EL34 (E651) 6L6GC (E650-2), matched sets;
Consult Tube Map to view tube array	Replace tubes with selected sets only!
System interface:	
Serial Amp Control:	Proprietary ENGL asynchronous data protocol.
S.A.C. Port:	Refer to page 20 for pin assignments;
Dimensions:	approx. 71 x 27 x 27 cm (l x h x d); approx. 27.9" x 10.6" x 10.6" (l x h x d);
Weight:	approx. 20.5 kg; approx. 45.24 lbs;

Tube Map:



the tubes and their function:
V 5 - ECC83 (12AX7): input stage, 2. gain stage; grade: FQ selected.
V 6 - ECC83 (12AX7): Lead driver stage, 4. stage; grade: selected.
V 7 - ECC83 (12AX7): FX buffer stage, poweramp driver stage; grade: selected.
V 8 - ECC83 (12AX7): phase splitter; grade: standard.
V 1 to V 4 in E651 amp: EL34 power tubes, poweramp, matches sets.
V 1 to V 4 in E650-2 amp: 6L6GC power tubes, poweramp, matches sets.

Tube replacement report:

1. Replaced on: _ _ _ _ _ _ _ 20 _ _ _ Replaced by: _ _ _ _ _ _ _ _ _ _ _ _ _ _

Replaced tubes: _

Reason: _

2. Replaced on: _ _ _ _ _ _ _ 20 _ _ _ Replaced by: _ _ _ _ _ _ _ _ _ _ _ _ _ _

Replaced tubes: _

Reason: _

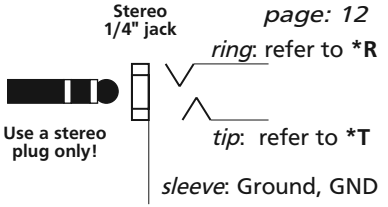
3. Replaced on: _ _ _ _ _ _ _ 20 _ _ _ Replaced by: _ _ _ _ _ _ _ _ _ _ _ _ _ _

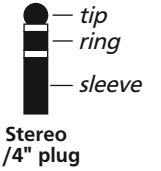
Replaced tubes: _

Reason: _

Wiring of Principal Connectors

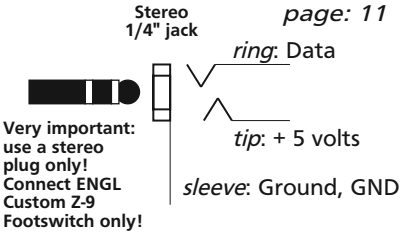
Dual Footswitch (20, 21, 22)

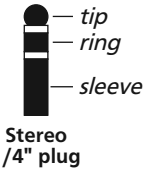




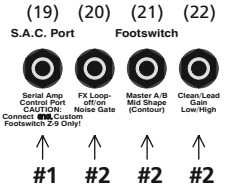
Here you'll find at a glance the technical details of the Retro Tube Amp's various remote switching capabilities:
A switch connected to this terminal ***R** controls
Noise Gate : off <-> on (Lead High Gain mode only) via jack 20;
Shape (Contour) : mid range cut <-> mid range boost via jack 21;
Gain Low/High : Low Gain <-> High Gain via jack via jack 22.
A switch connected to this terminal ***T** controls
FX Loop : off (bypassed) <-> on (enabled) via jack 20;
Master A/B : Master A control <-> Master B control via jack 21;
Clean/Lead : Clean channel <-> Lead channel via jack 22.

Serial Amp Control Port (19)

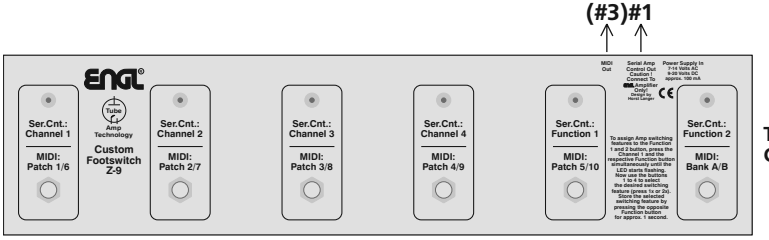




Your Options for controlling the Artist Edition (R.B.S.) amp remotely:

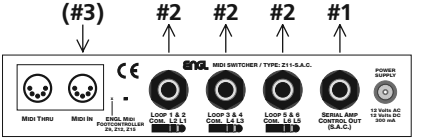


Footswitch connectors (4 x stereo jack sockets) located at the rear panel of the amp.



The ENGL Z-9 Custom Footswitch

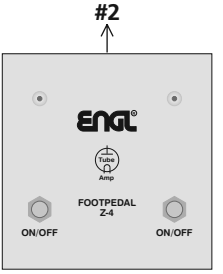
#1 ENGL Z-9 Custom Footswitch: This specialized footboard connects to the amp via a 6.3 mm (¼ ") stereo cord plugged into the Serial Amp Port - S.A.C. (19). The Z-9 affords you direct access to the amp's two Channels Clean and Lead in combination with *Gain Low/High* simply by tapping the four channel switching buttons, and lets you control two special functions, for example, *Shape (Contour)* and *FX Loop*. As an alternative to the Z-9 footswitch, you can also connect the **ENGL Z11-S.A.C.** MIDI Switcher (S.A.C. Out) to the amp's S.A.C. Port for use as a MIDI interface.



The ENGL Z11-S.A.C. MIDI Switcher

MIDI Switcher's rear panel:
#1: Serial Amp Control Out
for Amp 1 remote control;
#2: switching loops 1 - 6
e.g. for Amp 2 remote control;
#3: MIDI IN

#2 A two-way footswitch such as the ENGL Z-4: Connect dual footswitches to the amp by plugging stereo 6.3 mm (¼ ") cords into jack nos. 20, 21, and 22.
-> *Clean/Lead* and *Gain Low/High* (1 x Z-4);
-> *Master A/B* and *Shape (Contour)* (1 x Z-4);
-> *FX Loop* and *Noise Gate* (1 x Z-4);
As an alternative to dual footswitches, you can connect a MIDI switcher (the **ENGL Z11-S.A.C.** will do nicely) to these three jacks to control the six switching functions.



The ENGL Z-4 dual footswitch

Configuration table for assigning the Artist Edition Amp's sound-shaping and special functions to the Z-9 Custom Footswitch's *Functions 1* and *2* :

Button	Functions A.E.amp	Setup	Indication	S.A.C.
Function 1	*Master A/B*	1: *Channel 1*	LED 1 lights	*F1-1*
Function 1	no	1: *Channel 2*	LED 2 lights	*F1-2*
Function 1	*FX Loop off/on*	1: *Channel 3*	LED 3 lights	*F1-3*
Function 1	*Noise Gate off/on*	1: *Channel 4*	LED 4 lights	*F1-4*
Function 1	no	1: *Channel 1*	LED 1 flashes	*F1-5*
Function 1	*Shape (Contour)*	1: *Channel 2*	LED 2 flashes	*F1-6*
Function 1	no	1: *Channel 3*	LED 3 flashes	*F1-7*
Function 1	no	1: *Channel 4*	LED 4 flashes	*F1-8*
Function 2	no	2: *Channel 1*	LED 1 lights	*F2-1*
Function 2	no	2: *Channel 2*	LED 2 lights	*F2-2*
Function 2	no	2: *Channel* 3	LED 3 lights	*F2-3*
Function 2	*Noise Gate off/on*	2: *Channel 4*	LED 4 lights	*F2-4*
Function 2	no	2: *Channel 1*	LED 1 flashes	*F2-5*
Function 2	*Shape (Contour)*	2: *Channel 2*	LED 2 flashes	*F2-6*
Function 2	*FX Loop off/on*	2: *Channel 3*	LED 3 flashes	*F2-7*
Function 2	no	2: *Channel 4*	LED 4 flashes	*F2-8*

Comments:

Column 1 lists the Function button on the Z-9. Column 2 lists the sound-shaping and special functions that can be assigned to it.

Column 2 lists sound-shaping and special functions on the ENGL A.E. (R.B.S.) Amp that can be controlled remotely via the Z-9 Custom Footswitch.

Column 3 lists the configuration or setting required to remote-control sound-shaping or special functions on the A.E. (R.B.S.) Amp.
The first digit indicates the *Function Setup* routine, that is,
1: for *Function 1* Setup and 2: for *Function 2 Setup*.
Channel 1 to *Channel 4* denotes the button used to enter the setting.

Column 4 indicates the currently or newly selected configuration. For example, if LED 3 flashes when the Z-9's *Function 2* Setup routine is activated, then the Artist Edition (R.B.S.) Amp's *FX Loop* switching feature is currently assigned to *Function 2*; the corresponding S.A.C. command is *F2-7*.

Column 5 lists the shorthand designations for specific configurations that appear throughout the Z-9 Operator's Manual. For detailed information, please refer to the Z-9 Custom Footswitch Operator's Manual.

Please note: The ENGL Z-9 Custom Footswitch is an optional accessory. The afore mentioned Function buttons, LEDs and setup routines pertain to the Z-9.

Space for User Notes:

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