JX44 Air Control

Guitar and Amp Distribution Switcher

Order No. JX44: R800 6500

Order No. JR5: R800 6600

Order No. SGI-44: R800 6700

Owner's Manual

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Radial JX44 Air Control Owner's Manual

Guitar and Amp Distribution Switcher

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INTRODUCTION

Congratulations on your purchase of the Radial JX44 Air Control!

The Radial JX44 is a professional 19" rack device designed primarily for guitarists to manage their live rigs when touring. It has 4 inputs for guitars and 4 outputs to drive multiple amplifiers. In between the inputs and outputs, facilities have been added to help manage pedals, rack effects and tuning. The JX44 can be used on its own or be equipped with the optional Radial JR5 remote footswitch to choose guitars, select amplifiers and control effects.

After the tour, you may want to touch up a few notes in post production. To this end the JX44 has been equipped with a built-in Radial ProDI direct box and a Radial X-Amp. The direct box lets you record a dry guitar track during the tour. The X-AMP lets you re-amplify your performances afterwards and send the signal back out to pedals and amps to recreate the sounds you need for the live album.

With all of this stuff going on, one would think that using the JX44 is difficult. Well, in fact we invested a bunch of time and energy to make sure a seasoned professional could actually get up and running with the JX44 without even needing a manual! In fact, we even silk screened the programming instructions on the top panel. But as with any good product, a good manual should both guide the user towards a deeper understanding of the product and inspire creative applications. So, put the manual next to your bunk on the bus and read it! We know the JX44 will spark your imagination!

Should you have any questions, comments or concerns not covered in these pages, please visit our web site and the JX44 FAQ section. This is where we post the latest details and applications. If you do not find what you need there; feel free to send us an email at info@radialeng.com and we will do our best to answer you as quickly as possible. Strap yourself in and get ready for lift off. Enjoy!

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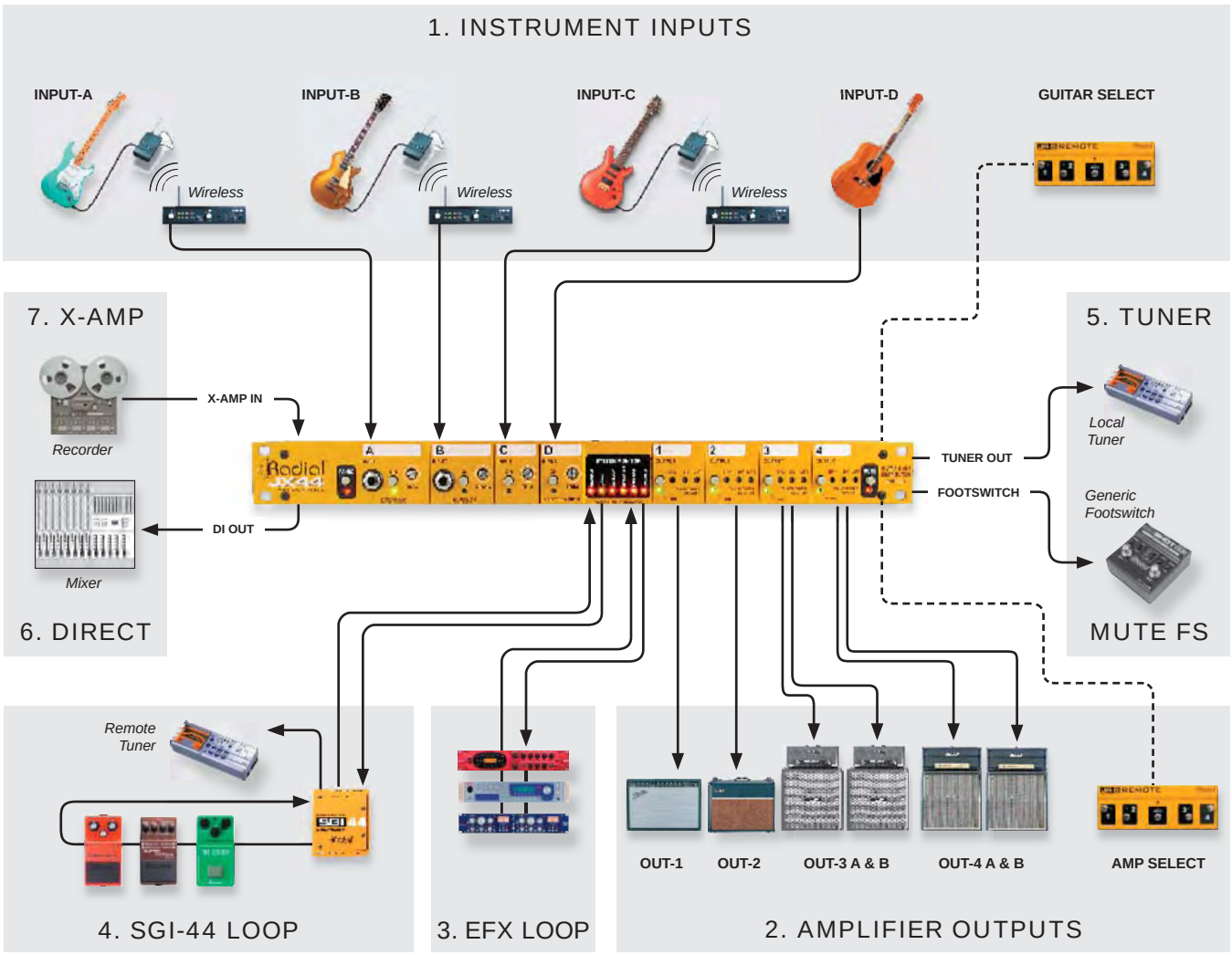
PART 1: GETTING TO KNOW THE JX44

The JX44 is an amalgamation of guitar oriented devices combined into one product. It is designed to streamline the processes used in live touring and studio recording. The basic functions give you the ability to control complex live guitar setups. The advanced features go beyond that and allow the JX44 to seamlessly integrate into today's highly technical concert productions. The JX44 can be broken down into seven distinct sections:



1. INSTRUMENT INPUTS: The JX44 starts with a four input instrument selector for wired and wireless guitars. The JX44 can have all your instruments ready and waiting and the optional JR5 remote footswitch allows hands free operation with big, bright LED indicators that are easy to see on stage.

2. AMPLIFIER OUTPUTS: These four outputs can connect up to six amplifiers giving you an incredibly flexible multi-amp rig. You can manually select amps or program a bank to recall a group of amps with the front panel controls or JR5 footswitch. A pristine Class-A signal path and transformer isolation offer amazing Radial quality sound with immunity from hum and buzz caused by ground loops.

3. EFX LOOP: Patch rackmount effects and pedals into this local hi-impedance effects loop and all your instruments can use them. The local effect loop can be assigned to each amplifier output.

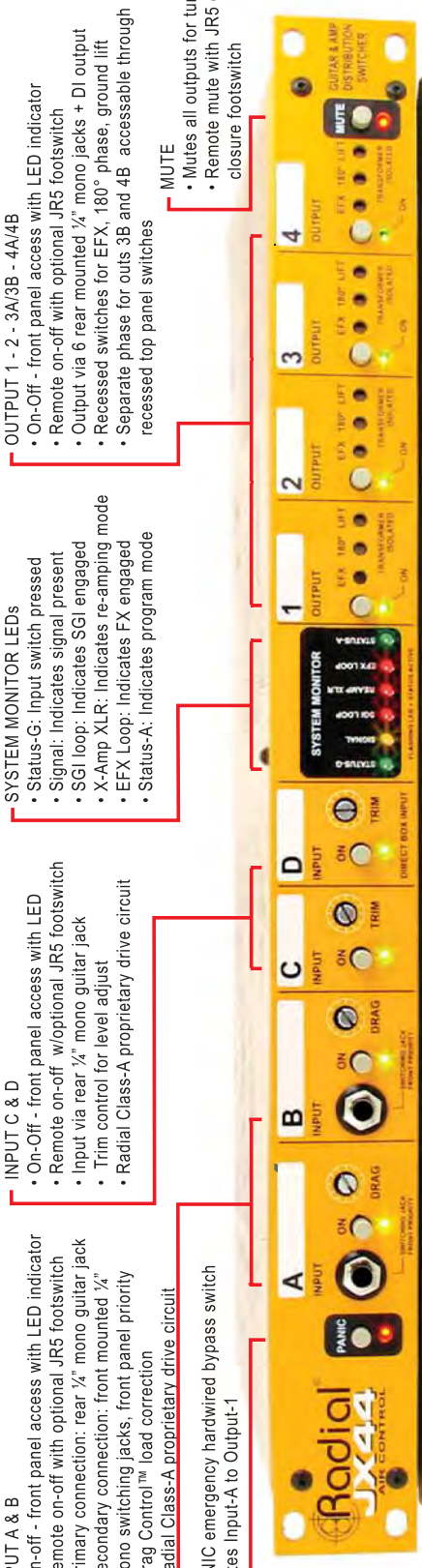
4. SGI-44 LOOP: This balanced long-haul effects loop works with the optional SGI-44 to connect a pedalboard up to 100 meters (300 feet) away from your amps without introducing noise or signal loss.

5. TUNE & MUTE: The JX44, JR5 and SGI-44 offers tremendous tuning and mute options: You can connect a rack and pedalboard tuner plus mute the guitar from five different places.

6. DIRECT OUTPUT: The built in Radial ProDI direct box has many uses on-stage and in the studio. This one has been optimized with features for the guitarist like pre/post effects loop and assignment to one or all instrument inputs.

7. X-AMP INPUT: The JX44 lets you tap into the huge tone shaping and post production possibilities of re-amping. The X-AMP lets you send guitar tracks from your multi-track to the JX44 and route the signal to your effects and amps for re-recording.

FEATURE SET OVERVIEW



INPUT A & B
- On-off - front panel access with LED indicator
- Remote on-off with optional JR5 footswitch
- Primary connection: rear ¼" mono guitar jack
- Secondary connection: front mounted ¼" mono switching jacks, front panel priority
- Drag Control™ load correction
- Radial Class-A proprietary drive circuit

PANIC emergency hardwired bypass switch routes Input-A to Output-1

INPUT C & D
- On-Off - front panel access with LED
- Remote on-off w/optional JR5 footswitch
- Input via rear ¼" mono guitar jack
- Trim control for level adjust
- Radial Class-A proprietary drive circuit

SYSTEM MONITOR LEDs
- Status-G: Input switch pressed
- Signal: Indicates signal present
- SGI loop: Indicates SGI engaged
- X-Amp XLR: Indicates re-amping mode
- EFX Loop: Indicates FX engaged
- Status-A: Indicates program mode

OUTPUT 1 - 2 - 3A/3B - 4A/4B
- On-Off - front panel access with LED indicator
- Remote on-off with optional JR5 footswitch
- Output via 6 rear mounted ¼" mono jacks + DI output
- Recessed switches for EFX, 180° phase, ground lift
- Separate phase for outs 3B and 4B accessable through recessed top panel switches

MUTE
- Mutes all outputs for tuning
- Remote mute with JR5 or contact closure footswitch

14-GAUGE STEEL
Heavy- duty 19" 1RU enclosure shields signals from electroo-magnetic noise and interference.

GUITAR INPUTS A - B - C - D
- ¼" jacks connect instruments or wireless system receivers
- Input 'D' can be routed to DI output by itself

SGI™ Interface to drive cable runs up to 100m to a pedalboard or remote effects with no signal loss

DIRECT OUT XLR for built-in Radial direct box connection to mixer or recording device

LIFT - ground lift switch lifts pin-1 on DI XLR

180° - phase reversal switch for DI XLR

X-Amp™
Built in re-amping interface with input level control

DI BOX SOURCE SELECT
- Post or Pre effects loop
- Just input 'D' or all four

EFFECTS LOOP - ¼" send / receive jacks for local effects loop

TUNER OUT - Always-on ¼" jack feeds tuner

MUTE - ¼" jack for any standard momentary contact footswitch

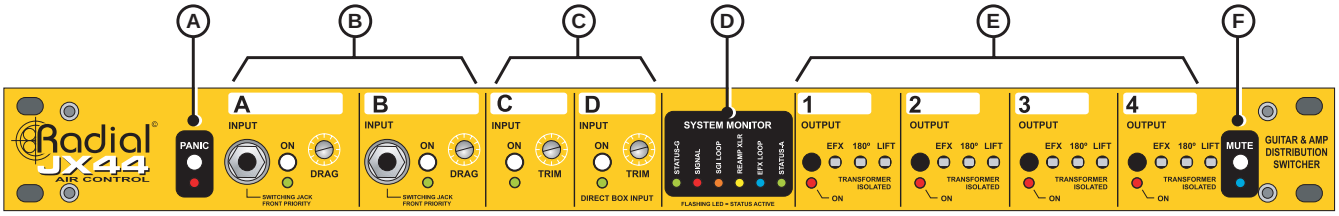
CABLE LOCK protects from power disconnect

15VDC POWER SUPPLY - allows touring anywhere by simply changing the supply to meet regional requirements.

FOOTSWITCH REMOTE CONTROL - XLR jacks connect optional JR5™footswitches that allow remote amp and guitar switching

AMPLIFIER OUTPUTS
- Six ¼" jacks to feed up to six amps
- Outputs 3 & 4 have dual paralleled jacks, 3B and 4B

FRONT PANEL FEATURE SET



(A) PANIC BUTTON

In the event of a problem such as a wireless system failure, the PANIC button activates a hardwire bypass and automatically connects INPUT-A directly to OUTPUT-1. The SGI and local EFX LOOP are also bypassed. The LED flashes to indicate panic mode is active. Release the PANIC button to revert to normal operation. *(Fig.1)*

If power is disconnected, the JX44 will automatically revert to PANIC mode and engage the hardwire connection. This allows you to continue playing through your first amp while the technical problems are sorted out and power is restored.

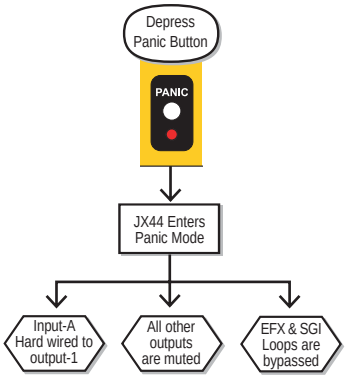


Fig.1 - In Panic Mode, the tech can grab a guitar hand it to the artist, connect it to input-A and the show goes on.

INSTRUMENT INPUTS

The JX44 is equipped with four guitar inputs. These employ Radial's proprietary Class-A drive circuit for the best sound and lowest noise. Selecting an input is done by depressing the front panel ON switch for the desired instrument, or remotely with the optional JR5 footswitch. Each input has an LED on the front panel that illuminates when selected.

The JX44's inputs are 'exclusive' whereby only one can be on at a time. This 'safety feature' prevents noise from inactive guitars entering the system. An input can be muted by depressing the ON switch a second time. To restore the input depress the ON switch again or select a different instrument.

(B) INPUT-A & B

Although instruments are usually connected at the rear jacks INPUTS-A and B are equipped with switching jacks on the front panel. These will override the rear panel jacks when a cable is inserted. This makes the front jacks a handy place to quickly fly in a new instrument while another is connected through the rear jacks. *(Fig.2)*

We added DRAG™ control on inputs A and B for the purists who want to connect to their amps with a 'real cable' in the most transparent way possible. DRAG is a load correction function that allows you to reintroduce the natural loading characteristic of a direct cable connection to your amp.

Here's how it works. When you connect your guitar directly to your amp, the amplifier 'sees' your pickups as a load. When a buffer like the one inside the JX44 or built into a wireless system is introduced, your amplifier no longer 'sees' your pickups as a load. Your amp sees the electronically 'perfect' output of the JX44. But sometimes, perfect may not sound quite right. With one simple control, DRAG allows you to dial-in the natural loading and tone as if your guitar were connected directly to the amp.

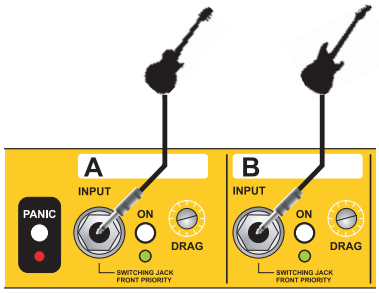


Fig.2 - INPUTS-A and B on the front panel have priority. When you connect a guitar they will override the rear inputs.

(C) INPUT-C & D

Instrument connections for INPUT-C and D are made at the rear jacks. These inputs are equipped with a recessed TRIM control making them ideal for wireless systems and active instruments such as acoustic-electrics and guitars with active pickups (i.e. EMG pickup). The Trim controls let you reduce the level from louder instruments to better balance with passive instruments connected to the other inputs. *(Fig.3)*

INPUT-D is unique in that it may be exclusively assigned to the direct box output. This is invoked through the direct box controls on the rear panel. See the direct box section for more information on using this feature.

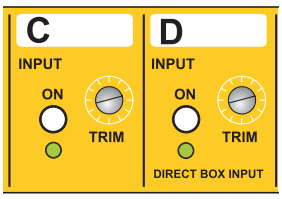


Fig.3 - Inputs C and D feature TRIM controls to balance the levels of louder instrument signals such as buffered wireless systems and active acoustic guitars with passive instruments.

(D) SYSTEM MONITOR

At the center of the front panel you will find the SYSTEM MONITOR where six LEDs display the status of several JX44 functions. *(Fig.4)*

- STATUS-G — This will flash every six seconds as the internal microprocessor checks the status of the input routing and does a self-diagnostic test. This LED will briefly flash when an input is selected to confirm the command.
- SIGNAL — This level meter flashes when a guitar signal is present at the input. This is the first place to look when trouble shooting to ensure the JX44 is receiving a signal from your guitar.
- SGI LOOP — Illuminates when the SGI effects loop is active. When active the SGI loop must be connected or the guitar signal will be interrupted and no sound will be output.
- X-AMP — Illuminates when the re-amping interface is active. When active the JX44 accepts balanced line signals at the SGI RX rear panel input.
- EFX LOOP — This LED indicates when the effects loop is active. It illuminates when an amplifier output assigned to the effects loop is turned on.
- STATUS-A — This will also flash every six seconds as the JX44 checks the status of the output routing and does a self-diagnostic test. This LED stays illuminated when BANK mode is active.

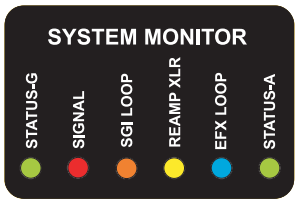


Fig.4 - The JX44 System Monitor provides the status of six functions with easy to see LED indicators.

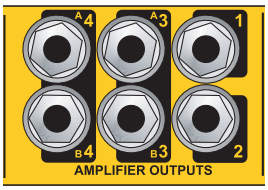


Fig.5a- To keep the front panel clear from obstructions, all amplifier connections are done on the rear. Amplifier outputs 1 and 2 are single while outputs 3 and 4 are dual.

(E) AMPLIFIER OUTPUT CONTROLS

Amplifier output connections are made at the rear panel jacks. *(Fig.5a)* The four amplifier outputs are selected using the front panel ON buttons or remotely with the JR5 footswitch. An LED illuminates when the output is selected. While the instrument inputs on the JX44 are 'exclusive' (only one at a time), the amplifier outputs are 'inclusive' whereby you can activate as many amps as you like.

Amplifier outputs can be selected manually or programmed and saved as a bank. This way different combinations of amps can be recalled with a single button or footswitch. Amplifier outputs are transformer isolated to eliminate ground loops and equipped with three recessed controls that help set up your amps for the best sound and least noise. *(Fig.5b)*

- EFX — Assigns an amplifier output to the effects loop bus.
- 180° — Polarity reverse switch is used to set the absolute phase between multiple amps.
- LIFT — Isolates the ground connection to reduce hum and buzz caused by ground loops.

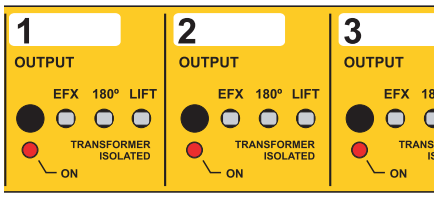


Fig.5b- Separate EFX, 180° and ground LIFT controls on each output allow you to optimize the performance of your amps and system setup.

(F) MUTE FUNCTION (FRONT PANEL)

The front panel MUTE switch is a multi function control. Its primary function is to mute the amplifier outputs to facilitate silent tuning. When the JX44 is muted, all outputs are silenced and effects loops turned off. The only output to remain active will be to the tuner *(Fig.6)*.

The MUTE LED indicator illuminates when the function is active. The MUTE control is also used to access and program BANKS as described later in this manual.

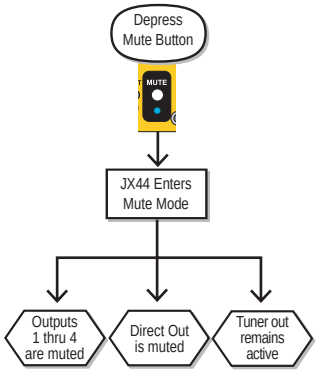
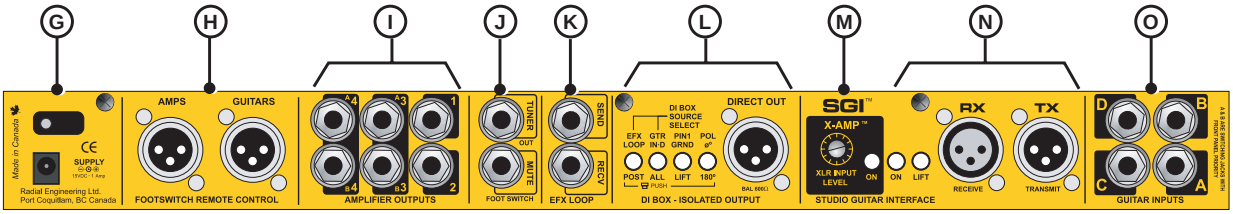


Fig.6 - MUTE mode, all outputs are silenced except the tuner output.

REAR PANEL FEATURE SET



(G) POWER CONNECTION

The Radial JX44 is powered by a Radial 15 volt DC external power supply. Two power supplies are packed in the shipping box. The second power supply is provided as a spare in case the first is lost or damaged. Do not substitute with another type.

The power connection on the rear panel features a cable clamp to prevent accidental disconnect. To use the cable clamp loosen the hex screw, loop the power supply cable through and tighten. *(Fig.7)*

Fig.7 - A handy cable clamp prevents accidental power disconnection.

(H) FOOTSWITCH REMOTE CONTROL PORTS

There are two remote control ports on the rear panel for connecting the Radial JR5 remote footswitch. One port is used for controlling the instrument inputs and the other for amplifier outputs. Standard XLR mic cables are used to connect between the JR5 and the JX44 *(Fig.8)*.

Once connected the microprocessor will recognize and auto-configure the JR5 footswitch. When the JR5 is connected to the GUITARS port it can select and mute the active instrument input. When connected to the AMP port the JR5 selects amplifier outputs and can mute the system for tuning. The LED indicators on the JR5 will coincide with the JX44 front panel indicators giving the performer and tech the same visual cues.

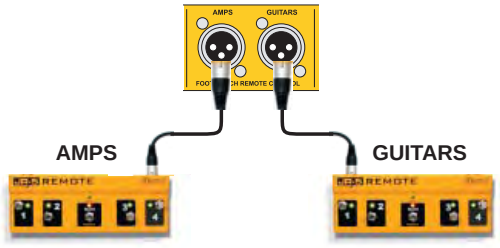


Fig.8 - Two Radial JR5 footswitches may be used at once: one to control guitars and another to control the amps.

(I) AMPLIFIER OUTPUT JACKS

The JX44 has six ¼" amplifier output jacks on the rear panel. Amplifier OUTPUT-1 and 2 use a single jack while OUTPUT-3 and 4 feature dual jacks labeled 3A/3B and 4A/4B. These dual outputs allow you to connect two amps to OUTPUT-3 and 4 *(Fig.9)*. All amplifier outputs are transformer isolated to eliminate hum and buzz caused by ground loops.

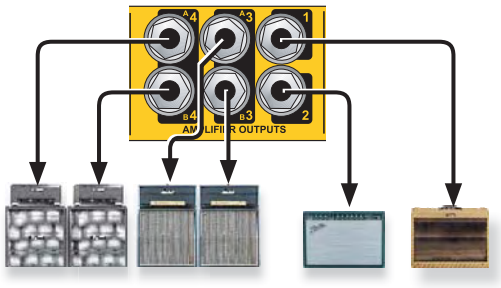


Fig.9 - There are four amplifier outputs on the JX44. Amplifier outputs 1 & 2 are single jacks while outputs 3 & 4 are dual.

(J) TUNER OUT AND MUTE FOOTSWITCH JACK

Connecting an electronic tuner is done via the TUNER output jack on the rear panel. This buffered output is always on and connecting your tuner here will remove it from the main signal chain preventing clock noise from bleeding into your guitar signal. *(Fig.10)*

Below the TUNER out you will find the MUTE footswitch jack. This is used to remotely MUTE the JX44. When muted, all outputs will be turned off except the tuner out. Any standard footswitch wired as a normally open, ***non-latching momentary*** switch with a ¼" mono plug may be used. When the remote footswitch is depressed, the front panel MUTE LED will illuminate indicating the MUTE function is active. Either the front panel control or remote footswitch can be used to toggle the mute function.

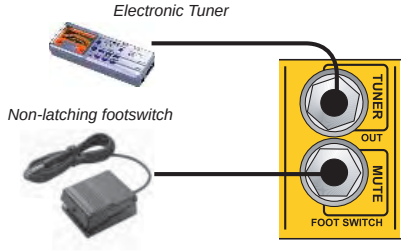


Fig.10 - A separate tuner output keeps clocking noise out of the signal path. The MUTE jack uses a non-latching momentary footswitch.

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The BigShot SW2 is a two channel universal remote footswitch that can be used with the JX44 to engage the mute function. Because the SW2 supports both latching and momentary switching you can use the second footswitch to switch amplifier channels or effects. See www.radialeng.com for more info.

(K) EFX LOOP - LOCAL EFFECTS LOOP

The EFX LOOP is a buffered effects loop for pedals and rackmount processors that accepts instrument level signals. Connections are made at the ¼" SEND and RECV (receive) jacks on the rear panel *(Fig.11a)*. Amplifier outputs share the effects loop bus (Fig.11b) and are assigned using the recessed EFX switches on the front panel *(Fig.11c)*.

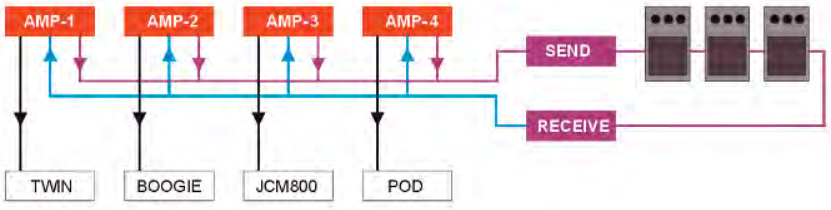


Fig. 11b: The effects loop feeds a bus that the amplifier outputs share.

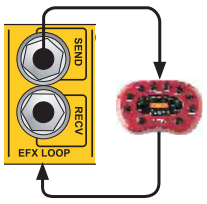


Fig.11a - The EFX LOOP uses the SEND and RECV jacks on the rear panel.

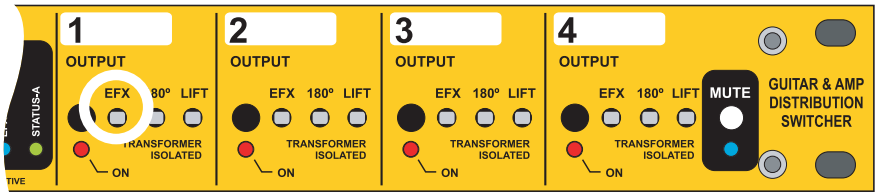


Fig. 11c: The loop is activated by using the recessed EFX switch for each amplifier output on the front panel.

(L) DIRECT OUT

The JX44 is equipped with a balanced 600 Ohm mic-level DI output. It combines Radial's award winning Class-A drive circuitry with our transformer isolated ProDI direct box to deliver great sound and immunity to ground loops. The DIRECT OUT section incorporates several functions *(Fig.12)*.

- POL 0º/180º — This 180º polarity reverse switch is used to correct phase or help reduce feedback on stage with acoustic guitars.
- GRND/LIFT — This ground lift switch isolates pin-1 on the DIRECT OUT XLR to reduce buzz and hum caused by ground loops.
- GTR IN-D — This switch selects which inputs will be sent to the DIRECT output. When set to the inward position all inputs are routed to the DIRECT out. In the outward position INPUT-D is sent to the DIRECT out and the other three inputs (A, B & C) are excluded.
- EFX LOOP — This switch assigns the DIRECT output either "pre" or "post" effects loop. When set to the outward position the signal is tapped before the effects loop and the DIRECT out is pre-effects (dry). The inward switch position will tap the signal after the effects loop and the DIRECT out will be post-effects (wet).

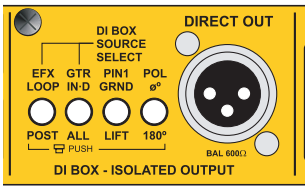


Fig.12 - The JX44 is equipped with a DI box that can be assigned to all guitars for re-amping or routed from INPUT-D for an acoustic guitar.

(M) X-AMP INTERFACE

The Radial X-AMP is a re-amping interface that allows a pre-recorded track to drive your amps and effects. For instance you can record a clean track with the DIRECT out and play it back through the JX44's X-AMP input to recreate your stage sound and fix a bum note. It can also be used to replace a complete track and create a new sound in post production. The X-AMP section includes several controls *(Fig.13)*.

- ON — This switch turns the X-AMP interface on and illuminates the LED in the SYSTEM MONITOR. When active the RX XLR input accepts a +4dB balanced line-level signal.
- LEVEL — The X-AMP input level control is used to attenuate line level signals to match the level from your guitar.
- RX XLR-F — To save space the X-AMP shares this jack with the SGI feature. When the X-AMP is active the RX jack receives a balanced line-level signal and converts it to guitar level.
- LIFT — This ground lift switch isolates pin-1 on the RX XLR input to reduce buzz and hum caused by ground loops. This control is shared between the SGI and X-AMP.

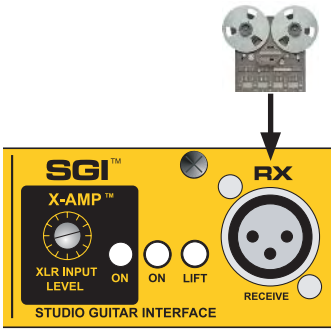


Fig.13 - Play a clean track through the JX44 and drive pedals and amplifiers to create new sounds.

(N) SGI LONG-HAUL EFFECTS LOOP

Running unbalanced guitar cables long distances can add severe noise while negatively affecting the tone. This is particularly acute on large stages when sending high impedance guitar signals from the backline where the amps and wireless are to a pedalboard and back again to the amps. To solve the problem, the JX44 comes equipped with a “long-haul” effects loop called SGI.

The Radial SGI is a proprietary balanced low impedance audio interface. It uses standard XLR mic cables to send and receive the guitar signal over long distances up to 100 meters (300 feet) using the optional Radial SGI-44 located at the pedalboard.

The SGI inside the JX44 transmits a balanced signal to the SGI-44 where it is converted to hi-impedance for the effects on the pedalboard. The hi-Z signal from the effect pedals is sent back through the SGI-44 for the return trip to the JX44, completing the loop. *(Fig.14).* The SGI section includes several controls.

- ON — This switch turns the SGI interface on and illuminates the LED in the SYSTEM MONITOR. ***The SGI loop must be completed or no sound will be heard.***
- LIFT — This ground lift switch isolates pin-1 on the RX XLR input to reduce buzz and hum caused by ground loops.
- TX XLR-M — Balanced, low impedance XLR output transmits the guitar signal to the SGI-44 pedalboard interface.
- RX XLR-F — Balanced, low impedance XLR input receives the guitar signal from the SGI-44 pedalboard interface. The SGI is transformer isolated to eliminate hum and buzz caused by ground loops. The RX connector is shared with the X-AMP interface to save space.

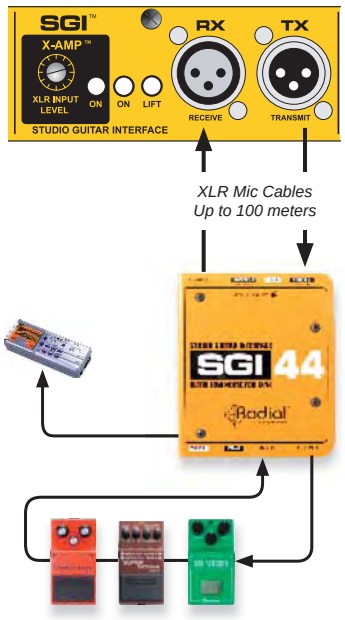


Fig.14 - SGI LOOP flows out to the SGI-44, through pedal effects, and back to the JX44.

(O) INSTRUMENT INPUTS

Four 1/4” input jacks receive signals from the instruments and wireless systems. Connections are located on the rear panel to keep the front panel unobstructed during hectic shows *(Fig.15).*

Note: INPUT-A and B feature front panel jacks that override the rear inputs.

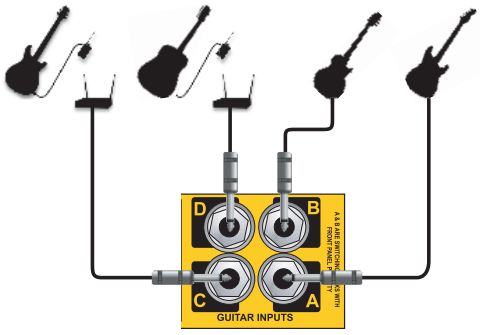


Fig.15 - Primary input connections on the rear panel.

(P) TOP PANEL POLARITY CONTROLS

While the polarity reverse controls for OUTPUT-3A and 4A are located on the front panel, due to limited space, the “B” output polarity switches are found on the top panel. *(Fig.16).*

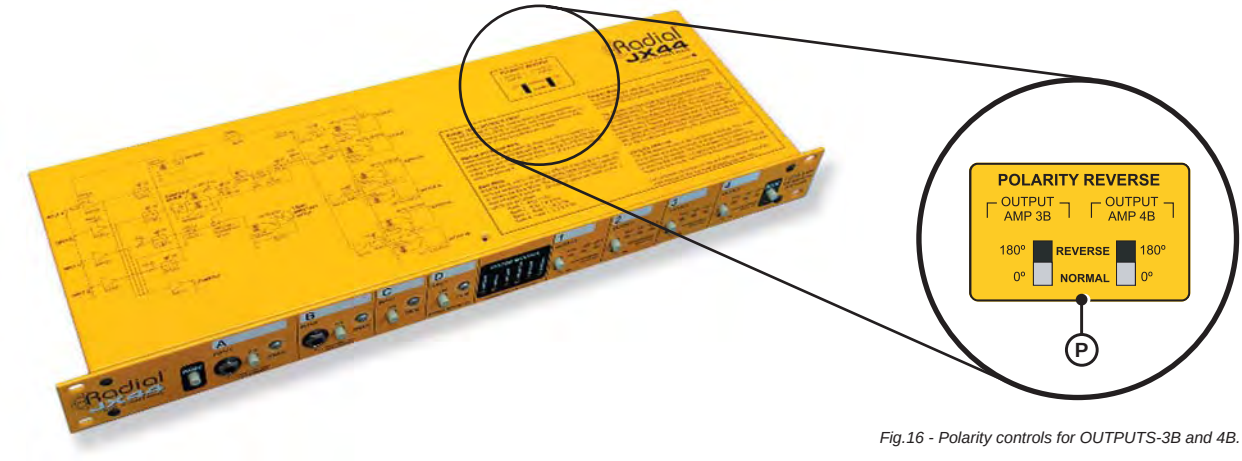


Fig.16 - Polarity controls for OUTPUTS-3B and 4B.

PART 2: USING THE JX44

The best way to approach the JX44 is by connecting and testing all your guitar inputs first before proceeding to the amplifiers. Once the guitars are working we will discuss how to set up the amps for the least noise and proper phase alignment. With the amps ready we will then cover programming the JX44's outputs to create banks and store them to memory. Finally, we will add effects, discuss applications such as re-amping and look at options for using the DI output.

Fig.17 - LED for SGI and REAMP XLR (X-AMP) must be off. Their controls are on the rear panel.

POWERING UP

Go ahead and plug in the power supply before connecting anything else. Once the power has been connected, the JX44 will immediately power on and automatically connect INPUT-A to OUTPUT-1. Their LED indicators will illuminate.

Check the SYSTEM MONITOR to ensure the LED indicators for the SGI LOOP and REAMP XLR (X-AMP) are off. If either of these LEDs are illuminated go to the SGI section of the rear panel and set their ON switches to the outward (off ■) position before continuing *(Fig.17)*.

CONNECTING AND TESTING INPUTS

It's a good idea to audition each instrument as they are connected. Confirming that all four inputs are working properly before connecting multiple amps will make trouble shooting easier. To test the inputs we are going to need an amplifier.

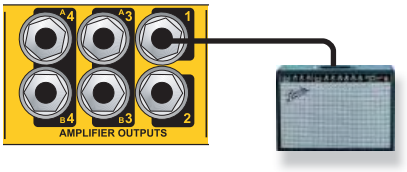


Fig.18 - Connect an amplifier to OUTPUT-1 to test the instrument inputs.

> ***CAUTION: POTENTIAL FOR ELECTRIC SHOCK HAZARD***
> ***Please read the caution statement at the end of this manual before connecting any amplifiers to the JX44.***

Connect OUTPUT-1 to your test amp. *(Fig.18)* The LED indicator for OUTPUT-1 should already be illuminated. If not, depress the ON switch to make it active. Turn your amp on and set it to a low volume level. ***As a precaution always test your system at a low volume to prevent equipment damage.***

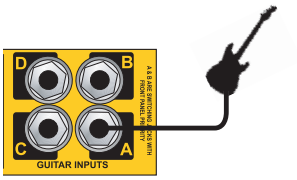


Fig.19 - Connect an instrument to INPUT-A.

INPUT-A and B

Instruments with passive pickups are best connected to INPUT-A and B so they can take advantage of the DRAG control. Plug a guitar into INPUT-A *(Fig.19)*. As you play, the SIGNAL LED in the SYSTEM MONITOR will flash indicating your signal is present *(Fig.20)*. If the LED is not flashing INPUT-A may not be selected. Depress the ON switch to activate. At this point, you should hear your guitar. Once your first input is working you are ready to move on to INPUT-B. Plug a guitar into INPUT-B. Notice that depressing the ON switch for INPUT-B will cause INPUT-A to turn off.

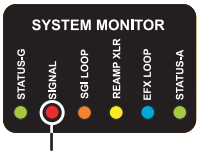


Fig.20 - This LED indicates when an instrument signal is present at the active input.

USING DRAG CONTROL (INPUT-A and B)

If you are connecting a passive instrument to INPUT-A or B with a guitar cable, as opposed to a wireless system, you might want to adjust the DRAG control at this time. We have purposely recessed the DRAG control so that once set, it is not easily changed. Use a guitar pick to make adjustments and start with the DRAG control turned fully clockwise. At this setting it has no effect on the signal. As you play, turn the control counter-clockwise in small increments until you find the 'sweet spot' that sounds natural to you. *(Fig.21)*

INPUT-C and D

Instruments with active pickups and wireless systems are best connected to INPUT-C and D so they can take advantage of the TRIM control. Plug in a guitar and test these inputs to confirm they are working.

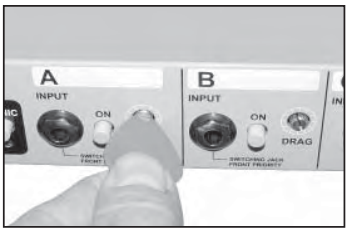


Fig.21 - Use your guitar pick to adjust the DRAG.

USING THE TRIM CONTROLS (INPUT-C and D)

Once INPUT-C and D are working you can use the TRIM control to attenuate their levels to match those of your passive instruments. Switch back and forth between inputs while adjusting the TRIM controls until all inputs are matched in level.

Once all your inputs are working you can move on to connecting your other amplifiers.

CONNECTING AMPLIFIERS

Connect amplifiers to OUTPUT-2, 3 and 4. Turn your amps on and set each one at a low volume level for testing. Note that OUTPUT-3 and 4 feature dual jacks to connect more than one amp if desired *(Fig.22)*.

Start with OUTPUT-1 and listen for hum or buzz. If you hear noise, depress the recessed LIFT switch on the front panel. Use a tweaker (small screw driver) to access the recessed controls. In most cases this will reduce hum caused by ground loops. Continue checking the LIFT switches for the other amplifier outputs until all your amps are setup for the least noise *(Fig.23)*.

If you still encounter hum and buzz, check your cables. Second quality cables can often have poor shielding which can allow noise to enter the system. Test one amp at a time. For best results limit high impedance cables to a maximum of 20 feet. If the noise persists have a qualified technician check the amplifiers to ensure the safety ground is connected to the amps metal chassis. A loose or missing safety ground can cause noise and be dangerous.

Connecting electronic devices ahead of and after the JX44 can also form ground loops causing hum and buzz. To minimize noise it's a good idea to power all your amps and effects from one AC outlet using a power bar.

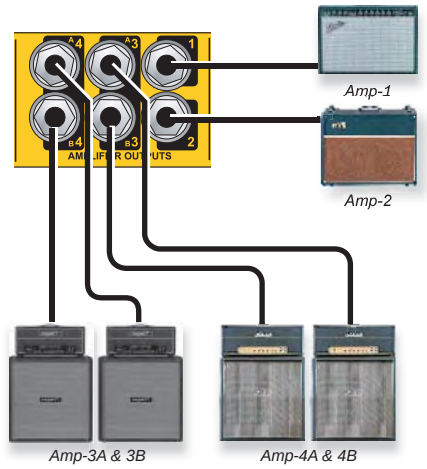


Fig.22 - Up to six amplifiers can be connected using the dual parallel jacks on OUTPUT-3 & 4.

SETTING POLARITY FOR PROPER PHASE

Once all the amps are working it's very important to ensure your amps are phase aligned and all loudspeakers are moving in the same direction. Each amplifier output is equipped with a recessed 180º polarity reverse switch to help you with this task *(Fig.24)*. This control inverts the signal polarity at the amplifier output jack causing your speakers to move in the opposite direction. Use a tweaker to toggle the 180º switches.

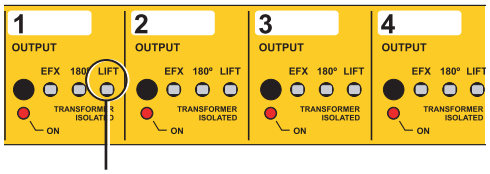


Fig.23 - Hum caused by ground loops can be greatly reduced or eliminated using the LIFT switch on each amplifier output..

The best way to proceed is to establish OUTPUT-1 (amp-1) as the 'phase reference'. Leave OUTPUT-1 tuned on during the rest of this procedure. For this test to work properly all your amps should be set at the same volume level so take a moment to set the level of each amp to match your reference amp.

Start by checking amp-2 with the reference amp-1. Turn on OUTPUT-2 so that your first and second amps are driving at the same basic volume. While playing your guitar toggle the recessed 180° polarity switch for OUTPUT-2 and compare the tone of the two settings. One setting will phase align the two amps. The other setting will cause amp-2 to be out-of-phase with amp-1. When two amps are 'in-phase' they reinforce each other and the tone sounds full with good low frequency content. When two amps are 'out-of-phase' they work against each other and their tone will sound thinner, more hollow and lack bass. Select the setting that produces the fullest tone. Once set turn OUTPUT-2 off and proceed to the next amp.

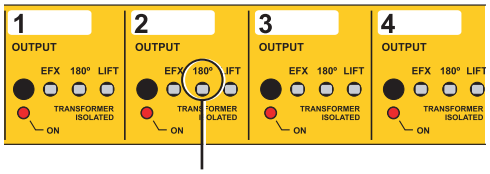


Fig.24 - Outputs 1, 2, 3A and 4A have their 180° controls on the front panel.

Test your amps in the following succession: 1~2; 1~3; 1~4.

If you have more than one amp connected to the dual jacks on OUTPUT-3 and 4, you would still follow this process and afterwards compare 3A to 3B and 4A to 4B while toggling the "B" polarity controls located on the top panel. *(Fig.25)* When done, your amps should all be phase aligned.

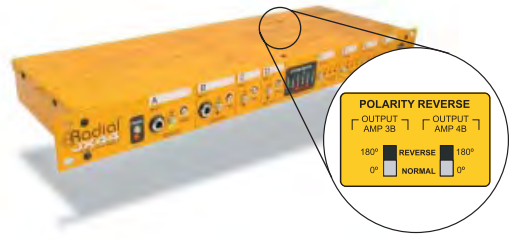


Fig.25 - Outputs 3B and 4B have their polarity controls located on the top panel.

You may introduce a new polarity problem if you change an amp or add an effect pedal after setting up the outputs. This may happen because some effect pedals invert the polarity of the signal and some amps wire their speaker(s) opposite to others. Take a look at the table below. The signal from OUTPUT-1 and 2 start off with the same polarity but the OUTPUT-2 signal becomes inverted by an effect pedal placed after the JX44 amplifier output. To solve this issue you simply depress the 180º switch for OUTPUT-2 reversing its polarity. Now when the signal is inverted by the effect pedal it will match the 0º polarity of OUTPUT-1.

	JX44 OUTPUTS	EFFECT PEDAL	AMPLIFIER	SPEAKER DIRECTION
OUTPUT-1 POLARITY	+ **0º**	No Pedal Here	+ **0º**	→
OUTPUT-2 POLARITY	+ **0º**	− **-180º**	− **-180º**	←

The polarity of output-2 is inverted by an effect pedal causing its amplifier to push the speaker in an opposite direction. Depressing the 180º switch for output-2 will correct the problem.

PART 3: PROGRAMMING BANKS

Up to this point we have been operating the JX44 in MANUAL mode. Although many players will likely enjoy the “on the fly” flexibility of manual mode the JX44 and JR5 also allow the amplifier outputs to be programmed into four banks. After the banks are programmed and written to the non-volatile memory they can be recalled as needed. The major benefit of BANK mode is quick switching between multiple amps. For instance, you can transition from a single amp to a multi-amp setup with a single foot stomp.

It’s important to note that both the JX44 and JR5 have their own on-board memory where the bank is stored. Banks programmed using the JX44 can only be recalled by the front panel OUTPUT controls *(Fig.26)*. Banks programmed using the JR5 can only be recalled by the footswitches *(Fig.27)*.

This next section explains how to program and save banks using the JX44. We will discuss BANK mode using the JR5 later but for the most part the information applies to both and the programming process is largely the same.

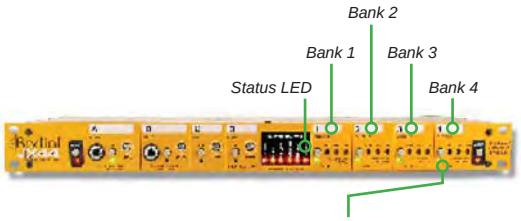


Fig.26 - JX44 BANKS: Hold down front panel MUTE switch for 3 seconds to enter JX44 bank mode.

BANK MODE

To enter bank mode and recall banks stored in the JX44 you simply hold down the front panel MUTE switch for three seconds. The STATUS-A LED in the SYSTEM MONITOR will illuminate indicating BANK mode is active. The four amplifier output ON buttons are used to recall banks from the JX44’s internal memory *(Fig.28)*.

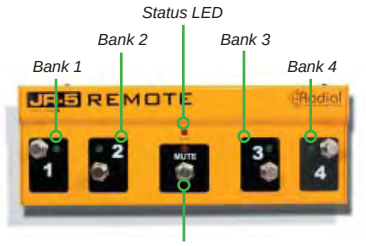


Fig.27 - JR5 BANKS: Hold down MUTE footswitch for 3 seconds to enter JR5 bank mode.

At any time either device can be returned to MANUAL mode by holding the MUTE switch again for 3 seconds. The STATUS LED will turn off to indicate manual mode. If the power is disconnected the JX44 and JR5 will revert to manual mode the next time power is applied.

The BANKS have been factory programmed as follows:

- *Bank 1 - Amp 1*
- *Bank 2 - Amps 1 & 2*
- *Bank 3 - Amps 1, 2 & 3*
- *Bank 4 - Amps 1, 2, 3 & 4*

PROGRAMMING BANKS WITH THE JX44 FRONT PANEL CONTROLS

STEP 1: Enter programming mode by holding down the MUTE switch for 8 seconds. The mute LED will flash in a quick succession to indicate programming mode is active. Release the MUTE switch.

STEP 2: The mute LED and the amplifier output LEDs will guide you through the programming process. The mute LED will flash **ONCE** every few seconds to indicate you are programming **BANK-1**. Select the outputs you want with the front panel ON switches. Their LEDs illuminate to display the active amps. When finished selecting amps press the MUTE switch to write BANK-1 to memory.

STEP 3: The mute LED will now flash **TWICE** every few seconds to indicate **BANK-2** is ready for programming. Select the amp outputs you want active and hit MUTE to write it to memory BANK-2.

STEP 4: The mute LED now flashes **THREE** times indicating **BANK-3** is ready. Select amp outputs and hit MUTE to write it to memory BANK-3.

STEP 5: The mute LED now flashes **FOUR** times indicating **BANK-4** is ready. Select amp outputs and hit MUTE to write it to memory BANK-4.

Each time you depress the MUTE switch the JX44 will advance to the next memory bank. The output LEDs display the active outputs and the MUTE LED indicates the bank by the number blinks. Cycle through the four banks and check that they are setup to your liking.

STEP 6: When satisfied, exit programming mode by holding down the MUTE switch for 3 seconds. The mute LED will flash in a quick succession. Release the MUTE switch and the system enters BANK mode. To recall the banks 1 thru 4 simply depress the front panel output ON switches.

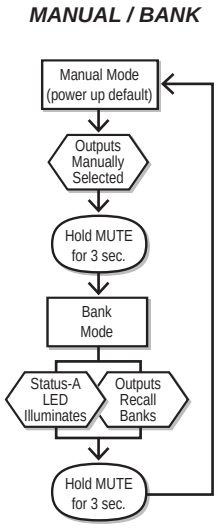


Fig.28 - Toggling between MANUAL and BANK modes.

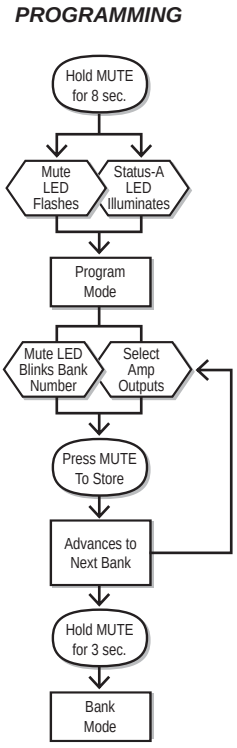


Fig.29 - Steps for programing banks.

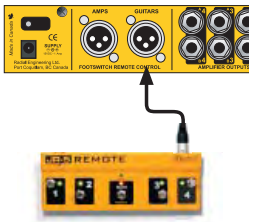
RADIAL JR5 REMOTE FOOTSWITCH

The optional Radial JR5 remote footswitch can be used with the JX44 to select instrument inputs or amplifier outputs. When selecting amplifier outputs the JR5 can operate in MANUAL or BANK modes. Two JR5 footswitches can connect at the same time allowing you to control both inputs and outputs at once.

This heavy duty foot controller features five footswitches with LED indicators that will coincide with the JX44 front panel indicators thus providing the on-stage performer and guitar tech with the same visual cues. The JR5 connects to the JX44 using standard XLR mic cable. No local power supply is required because the JR5 derives its power through the XLR cable from the JX44. Once connected the JR5 will automatically configure the footswitches for either inputs or outputs depending on the remote port it is connected to.

USING THE JR5 ON THE GUITAR PORT TO SELECT INPUTS

Connect the JR5 to the GUITARS remote control port on the back of the JX44. After a few moments the JR5 will configure itself to select instrument inputs. Like the front panel controls, **instrument selection is exclusive whereby only one input may be active at a time**.



Selects Instrument Inputs

An instrument input can be muted by depressing its footswitch a second time, the footswitch LED will flash and the MUTE LED on the JR5 will illuminate to indicate the input is muted. To restore the input hit the footswitch again or choose a different instrument. Note that when connected to the GUITARS remote port the JR5's center MUTE footswitch is ignored as its function is redundant.

USING THE JR5 ON THE AMPS PORT TO SELECT OUTPUTS

Connect the JR5 to the AMPS remote control port on the back of the JX44. The JR5 will automatically configure itself to select amplifier outputs. Like the front panel controls, **selecting amps is inclusive whereby you can have any or all amps on at the same time**.

Selects Amplifier Outputs

The center MUTE footswitch duplicates the front panel control. Both switches can be used to toggle the MUTE function and their LED indicators sync together to display current mute status at both locations.

RECALLING BANKS

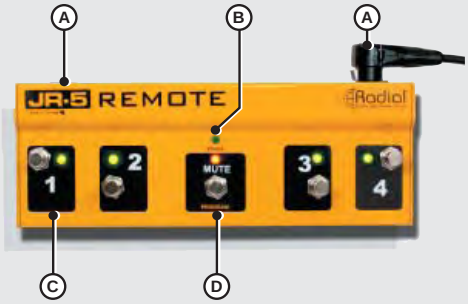
Besides manually controlling the JX44 amplifier outputs, the JR5 also has the ability to program and store its own set of four banks when connected to the AMPS remote port. To enter BANK mode hold down the JR5's center MUTE footswitch for three seconds. The STATUS LED (on the JR5) will illuminate indicating BANK mode is active. The footswitches 1 thru 4 are used to recall the banks from the JR5 internal memory. You can return to MANUAL mode at anytime by holding the MUTE footswitch down for three seconds until the STATUS LED turns off.

PROGRAMMING BANKS WITH THE JR5 FOOTSWITCH

Programming the JR5 footswitch uses the same process as programming the JX44 except the footswitches are used instead of the front panel controls and the banks are written to the JR5 internal memory.

- Hold MUTE footswitch for 8 seconds.
- MUTE LED indicates the bank by the number of blinks. Select amplifier outputs using the footswitches 1 thru 4. Hit MUTE footswitch to write the bank to memory and advance to the next bank.
- Repeat until all four banks are setup and stored.
- When finished holding down the MUTE footswitch for 3 seconds will cause the JR5 to enter BANK mode. Use the JR5 footswitches to recall the banks.

FEATURES AND FUNCTIONS



A. XLR JACK (x2) - The JR5 uses standard XLR mic cables up to 100 meters (300 feet) to connect to the JX44. Dual parallel XLR jacks allow the control cable to exit at either side for the most flexible pedalboard arrangement.

B. STATUS LED - Illuminates when the JR5 is set to BANK mode. Flashes when a switch is depressed to confirm the command.

C. FOOTSWITCHES 1 thru 4 - Heavy-duty stomp switches with LED indicators are used to select guitars, amps and recall scenes from BANK memory.

D. MUTE FOOTSWITCH - Duplicates the front panel mute function on the JX44 when connected to the AMPS remote port. Also used to program the JR5's banks.

DUAL MEMORY BANKS

Because the JR5 memory bank is separate from the banks stored in the JX44 you can have combinations of manual and bank modes between the JX44 and the JR5.

For instance, the JR5 could be operating in BANK mode while the JX44 operates in manual mode. This would allow you to recall four banks with the JR5 footswitches while the JX44 front panel controls are used to temporarily add or subtract amps. It works the other way too with the JX44 in BANK mode and the JR5 manually modifying the amplifier outputs on the fly.

Of course you can have both units in BANK mode and recall eight scenes using the four footswitches and four front panel controls. Set up this way you could program each device identically and have the same banks available with either device. The artist or their guitar tech could access the same banks from either location.

PART 4: USING THE ADVANCED FEATURES

USING THE LOCAL EFX LOOP

This buffered effects loop is intended to drive effects located near the JX44 including rackmount processors, effect pedals and loop switchers. Connections are made at the ¼" SEND and RECV (receive) jacks on the rear panel *(Fig.30)*. Once connected the EFX LOOP is assigned to an amplifier output by depressing one or all of the four recessed EFX switches on the front panel. The following examples will help you to understand how the effects loop can be implemented in your system.

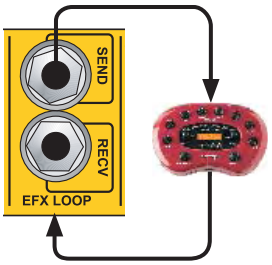
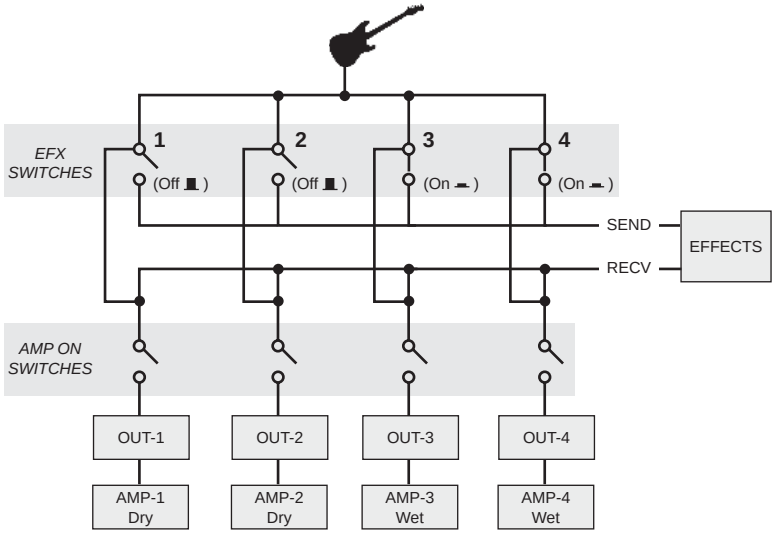


Fig.30 - SEND and RECV jacks on the rear panel.

EXAMPLE 1: DRY AND WET AMPS

The basic application for the EFX LOOP is to insert effects into the signal chain and assign them to amplifier outputs. In this first example amps-1 and 2 are used without effects for rhythm sounds (dry) while amps-3 and 4 are used with effects for soloing (wet). This yields several combinations of wet and dry amps that you can select manually or program as a BANK *(Fig.31).*



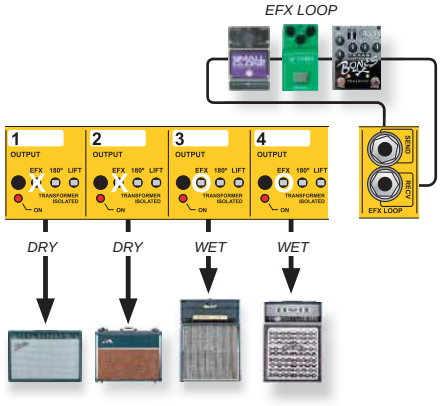
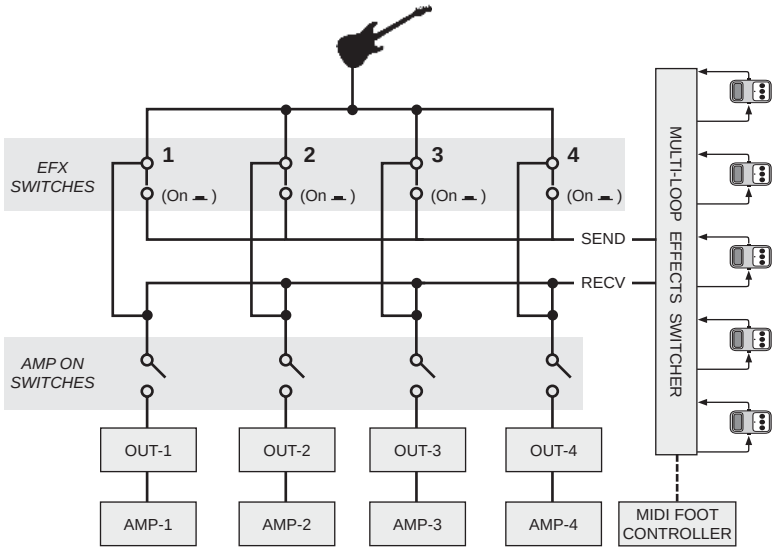


Fig.31 - The first two amps are used without effects for dry rhythm sounds. The other two amps are used with the EFX LOOP for wet leads and special effects.

EXAMPLE 2: ACCESS POINT FOR MULTI-LOOP SWITCHER

The basic setup may be expanded by connecting an effects loop switcher to control effect processors or a rack-drawer full of pedals *(Fig.32)*. In such a setup the EFX LOOP is assigned to all the amplifier outputs and the loop switcher handles the selection and bypassing of effects.



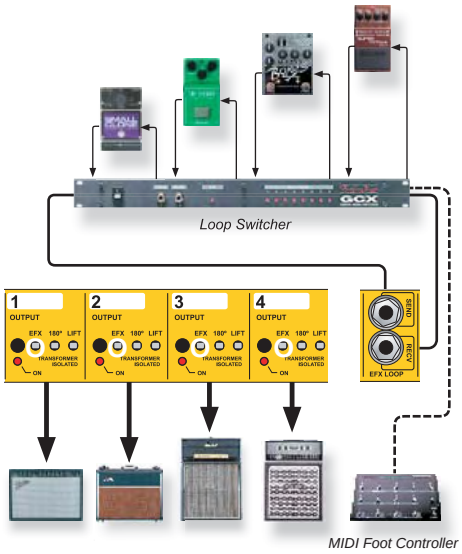
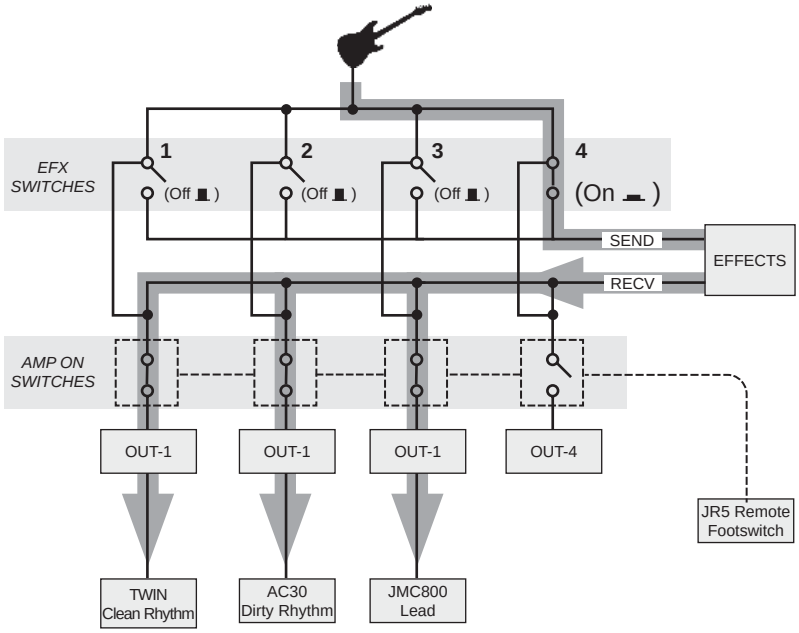


Fig.32 - All amp outputs are assigned to the EFX LOOP. This provides an access point for a multi-loop switcher and MIDI foot controller.

EXAMPLE 3: REMOTE CONTROL EFFECTS USING JR5 FOOTSWITCH

With this approach the first three outputs are connected to the amps and the fourth is used to control the effects loop *(Fig.33)*. To set this up all you need to do is depress the EFX switch for OUTPUT-4 only. This will make OUTPUT-4 act like a master effects switch for the other amplifier outputs. The JR5 footswitch makes this setup practical for live performance by giving you remote control of the amps and effects. This setup works equally as well in either manual or bank modes. Manual mode would allow for selection of amps and effects at will while bank mode could be used to recall four different combinations of amps and effects.



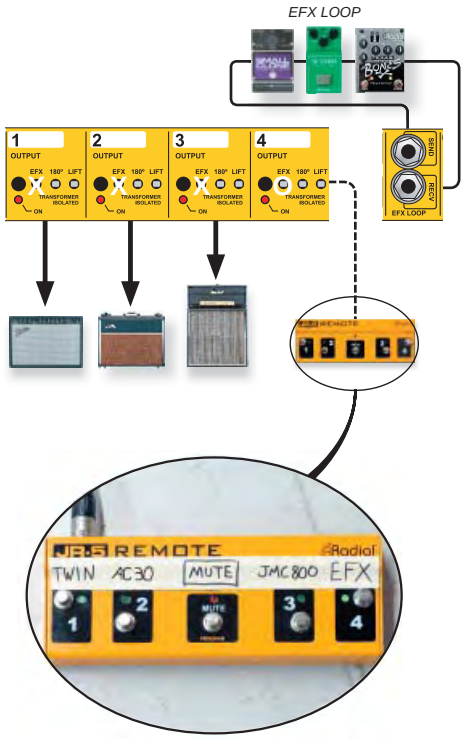
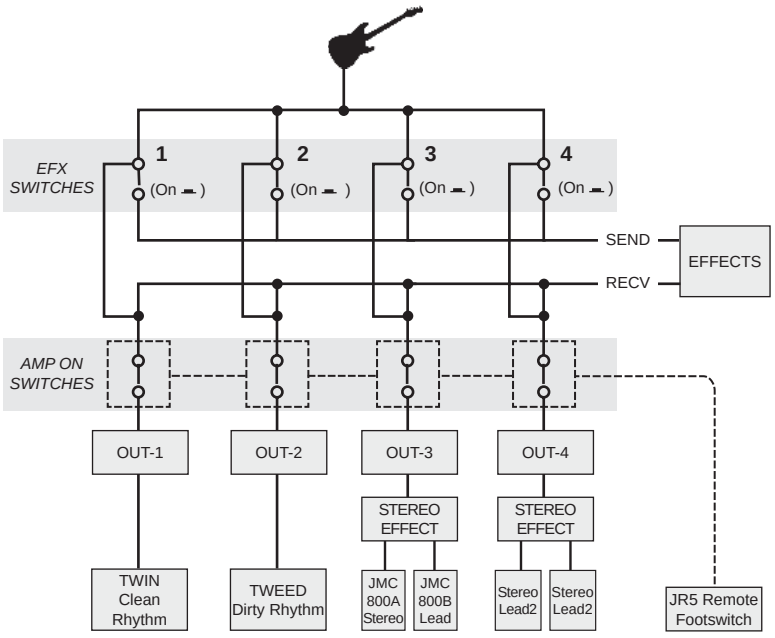


Fig.33 - The JR5 remote footswitch is ideal for this application allowing hands free control of amps and effects.

EXAMPLE 3: CONNECTING EFFECTS AT THE AMPLIFIER OUTPUTS

Here the EFX LOOP connects pedals used by all the amps like your favorite wah-wah or overdrive. At the same time you can dedicate a specific effect to a particular amp by placing it in-line between the JX44 and the amp. In this example we combine effects in the EFX LOOP with in-line effects at the amplifier outputs *(Fig.34)*. This type of setup can take advantage of the dual jacks on OUTPUT-3 and 4 to connect a stereo effect which can drive two amps in stereo. The diagram below is just one way this setup could be organized.



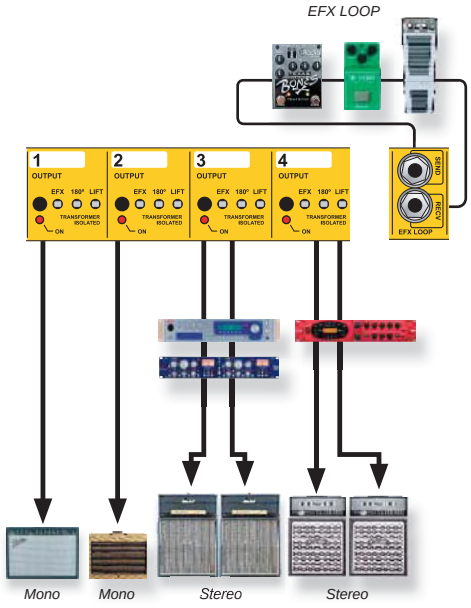


Fig.34 - Setup employs the EFX LOOP as well as dedicated effect processors on the amplifier outputs.

RADIAL SGI-44 BALANCED GUITAR INTERFACE

When used in combination with the JX44 the optional SGI-44 can either be used as a bi-directional long haul effects loop or as a single ended driver from a guitar to the JX44 and your amps. Balanced audio connections between the JX44 and SGI-44 allow distances up to 100 meters (300 feet) using standard XLR mic cable. This is accomplished using a proprietary hybrid active drive circuit with Jensen transformer isolation to transfer the signal between units without introducing noise or signal loss.

A recessed DRAG control is provided at the SGI-44 input allowing for the most natural tone when driving the JX44 directly from a guitar. As an added convenience, the SGI-44 is equipped with a buffered tuner output. Connecting your tuner here will remove it from your signal chain to prevent digital clock noise from bleeding into your guitar sound.

HOW IT WORKS

When active, the SGI LOOP on-board the JX44 is global to all instrument inputs. The SGI interface converts instruments to a proprietary balanced low impedance signal. The converted signal is then output at the TX (transmit) jack on the back of the JX44.

The SGI-44 receives the signal at its RX (receive) jack and converts it to unbalanced high impedance for connection to effect pedals. The hi-Z output from the pedals is connected back to the SGI-44 where it is re-converted to a balanced low impedance signal and returned to the JX44 to complete the SGI LOOP *(Fig.35)*. In the block diagram below you can see the SGI LOOP is inserted in the signal path after the inputs and before the local EFX effects loop.

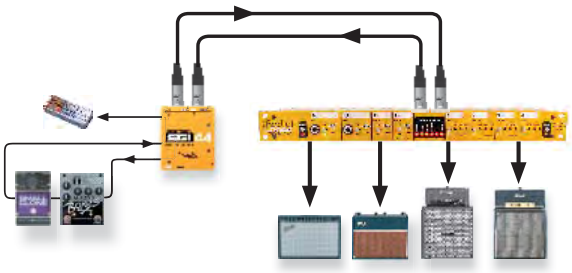
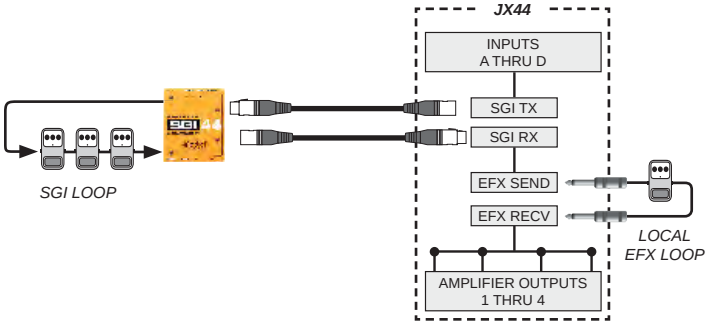


Fig.35 - The complete SGI LOOP.



USING THE SGI-44

Begin by connecting the included 15VDC power supply to the SGI-44. The power connection includes a cable clamp feature to prevent accidental power loss. Loosen the clamp screw, loop the power cable through and re-tighten so it looks like the photo below. Once connected the POWER LED will illuminate.

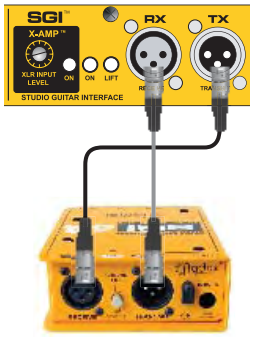
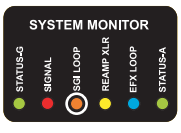


Fig.36 - Balanced XLR connections between the JX44 and SGI-44.

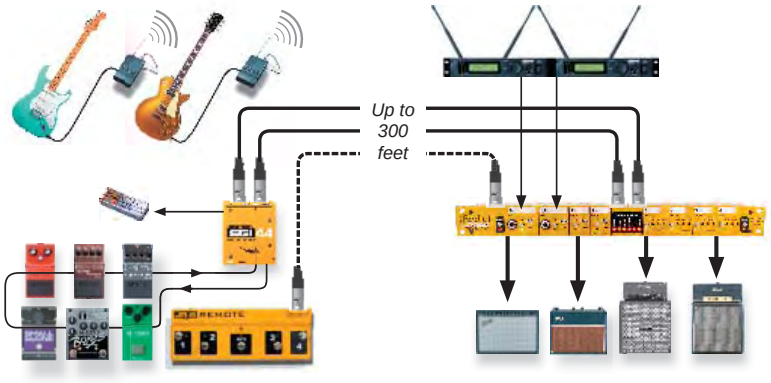
Next, make the balanced connection between the JX44 and the SGI-44 using good quality XLR mic cables. The TX (transmit) output from the JX44 connects to the RX (receive) input on the SGI-44 *(Fig.36)*. Connect your effect pedals to the SGI-44's ¼" hi-Z guitar jacks *(Fig.37)*. Finally, connect the TX output from the SGI-44 to the RX input on the JX44 to complete the loop.



Once the loop is connected depress the ON switch located in the SGI section of the rear panel. The SGI LOOP LED in the SYSTEM MONITOR illuminates when the interface is active. Both the on-board SGI and the SGI-44 are transformer isolated to eliminate noise caused by ground loops. If you hear hum or buzz after connecting try toggling the LIFT switches on the SGI-44 and on the rear panel of the JX44 at the SGI section. If you don't hear your pedals double check your connections.

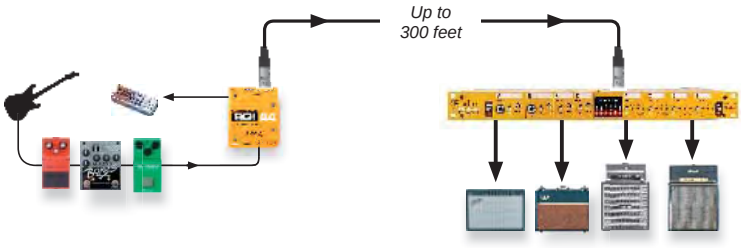
Fig.37 - Hi-Z guitar, effect and tuner connections.

EXAMPLE 1: WIRELESS GUITAR AND LONG HAUL PEDALBOARD
In this application the JX44 is located near the player's wireless receivers and guitar amplifiers. The SGI-44 and JR5 reside on the player's pedalboard. The signal starts at the guitar through the wireless link to the receiver. From the receiver it flows into the JX44 inputs. At this point the SGI LOOP circuit sends the signal out to the pedals and back again via the SGI interface. The artist can enjoy the freedom of the wireless guitar and have their pedals out front at their feet along with the JR5 to control amps.

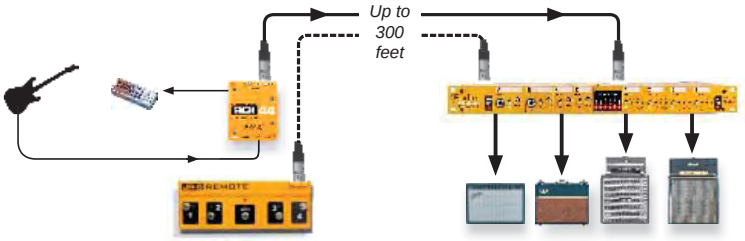


EXAMPLE 2: REMOTE AMPS IN THE STUDIO
Playing guitar in the control room while recording your amps out in the studio can be particularly advantageous. It allows you to hear the guitar sound exactly as it will be recorded over the studio monitors. To accomplish this, connect your guitar to the SGI-44 ¼" guitar input and make a single balanced connection from the SGI-44 to the to the RX jack on the back of the JX44 using an XLR mic cable. In the control room the SGI-44 lets you connect effect pedals and tuners. In the studio the JX44 receives the SGI signal and drives the amplifiers.

Connecting is easy because the SGI interface uses balanced XLR connections that are 100% compatible with studio patchbays and tie lines. You can take this setup one step further and add the JR5 footswitch for selecting the amps remotely from the producers chair.



EXAMPLE 3: LONG HAUL PASSIVE GUITAR CONNECTION
The SGI-44 is ideal for the purists who prefer a real cable over a wireless system to make a long distance connection between the guitar and the JX44. The Radial class-A driver and DRAG control combine forces allowing you to dial in the tone that sounds the most natural despite the long cable run. Add the JR5 footswitch and you can control your setup remotely from the base of your vocal mic stand.



SGI-44 FEATURES AND FUNCTIONS

A. RECEIVE - Female XLR receives a proprietary balanced signal from the JX44's SGI-TX output.

B. LIFT - Disconnects the pin-1 ground at the RECEIVE XLR to reduce noise from ground loops.

C. TRANSMIT - Male XLR transmits a proprietary balanced signal to the JX44's SGI-RX input.

D. CABLE CLAMP - Prevents accidental power disconnect.

E. POWER - Connection for the included 15VDC power supply.

F. TUNER OUTPUT - Separately buffered 1/4" high impedance output for electronic tuner.

G. DRAG™ - Load correction function for passive pickups.

H. POWER LED - Indicates the power supply is connected.

I. INPUT - 1/4" jack receives signal from the output of your effects or guitar.

J. OUTPUT - 1/4" jack sends signal to the input of your effect pedals or amp.

USING THE DIRECT OUT

The JX44 is equipped with a balanced mic-level direct box designed to interface with professional recording and PA systems. This direct box features an active Class-A buffer with transformer isolation for wide bandwidth and immunity to noise caused by ground loops. Instrument inputs can be assigned to the DI output in two different ways. One way would be to assign a specific instrument such as an acoustic guitar to the DI output. Another would be to assign all instruments to the DI for re-amping or simply to send all instrument signals to the PA system. The GTR switch *(Fig.38)* is used to select which instrument inputs are assigned to the DI output. Examples are discussed below.

SETTING UP

Connect the DIRECT OUT to a mixing console using a balanced XLR mic cable. Keep in mind the **DI out is a microphone-level output** and should be connected to the mic input of a mixer. If, after connecting, you hear hum or buzz try toggling the ground LIFT switch. This usually eliminates noise caused by ground loops.

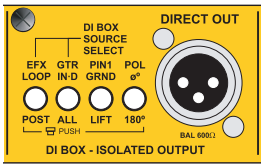


Fig.38 - Controls and balanced XLR output jack for the direct out.

A 180° polarity reverse switch can be employed to correct signal phase problems. For example, if you are recording guitars using the DI output along with a microphone to capture the amp and speaker tone, the polarity switch can help bring the DI signal into phase with the mic. Alternatively, if you are experiencing feedback from stage monitors when playing an acoustic guitar you can try reversing the DI polarity with the 180º switch. One setting may produce better gain before feedback, depending on where you are standing in reference to the monitors, stage amp, and PA speakers.

You can assign the local effects loop to the DI out using the EFX LOOP switch. In the outward position (Pre-EFX ▮) a dry signal without effects would be sent to the PA allowing FOH tech to mix using a clean signal. Set to the inward position (Post-EFX ▁) a wet signal with effects could be used instead. Effects will be routed to the DI when an amplifier output assigned to the EFX LOOP is active.

EXAMPLE: ACOUSTIC GUITAR TO THE PA (Fig.39)

This example shows three electric guitars and one acoustic. The acoustic guitar (INPUT-D) is exclusively assigned to the DIRECT OUT for the purpose of sending its signal directly to the PA system *(Fig.39)*. This is accomplished by setting the GTR switch to the outward position (IN-D ▮). Set this way, INPUT-D will always appear at the DIRECT OUT even if it is turned off at the front panel. At any time, the guitarist could also send the acoustic to the amplifiers via the front panel controls or JR5 remote footswitch.

EXAMPLE: FOUR ACOUSTIC INSTRUMENTS (Fig.40)

This example shows four acoustic instruments such as guitars, fiddle, and mandolin *(Fig.40)*. Unlike example-1, this setup would assign all instruments to the DI by setting the GTR switch to the inward position (ALL ▁). This will allow the PA system to reinforce the acoustic instruments and the player can turn on stage amps at will via the front panel controls or JR5 remote footswitch. Effects connected to the local EFX LOOP could also be routed to the DI and turned on and off via the amplifier output controls.

EXAMPLE: ELECTRIC AND ACOUSTIC BASS GUITARS (Fig.41)

Bass guitar is usually sent to both stage amps and the PA system. By setting the GTR switch to the inward position (ALL ▁), the PA will receive the bass signal from the DI out no matter which instrument is being used *(Fig.41)*. Again, the bassist can turn on or off his stage amps and engage effects at will via the front panel controls or JR5 remote footswitch.

EXAMPLE 4: RECORDING ALL INSTRUMENTS (Fig.42)

This setup would be used as the first step for re-amping. The DI OUT is connected to a multi-track recorder for the purpose of recording a dry track (no effects or distortion) during a live concert *(Fig.42)*. The dry track preserves the excitement of the original performance and it can be used later in post production to re-amplify guitar tracks through the X-AMP interface as described later in this manual. To accomplish this the GTR switch is set to the inward position (ALL ▁) so all the instrument signals are routed to the DIRECT OUT.

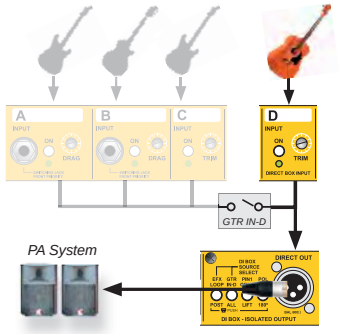


Fig.39 - INPUT-D exclusively assigned to the DIRECT OUT for sending an acoustic instrument to the PA.

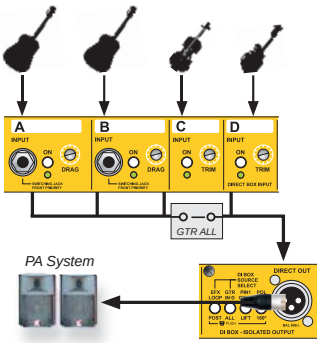


Fig.40 - Four acoustic instruments are assigned to the DIRECT OUT and sent to the PA.

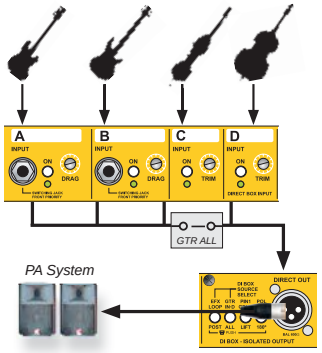


Fig.41- Four basses, both electric and acoustic are assigned to the DIRECT OUT and sent to the PA.

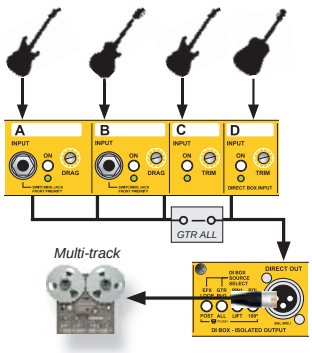


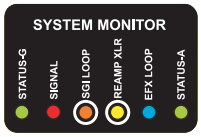
Fig.42 - All instrument inputs are assigned to the DIRECT OUT to record a dry track for re-amping.

USING THE X-AMP (RE-AMPING)
Another handy feature on the JX44 is the built-in X-Amp. The X-Amp is a re-amplifing interface that allows you to take a pre-recorded track and send it through the JX44 to drive your effects and amps. The advantages of re-amping are many:

- Re-amping guitar parts in post production is a way to overcome the technical limitations of live recording. Tracks that are unacceptable because of background noise, clipping, or just plain poor tone can be replaced.
- The artist can concentrate on recording the best possible performance and worry about the tone later.
- The engineer and producer can try different amplifiers and sounds without tiring out the player with relentless repetition. The X-AMP never needs to 'take five'.
- A variety of guitar effects and amplifiers can be auditioned in the control room over the studio monitors allowing the engineer to hear the sound exactly as it is recorded.
- As the song is built up track by track, new or alternate tonal structures can be created on the fly to better suit the production as it evolves. You can re-amp right up to mix-down before committing the sound to a track.

HOW IT WORKS
Re-amping begins by recording a dry track from the JX44's DIRECT OUT to a multi-track recorder. This could be done during a live performance or right in the studio during basic tracks. Afterwards, the dry track is sent from the multi-track back to the JX44 using the X-AMP's XLR input. The X-AMP interface converts the +4dB low-Z balanced line-level signal from the multi-track to a hi-Z instrument-level, allowing the multi-track to drive the amps and effects just like a guitar would.

SETTING UP
Use an XLR mic cable to connect the output of your recording system to the SGI-RX jack on the rear panel. This XLR jack is shared by the X-AMP and SGI interface to save space. After connecting, depress the ON switch at the rear panel for **both the SGI and X-AMP**. The SGI LOOP and X-AMP LEDs in the SYSTEM MONITOR will illuminate. **Note that the JX44 inputs are disabled when the X-AMP is active.**



The SGI-RX input is transformer isolated to help eliminate ground loops between the recording equipment and the JX44. If you hear hum or buzz toggle the ground LIFT switch in the SGI section on the rear panel as this will further reduce noise.

Now route the dry track from the recording system to the balanced X-AMP input. From the JX44 set up your amps and effects and play the track. Set the recessed LEVEL control in the X-AMP section of the rear panel so the amps produce the same amount of gain or drive as your guitar does. Use a guitar pick to turn the recessed control on the rear panel until it sounds right to you. Set up microphones for the amps and you're all set to re-record the dry track through your amps to a new track on your recording system.

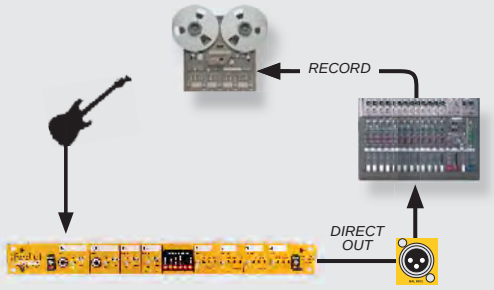
EXAMPLE: FIXING LIVE TRACKS IN POST PRODUCTION
Re-amping was born decades ago in the studio as a production technique. With a little forethought you can employ it to make your live recordings better too. Recording a dry track of all your instruments during a live concert performance allows it to be used later in post production to overdub or even replace guitar tracks recorded during the concert. When replacing a live track with a re-amped track, the most important part is to set up the same effects, amps and mics used during the live performance. This will help match the tone of the live tracks.

There is a lot to experiment with when it comes to re-amping as anyone who's done it will attest to. Just remember to emerge once in a while to eat.

RE-AMPING PROCESS

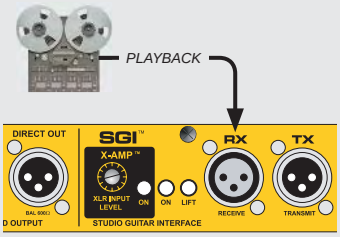
1. RECORD DRY TRACK

• Record a dry track using the DIRECT output.



2. MAKE CONNECTIONS

• Route multi-track output to X-AMP input.

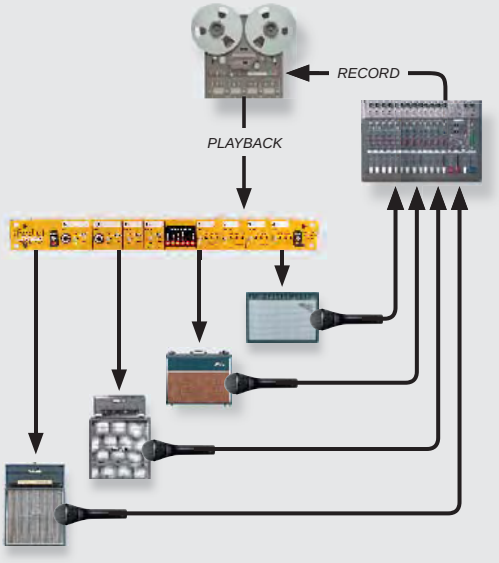


3. RECORD NEW TRACKS

• Setup the JX44 with effects and amps.

• The multi-track drives the amps via the X-AMP.

• Record the results to new track(s).



FREQUENTLY ASKED QUESTIONS

Q: Can I connect my guitar through an effect pedal to the JX44?
A: Yes. The inputs and outputs of the JX44 are unity gain so you can place effects before and after the JX44.

Q: Can I use the JX44 with a bass guitar?
A: Yes. Not only bass but also acoustic guitar, pedal steel, mandolin, fiddle, string bass, or any instrument with a pickup and a high impedance output.

Q: Can I connect a piezo contact pickup directly to the JX44?
A: No. For the best sound use an active preamp such as the Radial PZ-Pre. Its piezo preamp brings the signal level from the piezo element up to typical instrument level of most electric instruments.

Q: Is the JX44 as good as the JD7 for recording?
A: Yes. The JX44 uses our proprietary Class-A signal path along with high quality transformers and Drag™ control as found in the JD7 giving it the same excellent sound quality. The additional SGI and X-AMP features make it an excellent creative device for the studio.

Q: Can the JR5 remote control both inputs and outputs?
A: Yes. You'll need two JR5 footswitches. One connects to the GUITARS remote jack. A second JR5 connects to the AMPS remote jack. This allows the two JR5 footswitches to be in different locations. For instance, one JR5 could be located downstage for the artist to select amps while the technician controls instrument selection with a second JR5 from the backline.

Q: Can I use the JX44 in a stereo setup?
A: Yes. A stereo setup could take different forms depending on what other components you would like to incorporate. You could use the dual OUTPUT-3 and 4 jacks to connect a stereo processor and drive two amps or the PA system with a stereo signal.

Q: Can the JX44 integrate into a MIDI controlled guitar rig?
A: Yes. While the JX44 is not designed to accept MIDI commands directly, the EFX LOOP acts as an audio access point for a MIDI effects loop switcher.

Q: Can I control the EFX LOOP by footswitch?
A: Yes. You can assign one of the four amplifier outputs as a master effects switch and turn the effects loop on and off with the JR5 remote footswitch.

Q: How far away can the JX44 be from the amplifiers?
A: The amplifier outputs on the back of the JX44 are buffered and low impedance for driving long unbalanced cables up to 15 meters (50 ft.) without significant signal loss. Cables with good shielding should always be used with the JX44.

Q: How does the JX44 store the programmed banks?
A: The JX44 uses flash memory to store the amplifier scenes you program. There is no battery to replace and banks are stored indefinitely even when the power is disconnected.

Q: Why are there two XLR jacks on the back of the JR5?
A: These are parallel connections that can make arranging your pedalboard more convenient by allowing the control cable to exit at either side. Choose the one that best fits your pedalboard. Alternatively the JR5 could connect and control two JX44 units for an extra large or stereo rig.

TROUBLE SHOOTING

1. No Power:
   - Check the power connection on the rear panel. Use the cable clamp to prevent accidental disconnect.
   - Ensure the power supply is plugged into a working outlet.

2. No sound at amplifier outputs:
   - Check the front panel LED indicators and ensure an instrument input and amplifier output are selected.
   - Ensure the MUTE function is not active.
   - Check the SIGNAL LED in the SYSTEM MONITOR. If the LED is not flashing when you play your guitar, signal is not getting to the inputs. Check your cables and connections from the guitar to the JX44 input.
   - Look for the SGI LOOP LED in the SYSTEM MONITOR. If this LED is illuminated and you are not using SGI-44 the signal will be interrupted. Turn the SGI LOOP off at the rear panel.

3. The amplifiers are making a loud humming noise:
   - Depress the four recessed LIFT switches for outputs 1 thru 4.
   - Swap out the cables between the JX44 and the amp.
   - Plug all your amps and effects into the same power bar to minimize ground loops.

4. Some guitars are louder than others:
   - Louder instruments with active preamps or wireless systems should be connected to INPUT-3 and 4 where the TRIM controls can be used to reduce levels to match quieter instruments.

5. Sound is distorted:
   - The JX44 inputs are designed for electronic instruments. Ensure the inputs are not being over-driven by a line-level preamp, wireless or effect pedal. For instance, some wireless receivers can be set up to output line-level signals that may saturate the output transformers.

6. Turning on more than one amp does not increase the volume:
   - Ensure the 180° polarity controls for OUTPUT-1 thru 4 have been properly setup. See the "Setting up Guitars and Amps" section.

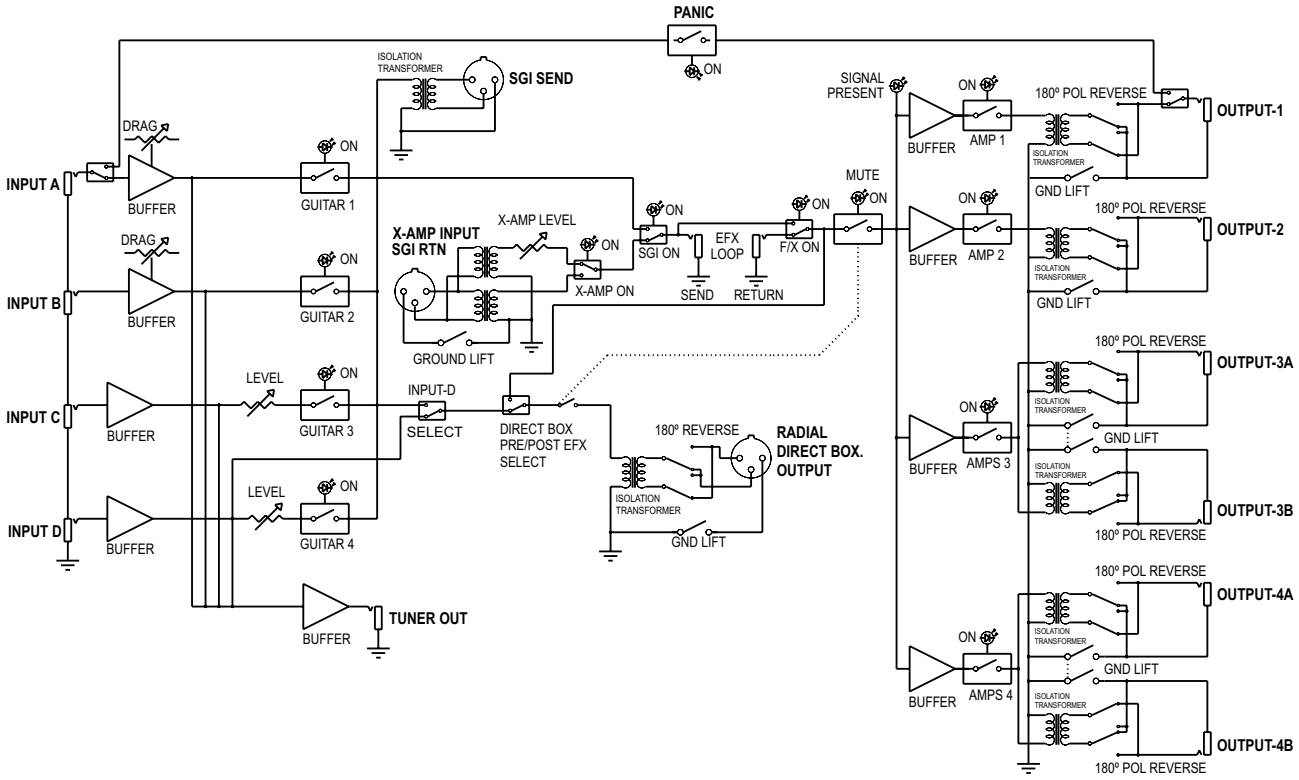
7. No sound when using the SGI-44:
   - Check for the SGI LOOP LED in the SYSTEM MONITOR. If not illuminated turn the SGI interface on at the rear panel switch.
   - Ensure the power supply is plugged into a working outlet and connected to the SGI-44. The cable clamp can prevent accidental disconnect.
   - Check your cables and connections between your pedals and the JX44 SEND and RECV jacks.

8. No effects can be heard:
   - Check the EFX LOOP LED in the SYSTEM MONITOR. If not illuminated turn on an amplifier output assigned to the effects.
   - Check your cables and connections between your pedals and the JX44 SEND and RECV jacks.

9. No sound or bad sound when using the X-AMP:
   - If there is no sound check the SGI LOOP and RE-AMP (X-AMP) LEDs in the SYSTEM MONITOR. If not illuminated turn the SGI and X-AMP on at the rear panel switches.
   - If sound is distorted turn the X-AMP level control down or reduce the level coming from the source such as a mixing console.
   - If there is a loud hum depress the LIFT switch in the SGI section of the rear panel.

10. The JR5 footswitch is not working properly:
    - Disconnect the power to the JX44. When power is re-connected the microprocessor will boot up and restore normal operation.

SPECIFICATIONS & BLOCK DIAGRAM



JX44 SPECIFICATIONS

Circuit Type:	Radial proprietary Class-A signal path
Instrument Inputs:	4 x ¼" Hi-Z at rear panel 2 x ¼" Hi-Z front panel (paralleled with rear INPUTS-A and INPUT-B, front jacks have priority over rear) Inputs A & B have Drag™ control load correction Inputs C & D have trim control
Input Impedance:	Inputs A & B : variable w/ Drag™ from 10k - 1 meg Ohm; Inputs C & D : 1 meg Ohm
Amplifier Outputs:	6 x ¼" Hi-Z (unity gain) with 6 x Radial custom wound transformers for amp isolation
Tuner Output:	¼" Hi-Z buffered instrument level (unity gain)
Local Effects Loop:	Send ¼" Hi-Z output / Receive ¼" Hi-Z return (unity gain)
Remote Effects Loop:	2 x Jensen™ transformers for SGI & X-Amp input
Direct Output:	Class-A drive circuit with Radial custom wound transformer for isolation; 1 x XLR balanced 600 Ohm mic-level output; AES-3 pin (pin-2 hot) Frequency Response: 20Hz to 20kHz (+/-2.5dB) Harmonic distortion: 001% (20Hz to 20kHz) Phase distortion: 1 degree at 1Khz, 8 degrees at 20Hz

JR5 Remote Ports:	3-pin XLR remote control ports uses standard mic cables to connect the JR5 footswitch
Other Connections:	Remote control for the MUTE function: contact closure input for momentary non-latching footswitch
Power Supply:	15 VDC 1A center positive (two supplied)
Construction:	14-gauge steel with baked enamel finish
Dimensions:	JX44: 19" 1RU x 66" deep JR5 footswitch: 1025" x 275" x 2" SGI-44 interface: 425 x 5" x 2"
Weight:	JX44: 7.6 lb (3.44 Kg) JR5: 2.9 lb (1.32 Kg) SGI-44: 1lb (.450 Kg)
Warranty:	Radial 3-year limited transferable warranty

NOTES:

RADIAL ENGINEERING LTD.
3 YEAR TRANSFERABLE WARRANTY

RADIAL ENGINEERING LTD. (“Radial”) warrants this product to be free from defects in material and workmanship and will remedy any such defects free of charge according to the terms of this warranty. Radial will repair or replace (at its option) any defective component(s) of this product (excluding finish and wear and tear on components under normal use) for a period of three (3) years from the original date of purchase. In the event that a particular product is no longer available, Radial reserves the right to replace the product with a similar product of equal or greater value. To make a request or claim under this limited warranty, the product must be returned prepaid in the original shipping container (or equivalent) to Radial or to an authorized Radial repair center and you must assume the risk of loss or damage. A copy of the original invoice showing date of purchase and the dealer name must accompany any request for work to be performed under this limited and transferable warranty. This limited warranty shall not apply if the product has been damaged due to abuse, misuse,misapplication, accident or as a result of service or modification by any other than an authorized Radial repair center.

THERE ARE NO EXPRESSED WARRANTIES OTHER THAN THOSE ON THE FACE HEREOF AND DESCRIBED ABOVE. NO WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL EXTEND BEYOND THE RESPECTIVE WARRANTY PERIOD DESCRIBED ABOVE OF THREE YEARS. RADIAL SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSS ARISING FROM THE USE OF THIS PRODUCT. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH MAY VARY DEPENDING ON WHERE YOU LIVE AND WHERE THE PRODUCT WAS PURCHASED.

CAUTION: POTENTIAL FOR ELECTRIC SHOCK HAZARD

Caution must be used when connecting electronic equipment to the JX44. The JX44 bridges all electronic equipment connected together so faulty wiring or incorrect grounding of any of the equipment may pose a shock hazard and/or damage the JX44 or other connected equipment. The Radial JX44 is specifically designed for use with amplifiers with proper electrical safety grounds that have been approved by nationally recognized electrical authorities such as UL in the United States, CSA in Canada and other similar bodies in countries around the world. Using older “vintage” amplifiers that do not have 3-prong power plugs should be avoided.

It is the users full responsibility to ensure that proper electrical connections are maintained on all equipment connected to the JX44 and that proper electrical building codes have been followed wherever the JX44 is used. Damage to the JX44 or other connected equipment caused by improper connections is not covered under the warranty. Radial Engineering Ltd. takes no responsibility for how the JX44 is connected or used. Use of the Radial JX44 confirms you have read this caution statement and take full responsibility. If you are not 100% sure of your actions, please consult a qualified technician for advice before using this device or connecting any of your equipment to it.

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Radial JX44™ Owner’s Manual - Part #R870-1187-00 • V1.0
Specifications and appearance are subject to change without notice.

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