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JD7

Guitar Signal Distribution & Routing System

Owner's Manual

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JD7 owner's manual Part #: R870 1015 00

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Radial JD7 Owner's Manual

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CAUTION - PLEASE READ BEFORE CONNECTING ELECTRONIC DEVICES TO YOUR JD7

Caution must be used when connecting electronic equipment to the JD7. The JD7 bridges all electronic equipment connected to it so faulty wiring or incorrect grounding of any of the equipment may cause a shock hazard to be present and/or damage to the JD7 or other connected equipment. Because grounding schemes differ between manufacturers, it is important to check for correct polarity, in particular with older amplifiers using 2-prong ungrounded A/C cords. If the polarity is reversed on an ungrounded amplifier there may be a potential of 120V present between the amp chassis and ground. Radial Engineering takes no responsibility for this or how the JD7 is connected or used. It is the users full responsibility to ensure that proper electrical polarity is maintained on all equipment connected to the JD7 and that proper building and electrical codes have been followed wherever the JD7 is being used.

To reduce the opportunity for shock hazard or damage to the JD7 or connected equipment, plug the 1/4" connectors into the amplifiers first and then to the JD7. This is especially important when using old amplifiers that do not have 3-prong plugs as the possibility exists to touch the chassis ground with the connector plug tip when the plug is inserted into the jack.

Cautions for amplifiers with ungrounded 2-prong A/C cords: Before connecting any input to an ungrounded amplifier, power the amp up and listen to the residual hum. If the amp has a two-position ground polarity reverse switch, set the switch in the position that produces the least residual hum from the speakers. If there is no polarity switch, reverse the A/C plug at the outlet to find the least residual hum.

To ensure an ungrounded amplifier does not present a shock hazard: Test for voltage potential by connecting a voltmeter between the amplifier chassis and the JD7 chassis. If voltage is present, reverse the amplifier's A/C supply polarity and test again.

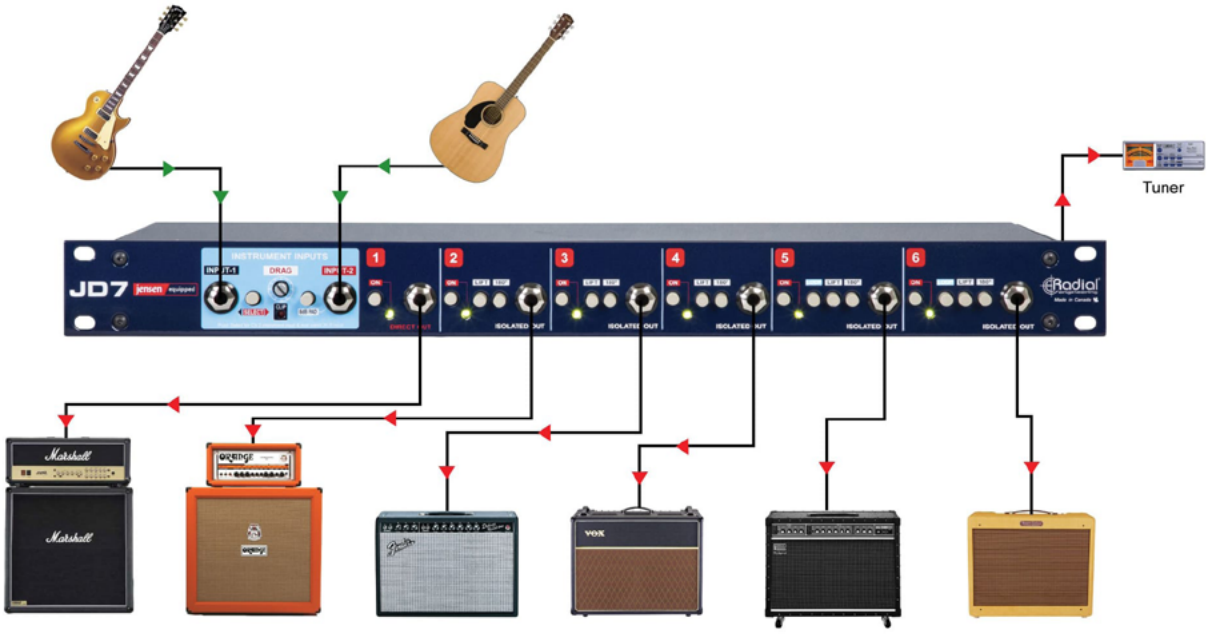
Note that due to this potential problem, damage to the JD7 or other connected equipment caused by improper A/C polarity is not covered under warranty.

INTRODUCTION

The Radial JD7 is a guitar signal distribution amplifier that has been optimized to retain the original sound of the instrument so that the connection is the same as if the guitar was plugged directly into the amp. The JD7 is also a unity gain device. This means that in terms of signal level, what you put in - you get out.

Once your guitar is connected to the JD7, you may route the signal to one or as many of the seven outputs as desired. A number of signal paths and combinations are available to match any application. For added flexibility, switchable effects device routing is available, as is a direct output for recording a clean guitar track to use for later Reamping purposes in the studio.

The JD7 is not limited to electric guitars; it may also be used with instruments such as bass, keyboards, acoustic guitars, or any other audio signal. The operative idea with the JD7 is to expand the creative process by taking full advantage of the equipment you already own.



FRONT PANEL FEATURES

1. **INPUT 1:** High impedance unbalanced ¼" input used to connect the guitar to the JD7.
2. **INPUT SELECTOR:** Selects between input 1 or input 2 (if connected) or the Reamp input on the rear panel.
3. **DRAG CONTROL:** Adjusts the load on the pickup for a more natural sound and feel.
4. **-8dB PAD:** Input level attenuator protects the JD7 against overload from high output instruments such as keyboards.
5. **INPUT 2:** High impedance ¼" jack used for a second guitar, equipped with priority switching jack.
6. **OUTPUT 1:** Primary output, used to ground the guitar to the JD7 via the first amp. Equipped with an on/off switch.
7. **OUTPUTS 2-4:** Transformer isolated outputs used to drive multiple amps. Equipped with on/off switch, ground lift to reduce noise and a 180° polarity reverse switch to phase-align amps.
8. **OUTPUTS 5-6:** Transformer isolated outputs used to drive multiple amps. Additionally equipped with individual effects loops with front panel bypass controls.

REAR PANEL FEATURES

9. **CABLE CLAMP:** Used to prevent accidental disconnection of the power supply.

10. **POWER:** Used to connect the external 15V power supply that comes with the JD7.

11. **EFFECTS LOOPS:** High impedance ¼" send and receive jacks designed to connect guitar pedals to outputs 5 and 6. Loops are activated via front panel insert switches.

12. **REAMP INPUT:** Accepts a balanced line-level signal and converts it to an instrument-level signal that can drive pedals and amplifiers via the JD7 outputs. Equipped with a ground lift switch to eliminate noise and a variable input level attenuator. Activated when Input-2 is selected and no cable is connected to the front panel Input-2 ¼" switching jack.

13. **DIRECT OUTPUT:** Transformer isolated direct box output used to record a dry track. Equipped with a ground lift to eliminate noise and a 180° polarity reverse switch to phase-align the signal.

14. **AUX OUTPUT:** Unbalanced ¼" TS output is always on. Primarily designed to drive a tuner but it may also be used to drive a 7th guitar amplifier.

GETTING STARTED: POWERING THE JD7

The JD7 features a rear-panel input with a cable lock for the included 15V 400mA power supply. Contact Radial Engineering before using any third party power supply as the correct voltage and connector polarity (center-pin positive) is required to prevent damaging the JD7. To affix your power cable securely to the JD7 and prevent accidental disconnection, simply unscrew the cable lock, pass the supply cable through the hole and tighten.

The JD7 has no power on/off switch: once it is connected to a power source, the unit will be ready for use and the front panel LED indicators for any active outputs will illuminate.

CONNECTING GUITARS AND AMPLIFIERS

Make sure all of the channel output switches are set to the 'off' position before making connections. Turn all guitar amplifier levels down to eliminate pops or clicks through your cabinets during setup. Caution must be observed when connecting older and non-grounded (2-prong) amplifiers. Please read the CAUTION notice at the beginning of this manual regarding equipment connection.

THE INPUT SECTION

The JD7 has two inputs, allowing a second guitar to be used without having to reconnect instruments. Input clipping is monitored with a red LED indicator. Under normal use, a typical electric guitar should not cause the LED to illuminate. If you have a very high input level and it does illuminate to indicate signal clipping, either turn down the level from the instrument or reconnect using Input-2. This second input features a switchable -8dB pad to reduce the sensitivity of this channel.

The JD7 input section

Input-2 provides two functions: it is used for connection to a second guitar, and also to access the rear panel Reamp XLR input. Input-2 is a switching jack with front panel priority: when a connection is made to the front panel ¼" input jack, it becomes active. When nothing is plugged into this input, the Reamp XLR input becomes active instead, allowing you to feed a prerecorded track into the JD7 for distribution to multiple amplifiers for studio Reamping. See the Reamping section later in this manual for additional details on how to use this feature.

Drag Control is a simple yet extremely effective musical function on the JD7 that allows you to simulate the way your guitar reacts when connected directly to your amplifier. This adjusts the input impedance on the instrument inputs to recreate the expected load on your instrument's pickups and result in a more natural tone. To start, set the Drag control to 12 o'clock. To add drag for a darker sound, turn this control counter-clockwise, and for a brighter tone, turn the control in the clockwise direction. This control has no plastic knob on it as it is designed to be dialed in during setup and then left alone during the performance or recording session.

AN IMPORTANT NOTE ABOUT GROUNDING

Since guitar circuits are high-gain and high impedance, RF noise, hum and buzz are easily induced. Connecting equipment with different grounding schemes often results in ground loops and more noise. The Radial JD7 addresses these problems by employing a floating ground architecture which requires an earth ground. This is accomplished via the Channel-1 output. Channel-1 provides an electrical ground from the JD7 chassis to the primary guitar or amplifier, therefore ensure you **always connect Channel-1 to a guitar amp with a 3-prong grounded A/C power cord** to enable a proper ground and eliminate noise from the system. If a Channel-1 connection is not desired, another ground path is necessary to minimize noise. This can be achieved by grounding chassis to chassis using a ground lug and wire attachment, for example connecting to one of the chassis assembly screws.

THE OUTPUT SECTION - OUTPUT-1

The ¼" output on Channel-1 is a direct output that connects to your main guitar amplifier. This output is not transformer isolated and is designed to provide the ground path for your guitar, so it should be the first connection you make when setting up the JD7. The front panel on/off switch maintains the ground connection while allowing you to cut signal to the connected amplifier.

Output 1 on the JD7

THE OUTPUT SECTION - OUTPUTS 2-6

Next to Channel-1 are five transformer-isolated output channels. These outputs feature premium Jensen transformers to ensure signal integrity and provide galvanic isolation to eliminate hum and buzz caused by ground loops. A ground lift switch is also available on each channel to allow JD7-to-amp grounding to be lifted at any output. Many older vintage amplifiers use the chassis as the neutral. These are often a source of noise when integrated within a system: lifting the ground can help reduce noise. A 180° polarity switch is provided to help phase align signals when combining mic'd amplifiers with direct output tracks.

Outputs 2-6 on the JD7

The rear panel Effects Loop connections

THE EFFECTS LOOPS - CHANNELS 5-6

Channel-5 and 6 are identical to channels 2-4, except they also feature their own switchable Effects Loop circuits that can be engaged when necessary. Connections for the effects loops are made on the back panel using standard ¼" instrument cables.

The SEND output feeds the JD7 input signal out to your pedals, while the RETURN jack connects to the output of your pedal effects. These rear panel connections are normalling jacks, so if nothing is connected to them the front panel LOOP switches will have no effect.

As the effects loop jacks are not transformer isolated, it is a good idea to power all your effects and the associated guitar amplifier for the channel using the same power bar. This will reduce susceptibility to induced noise from ground loops. The effects loop is designed to be used with standard guitar pedals. Using line-level effects processors such as those typically used with a mixer may require you to turn up the effect's input which could increase the noise floor.

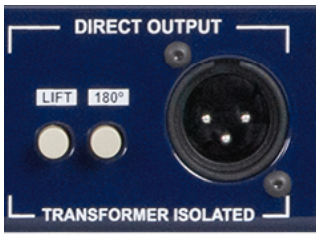
Using the effects loop is essentially the same as if you were connecting effects directly between your guitar and your amplifier. Begin by inserting the effects with the associated JD7 channel ON/OFF and LOOP switches set to the 'off' position. Test your guitar amp connection by turning on the channel output, then depress the LOOP switch to engage the pedal effects. Adjust the levels on your effects to unity gain to start with, so that the level coming out of the amplifier is the same whether the effects loop is in our out of the circuit path. You can always increase the levels on your effects later as needed.

THE AUX OUTPUT - CHANNEL-7

The Aux output

The Aux Output is identical to the Channel-1 ¼" direct output and can be used to drive a tuner, a second channel on an already connected amplifier, or a 7th guitar amp. This output is always active and has no associated on/off switch.

THE XLR DIRECT OUTPUT



The XLR Direct Output

The XLR Direct Output is a balanced, transformer isolated output that is always active, and it is designed to feed a microphone preamp or a channel on a recording interface for direct tracking of your guitar signal.

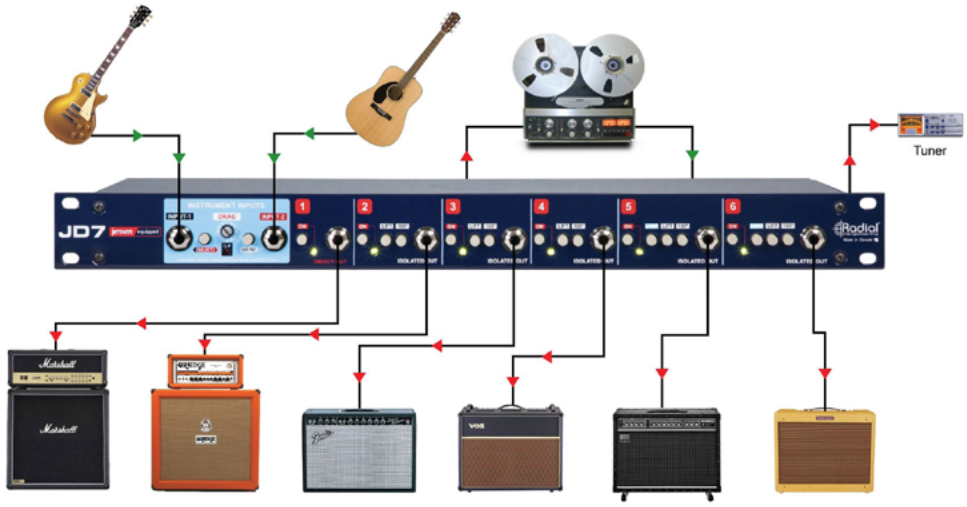
This output functions just like a DI box, allowing you to record a dry guitar track that can be used for later Reamping purposes.

A premium Jensen transformer drives this output, and the balanced output gives you the ability to run XLR cables of up to 100m (300ft) in length without signal loss or degradation. As with the front panel 1/4" outputs 2-6, a ground lift switch and a 180° polarity reverse switch are provided to reduce noise and align your DI track with your amplifiers.

THE REAMP INPUT

The Reamp input allows you to replay recorded tracks through your amplifiers and effects pedals. To use this input, connect a balanced output from your recording interface to the XLR Reamp input on the JD7, then press the front panel “INPUT-2” switch to activate the Reamp input and ensure that you don’t have a 1/4" cable connected to the Input-2 on the front panel. Start with your levels turned down and begin playback through your amplifier(s), then turn up the level control until you’ve reached the desired output level. Should you encounter hum or buzz from ground loops, simply press the associated Lift switch to lift the ground.

The Reamp Input



Reamping with the JD7

JD7 SPECIFICATIONS*

Audio circuit type:	100% discrete class-A with transformer isolation
Number of channels:	2 inputs / 7 outputs
Frequency response:	20Hz-20kHz +/-1dB
Dynamic range:	125dB (unbalanced input to unbalanced output)
Total harmonic distortion:	0.05% @ 1kHz (unbalanced), 0.1% @ 1kHz (balanced)
Intermodulation distortion:	0.2% @ -20dBu
Input impedance:	Variable from 10k ohms to ~ 1Meg ohm
Output impedance:	10k ohms (¼" unbalanced), 150 ohms (XLR balanced)
Noise floor:	-115dBu
Maximum Input:	+13dBu (unbalanced), +23dBu (balanced)

FEATURES

Input pad, 180° polarity reverse, Ground lift, Drag control, Effects loop

Input connectors:	¼" TS, XLR
Output connectors:	¼" TS, XLR

GENERAL

Construction:	14 gauge steel chassis & outer shell
Size (L x W x D):	17.5" x 6" x 1.75" (44.5cm x 15.25cm x 4.45cm)
Weight:	7.5lb (3.4kg)
Shipping size (L x W x D):	22” x 10.375” x 4.5” (55.cm x 26.4cm x 11.4cm)
Shipping weight:	8lb (3.63kg)
Power:	15VDC / 400mA center-pin positive adaptor included
Conditions:	For use in dry locations only between 5°C and 40°C
Warranty:	Radial 3-year, transferable

*Specifications are subject to change without notice.

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.

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WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
Please take proper care when handling and consult local government regulations before discarding.

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