**FISHMAN** *FLUENCE*™

# *Phase Invert Control with Push-Pull Potentiometer*

*Rev1.0*

The Fluence Phase Invert Control enables a guitar to achieve the distinct tone of using two pickups “out-of-phase” with each other. Engaging the pull-switch on the control pot inverts the phase/polarity of one pickup relative to the other.

The rotary function of the pot can be wired several different ways to accommodate any control layout. The three wiring options are a volume control, standard tone control, or reactive tone using the Fluence Tone Reactor accessory.

A trim control is provided to fine adjust the volume blend between pickups when phase invert is engaged. This allows dialing in the preferred sweet spot on guitars without separate pickup volume controls. The trim control range is -2dB to +3dB with the middle position being 0dB (no change in level) for the pickup being phase inverted.

## Electrical Specifications

Power Source: 9-18Vdc
Current Consumption: 0.8mA @9Vdc
Input Impedance: 270k
Output Impedance: 2k
Volume/Tone Pot: 25k

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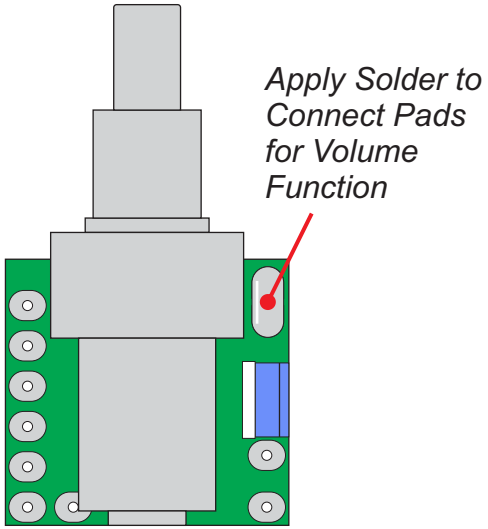
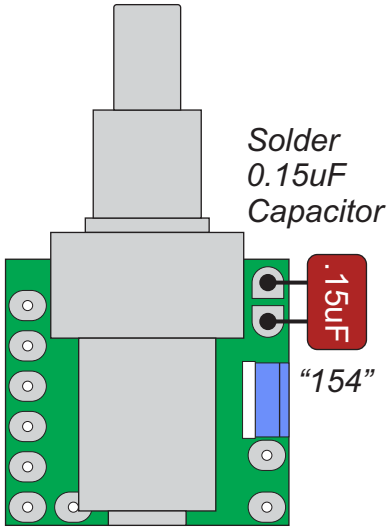
*Phase Invert Control with Push-Pull Potentiometer*

*Quick Reference - 3 Ways to Configure Potentiometer Rotary Function*

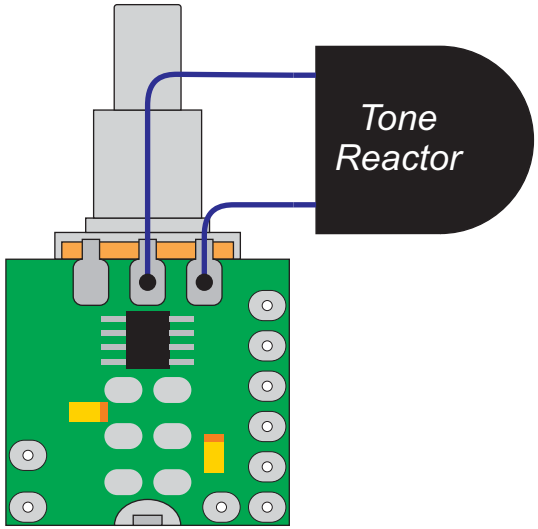
### *Volume*




### *Standard Tone*




### *Reactive Tone*



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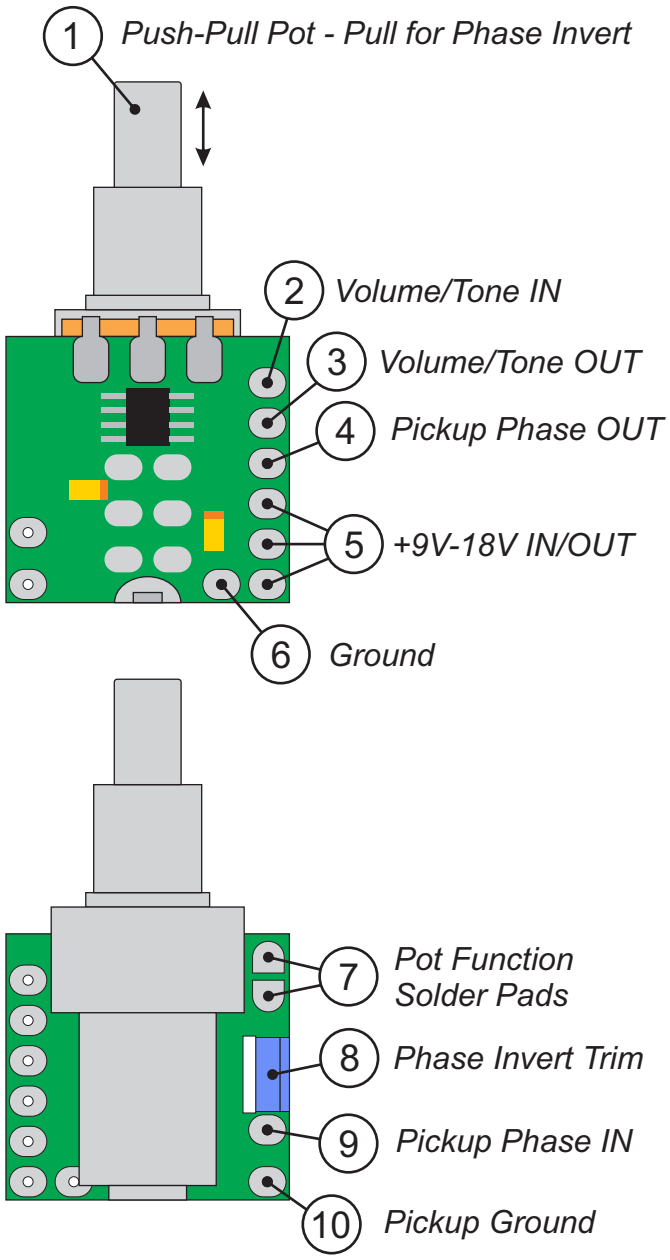
## *Phase Invert Control with Push-Pull Potentiometer - Connection Points, Controls, & Functions*




Note: All connections points (except the Pot Function Pads) are plated through-hole style such that wires cab be inserted and soldered from either side.

**1. Push-Pull Pot** - The rotary function of the pot can be wired for several functions; volume, standard tone control, and reactive tone control. (see diagrams for details)

Pulling up on the shaft engages the pickup phase invert feature. Pushing the shaft down into the default position bypasses the phase invert.

**2. Volume/Tone IN** - Signal input for volume or reactive tone control. (Not used for standard tone control.)

**3. Volume/Tone OUT** - Signal output for volume or reactive tone control. Main connection for standard tone control.

**4. Pickup Phase OUT** - The pickup output from the phase select circuit.

**5. *+9V-18V IN/OUT*** - *(+) DC Power / Battery input for inverter circuit. Two additional connections are provided for convenient power distribution to active pickups.*

**6. Ground** - Connection to main control cavity ground.

**7. Pot Function Solder Pads** - Solder pads for setting potentiometer control function.
Volume: Bridge pads with solder.
Standard Tone: Solder 0.15uF capacitor across pads. (see diagrams)
Reactive Tone: (Pads not used) Requires tone reactor accessory (see diagrams)

**8. Phase Invert Trim** - Fine gain adjustment for achieving preferred blend tone in phase invert mode. Adjust to taste when using two pickups in combination. Range is -2dB to +3dB.

**9. Pickup Phase IN** - Input for the pickup to phase selected.

**10. Pickup Ground** - Ground connection for the pickup input cable shield.

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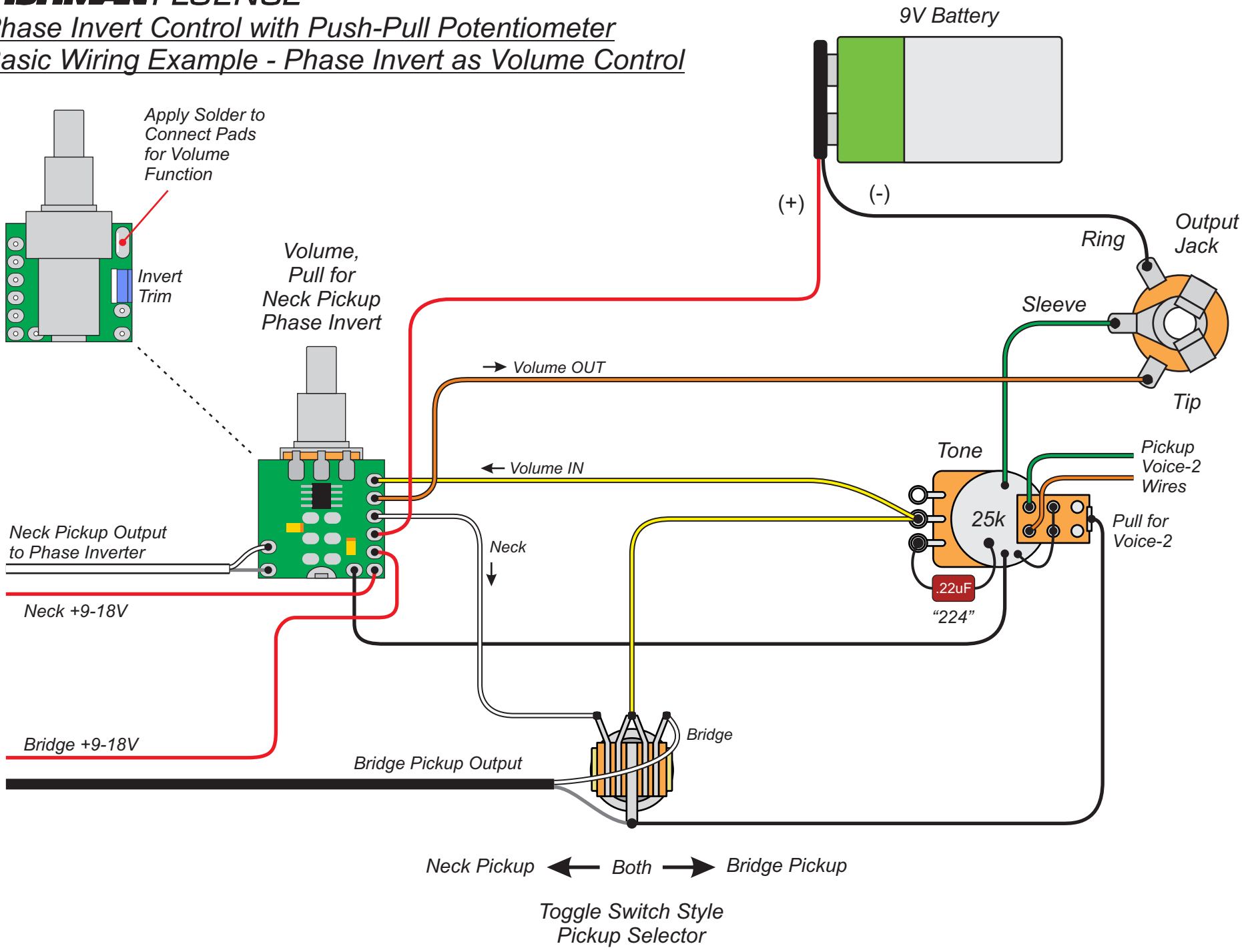
## Phase Invert Control with Push-Pull Potentiometer
## Basic Wiring Example - Phase Invert as Volume Control



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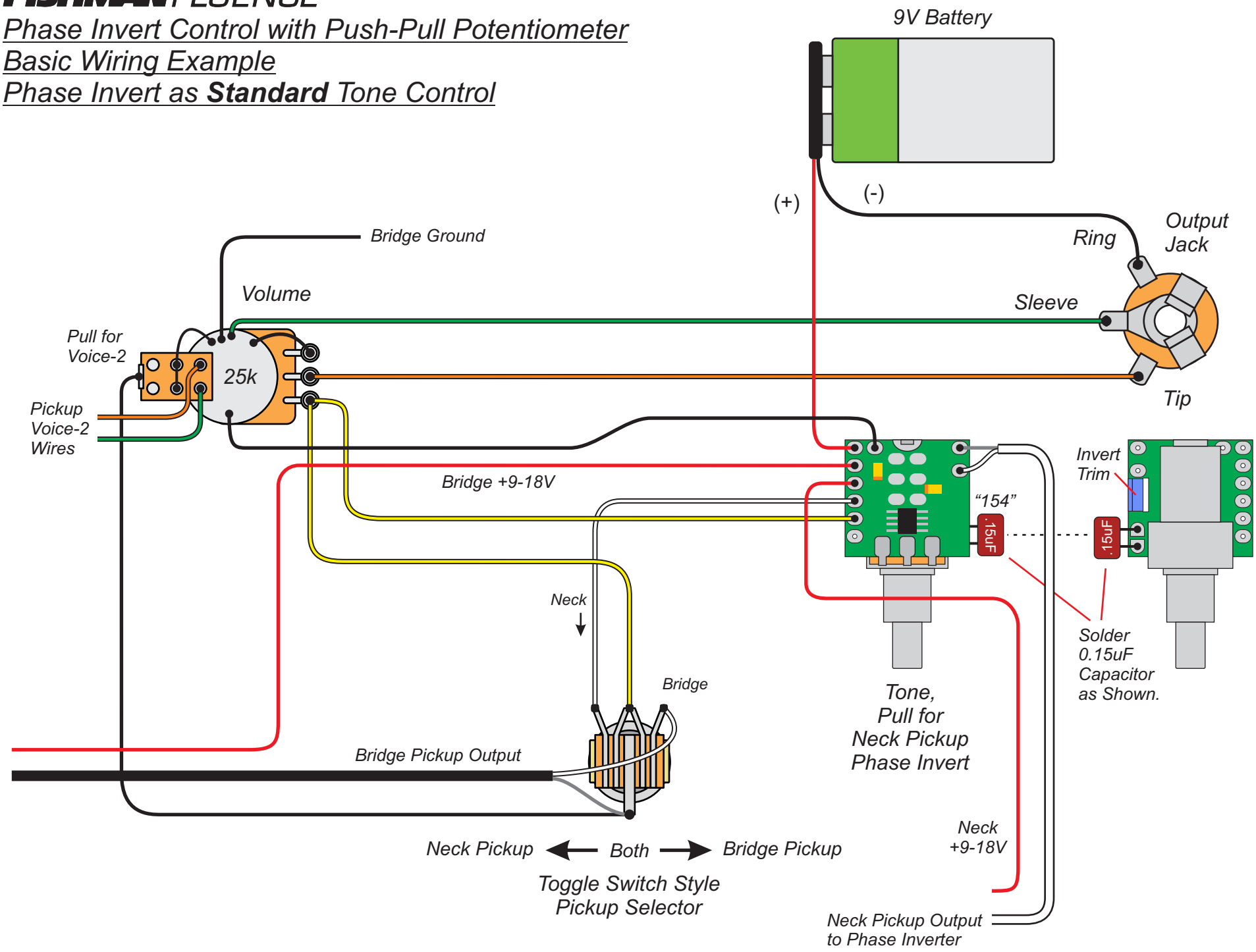
## Phase Invert Control with Push-Pull Potentiometer
## Basic Wiring Example
## Phase Invert as **Standard** Tone Control



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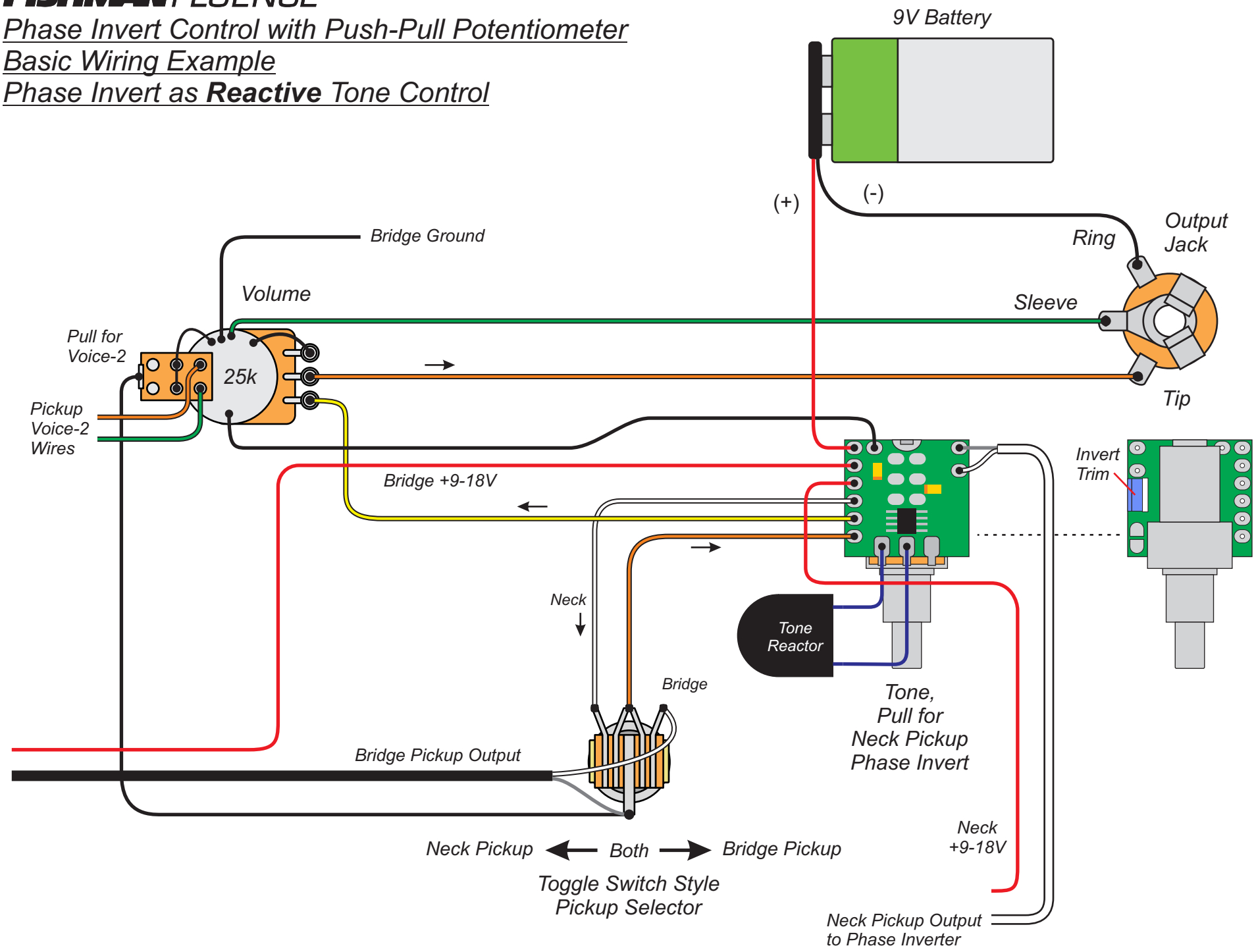
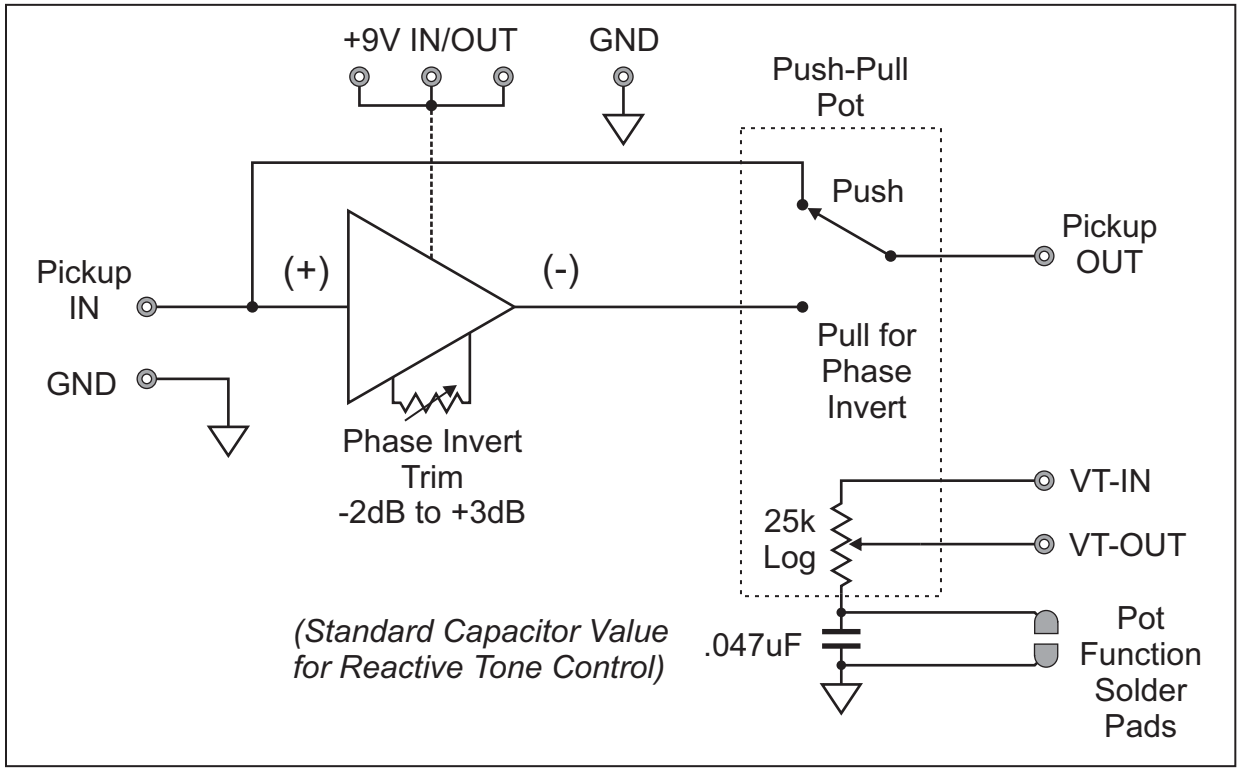
## *Phase Invert Control with Push-Pull Potentiometer*
## *Basic Wiring Example*
## *Phase Invert as **Reactive** Tone Control*

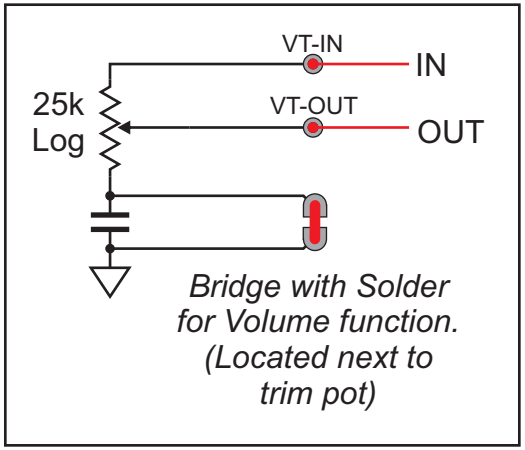


# *Fluence Phase Control with Push-Pull Potentiometer - Functional Schematic Diagrams*

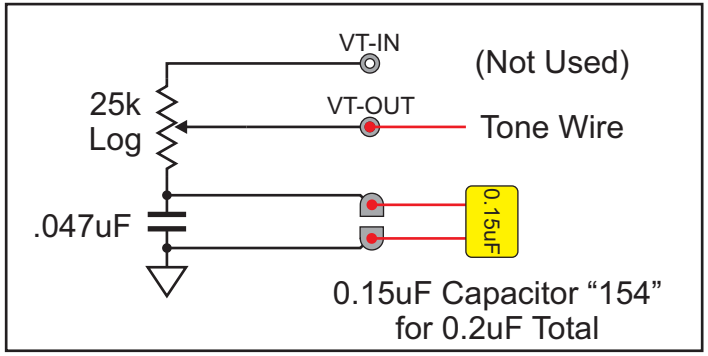
## *Phase Control - Functional Diagram and Connections*




## *Pot Wired for Volume Control*




## *Pot Wired for Standard Tone Control*




## *Pot Wired for Reactive Tone Control*