

### Preparations

The following components should be omitted during basic assembly:

- R1, R2
- D2, D6
- BT2

The following components should be omitted based on required customization:

- J1 (Power jack)
- J2 (3.5mm input jack)
- J3 (3.5mm headphone jack)

When installing a 1/4" headphone jack, also note that special assembly is required for:

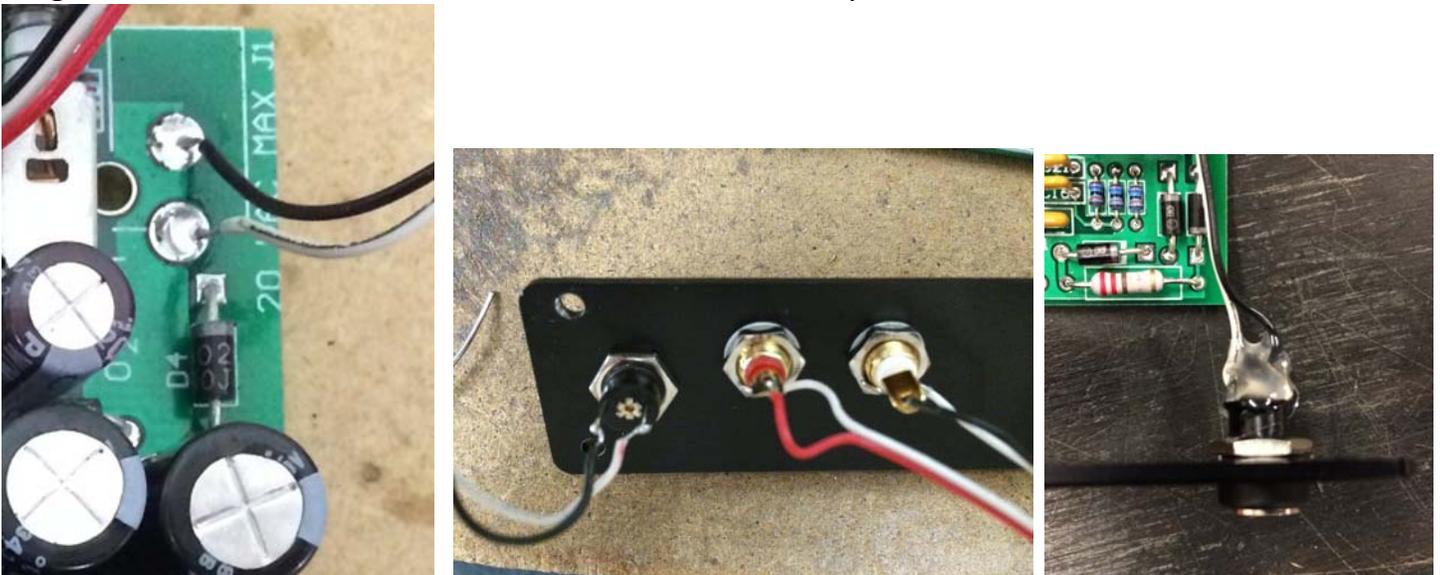
- R10, R11
- C8, C9

### Front Power Jack

Install power jack at J1.

### Rear Power Jack

1) Omit J1. Install an "isolated" power jack onto required rear plate. Connect black wire to longer lead, and white wire to shorter lead. Solder to J1 pins as shown:



2) Apply hot glue to connectors as shown. Let glue dry before installing into case.

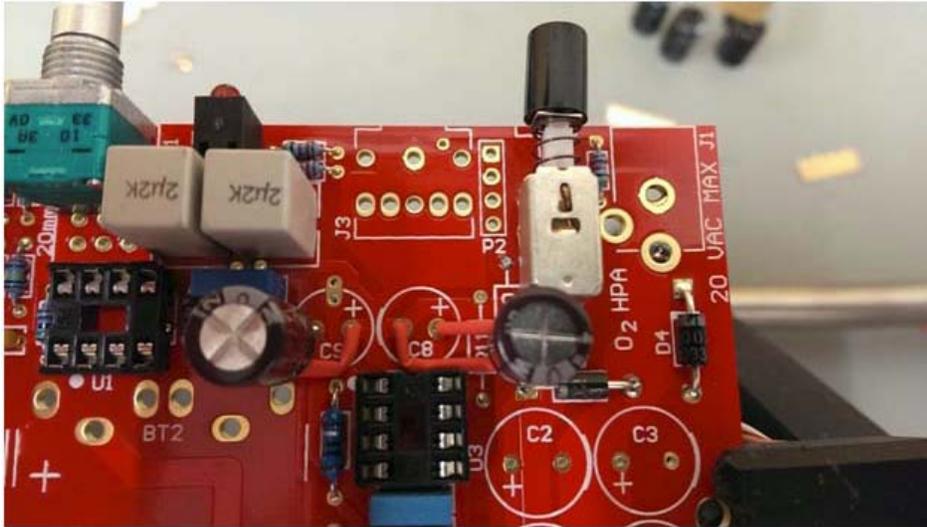
## Standard Headphone Jack

Install audio jack at J3.

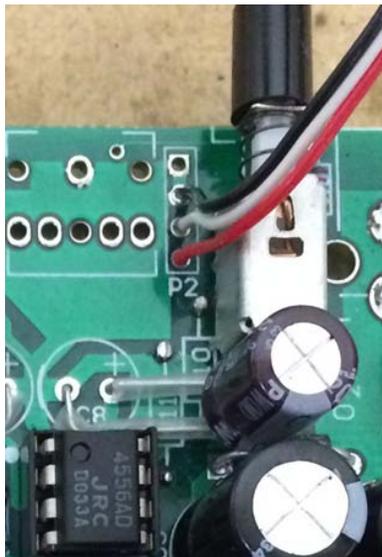
## 1/4in (6.35mm) Headphone Jack

1. Begin by installing resistors **R10** and **R11** on the bottom surface of the PCB.
2. Bend leads of capacitors C8 and C9 and cover with heat shrink as shown in *Figure 1*.
3. Install **C8** and **C9**, then complete remaining assembly of O2+ODAC.

Remember to omit J3.



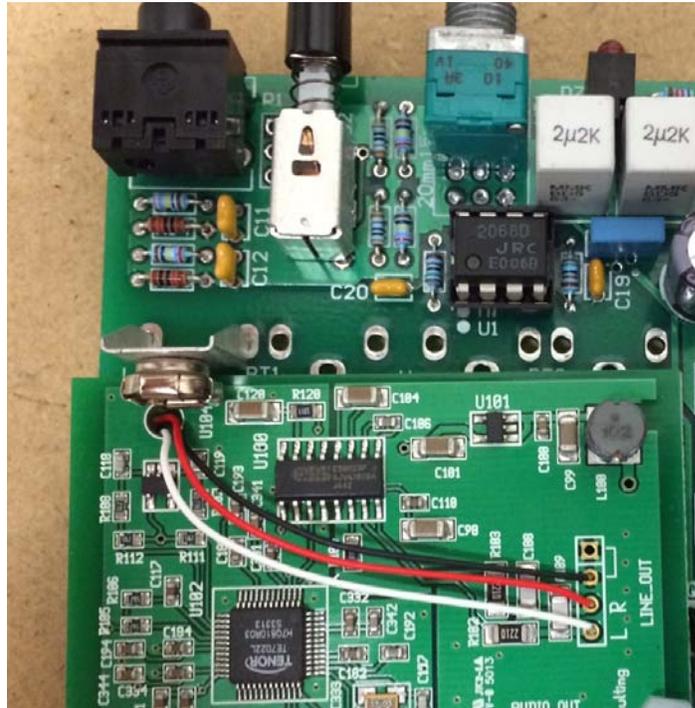
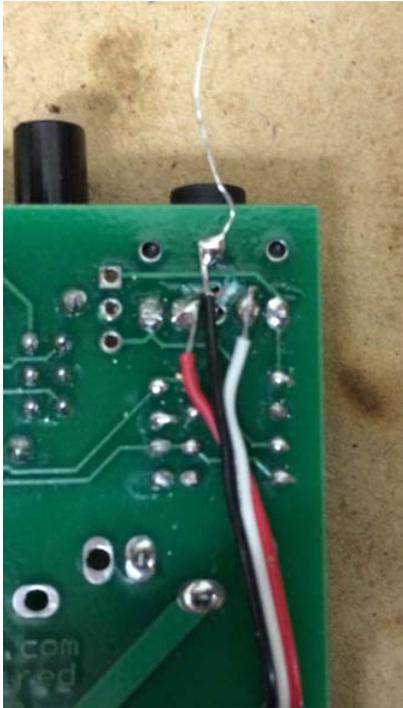
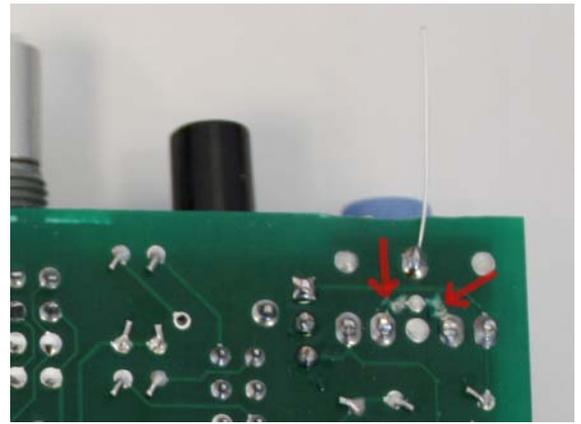
4. Connect about 3" of wire from Neutrik 1/4in headphone jack to P2. Wire as shown below (L = White, Red = Right, Black = Ground):



Attach headphone jack to front plate after completing all other assembly. Black nut is secured by a compression fit. With jack & nut installed on front plate, use table surface to apply pressure to nut. After nut snaps in place, gently rotate 1/4 turn clockwise.

## Default Wiring - Analog Input and USB Input

1. Cut inner traces beneath Objective2 input jack, J2.
2. Solder Red/Black/White wires from bottom surface of amplifier input jack J2 as shown below.
3. Pass wire through holes of Objective2 and ODAC to solder to ODAC's **LINE\_OUT** header.



## Legacy Wiring - Shared with 3.5mm input - DISCOURAGED

This basic wiring method was originally presented in 2012 by NwAvGuy and is presented as historical information. You may only use Objective2+ODAC with headphones in this configuration. Do not use the right 3.5mm jack, as placing a secondary load on the input will produce audible distortion.

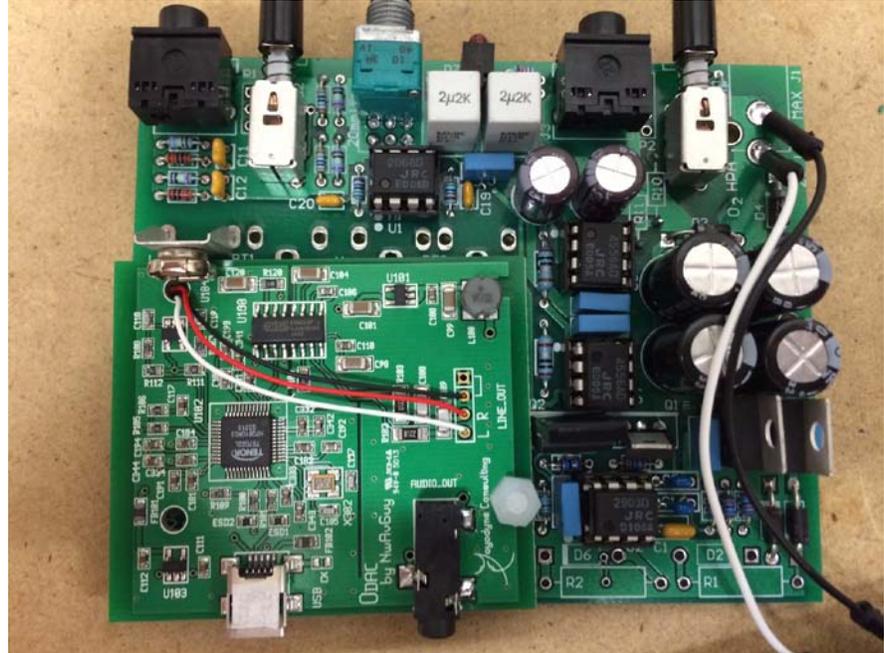
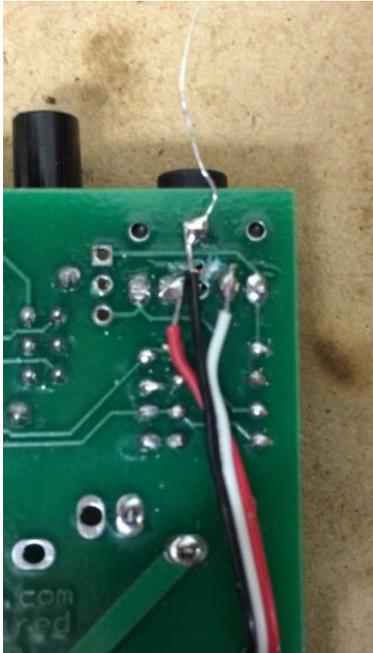
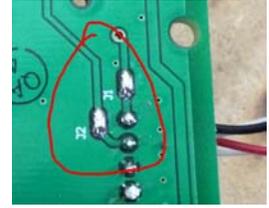
1. Install audio jack at J2.
2. Wire ODAC's LINE pins to P1 as shown.
3. Using an exacto knife, cut the inner traces beneath J2 (see image at right).



## Add Dedicated 3.5mm DAC line-output

This option allows you to bypass the headphone amplifier and use ODAC independently, providing a 3.5mm DAC line-output.

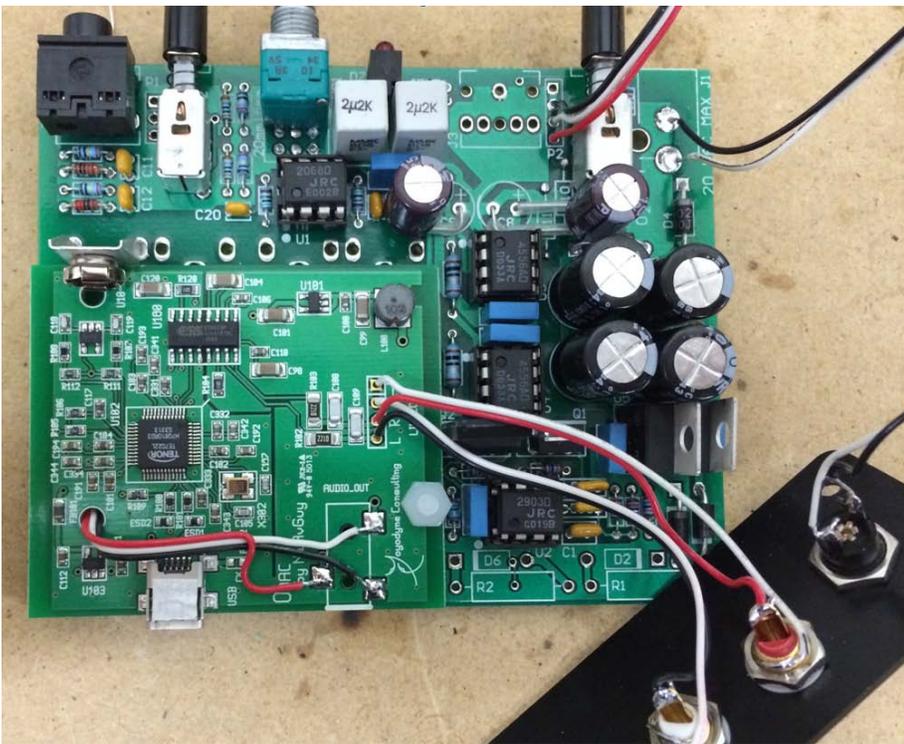
1. Install audio jack at J2.
2. Solder **J1** and **J2** on bottom of ODAC.
3. Solder 3.5mm jack to ODAC .
4. Cut inner traces beneath O2 input jack, J2.  
See *Default Wiring* section for image.
5. Solder Red/Black/White wires from bottom surface of amplifier input jack J2 as shown below.
6. Pass wire through holes of Objective2 and ODAC to solder to ODAC's **LINE\_OUT** header.



## Add Dedicated RCA DAC line-output

This option allows you to bypass the headphone amplifier and use ODAC independently, providing RCA output jacks.

1. Install audio jack at J2.
2. Solder **J1** and **J2** on bottom of ODAC
3. Mount RCA jacks onto required rear plate using paper washers.
4. Solder about 4" of wire from RCA jacks to ODAC as shown below.
5. Cut inner traces beneath O2 input jack, J2.  
See *Default Wiring* section for image.
6. Solder Red/Black/White wires from bottom surface of amplifier input jack J2 as shown below.
7. Pass wire through holes of Objective2 and ODAC to solder to ODAC's **LINE\_OUT** header.

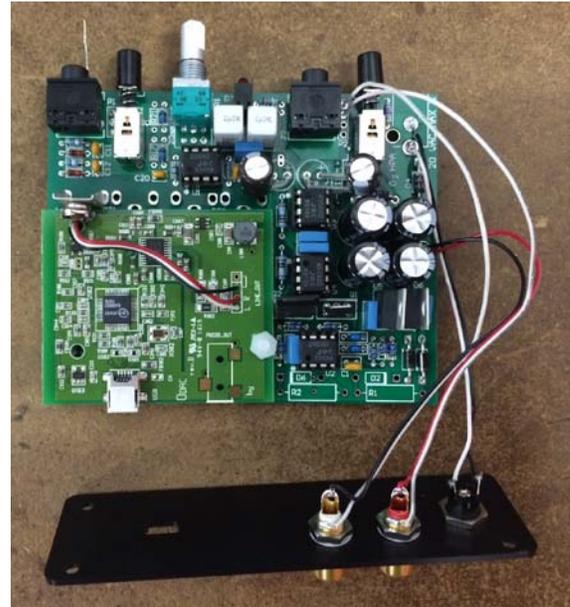
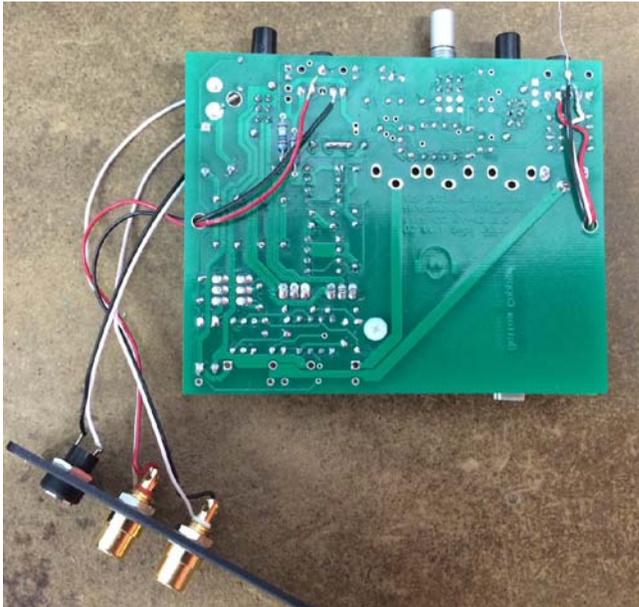


## Switched Preamp Output

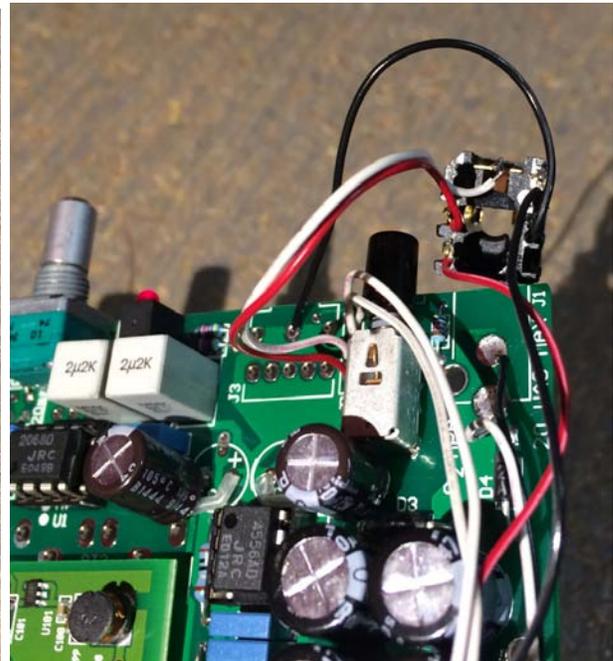
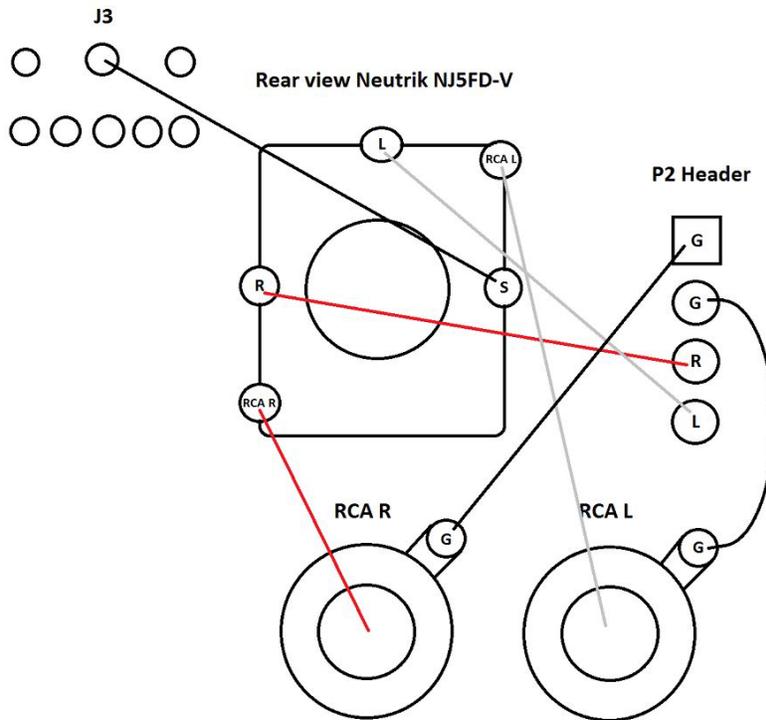
The previous Line-Output methods provide maximum DAC output volume. A preamp output allows you to adjust volume of the rear outputs using the amplifier's volume control. This is useful for driving a set of powered speakers or monitors which lack their own volume control.



1. Install Objective2's 3.5mm input jack at J2.
2. Mount RCA jacks onto the required rear plate using paper washers.
3. Cut inner traces beneath O2 input jack, J2.  
See *Default Wiring* section for image.
4. Solder Red/Black/White wire from bottom surface of amplifier input jack J2.
5. Pass wire through holes of Objective2 and ODAC to solder to ODAC's **L/R/GND** holes:
6. Wire RCA jacks directly to Headphone Jack
  - a. For **3.5mm Headphone Jack**



b. For 1/4" Headphone Jack **\*\* Must use Neutrik NJ5FD-V \***



## Selecting and Calculating Gain

Objective2 is a unique two-stage headphone amplifier. Its input stage performs all voltage gain, followed by attenuation through the volume potentiometer, then current buffering in the output stage. This approach achieves an exceptional noise floor and requires that you take extra care in selecting appropriate gain levels based on your audio player(s). Please see [jdslabs.com/faq](http://jdslabs.com/faq) for more information.

### For ODAC RevA: Gain = 1.0 and 3.5x

- $R_{17}$  and  $R_{21}$  = NONE
- $R_{19}$  and  $R_{23}$  = 604  $\Omega$

### For ODAC RevB: Gain = 1.0 and 3.3x

- $R_{17}$  and  $R_{21}$  = NONE
- $R_{19}$  and  $R_{23}$  = 634  $\Omega$