

Pickup Tone Multiplier Kit Assembly Instructions

Revised: January 12, 2012

These assembly instructions are for the KIT version of our T2-Board, T3-Board and T4-Board products.

We recommend that you read this document completely before assembling this product. This will help you to become more familiar with the assembly process and to identify any issues and solutions prior to the assembly

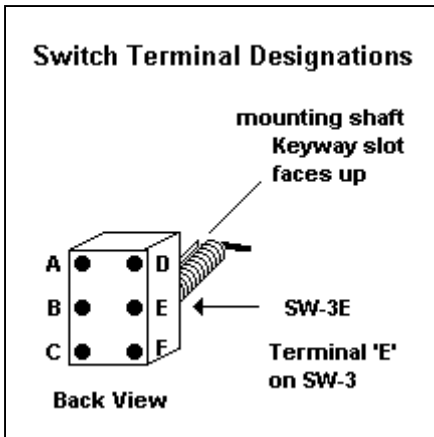
This Product Contains The Following Items

- A zip bag labeled **PTM-KIT A** that contains (depending on your ordered product) one of the following green printed circuit board types, as well as the additional enumerated items under the board types:
 - T2-Board – 1.00” wide x 1.75” long (2.54cm x 4.445cm)
 - T3-Board – 1.00” wide x 3.05” long (2.54cm x 7.747cm) (*this board is currently labeled “T-Board”*)
 - T4-Board – 1.00” wide x 3.05” long (2.54cm x 7.747cm)
 - 1 styrofoam block to hold switches during assembly procedure and help identify installation clearance
 - Labels to mark your pickup wires and input wires
 - 1 AweSome Musical Instruments headstock decal (*it’s not illegal to cover Fender’s logo with our decal*),
 - Drill Hole Template – a paper template that, together with the included styrofoam block, is used to ensure clearance and locate position of holes to be drilled for mounting your assembled PTM product
- A zip bag labeled **PTM-KIT B** that contains (depending on your ordered product) the following items:
 - Either 1, 2 or 3 DPDT (ON-ON) switches (*switch body color can vary, see note on page 5*)
 - Either 2, 3 or 4 DPDT (ON-OFF-ON) switches (*switch body color can vary, see note on page 5*)
 - Either 3 or 6 stainless steel finishing washers (1/4” inside diameter hole for switch mounting)
 - 1 Green solderless Terminal Strip (either 6-position, 8-position or 10-position)
 - 2" (5.08cm) length of 26 gauge bare copper wire, <==== (*only included with KIT-T2 purchase*)
 - 6" (15.24cm), 7.5" (19.05cm) or 9" (22.86cm) **blue** insulated wire (used in Testing section)
 - 9" (22.86cm), 12" (30.48cm) or 15" (38.10cm) **red** insulated wire (may be needed during installation)
 - 9" (22.86cm), 12" (30.48cm) or 15" (38.10cm) **black** insulated wire (may be needed during installation)
 - 2 or 4 yellow solderless wire connectors (UY2) to extend pickup and input jack wire to PTM board if needed
 - 2 grey wire nuts (71B) to provide an easily removable connection to the instrument input jack
- PDF documents downloaded from our website Document Library: www.AweSome-guitars.com
 - PTM Kit Assembly Instructions (*this document you are now reading*)
 - PTM Testing Instructions – describes the procedure to test your product to validate its functionality
 - PTM Installation Instructions – contains details about installing the product into your instrument
 - Applicable Switch Table – contains a summary of how to use the switches for each product to obtain 6, 35 or 76 pickup tones from your T2-, T3- or T4-Board

Tools You Need To Assemble This Upgrade

- Soldering iron (25w – 30w maximum)
- Solder, 60/40 rosin core
- Small needle nose pliers
- Small side cutters
- Exacto knife or suitable blade cutter
- Wire strippers

SWITCH TESTING



Before you do anything, you should test the switches that came with your kit and make sure that they function. We do not check every switch because it is neither practical nor cost effective. If you have received a defective switch we are happy to replace it. It is advisable to test the switches because **we do not warranty switches once they have been soldered.**

Switch Testing: (do this before you start assembling the harness)

Before you start, use an ohmmeter to test the switches that were included with your **Pickup Tone Multiplier™** Kit. Check for correct continuity/open circuit result when testing switches.

Note: open-circuit = no electrical continuity,
close-circuit = electrical continuity (typically 0.7 ohms or less).

For DPDT (ON-OFF-ON) mini switches:

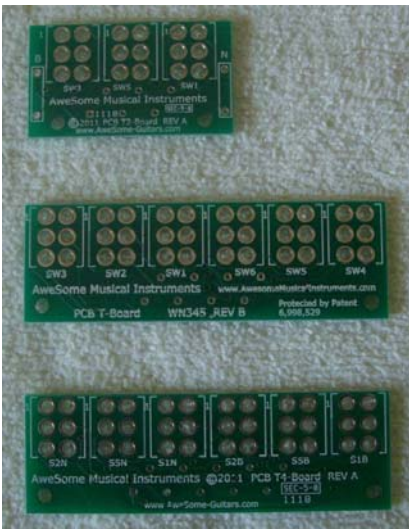
Terminals “A” and “B” are close-circuit with switch “on” (down). Switch is open-circuit in opposite “on” and “off”.
Terminals “D” and “E” are close-circuit with switch “on” (down). Switch is open-circuit in opposite “on” and “off”.
Terminals “B” and “C” are close-circuit with switch “on” (up). Switch is open-circuit in opposite “on” and “off”.
Terminals “E” and “F” are close-circuit with switch “on” (up). Switch is open-circuit in opposite “on” and “off”.

For DPDT (ON-ON) mini switches:

Terminals “A” and “B” are close-circuit with switch “on” (down). Switch is open-circuit in opposite position.
Terminals “D” and “E” are close-circuit with switch “on” (down). Switch is open-circuit in opposite position.
Terminals “B” and “C” are close-circuit with switch “on” (up). Switch is open-circuit in opposite position.
Terminals “E” and “F” are close-circuit with switch “on” (up). Switch is open-circuit in opposite position.

ASSEMBLY

Step-1:



Lay a wash rag (folded into fourths) onto the work surface. Put the printed circuit board onto the wash rag in the orientation illustrated in the picture.

The pictures show the T2-Board (for 2-pickup coil instrument), T3-Board (for 3-pickup coil instrument) and T4-Board (for 4-pickup coil instrument) used to make a **Pickup Tone Multiplier™** switching system product.

Step-2:

Populate the printed circuit board with the switches as illustrated below. When inserting the switches, orient the mounting shaft *key* (i.e., the “groove” running vertically in the mounting shaft threads) so they all face the same direction. Although not necessary to do so, it make the completed product look more professionally assembled.



The **T2-Board KIT (KIT-T2)** uses three switches. Two of the switches are ON-OFF-ON and will go into the switch terminal pads labeled SW1 and SW3. Set these switches in the center (OFF) position. The other switch is an ON-ON switch and it goes into the switch terminal pad labeled SW5. Set this switch paddle to face towards the center of the printed circuit board.

Also see the special jumper information in Step-7a for this board only.



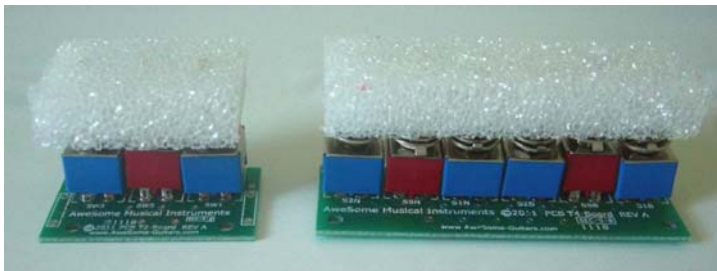
The **T3-Board KIT (KIT-T3)** uses six switches. Three of the switches are ON-OFF-ON and will go into the switch terminal pads labeled SW1, SW2 and SW3. Set these switches in the center (OFF) position. The other three switches are ON-ON and they go into the switch terminal pads labeled SW4, SW5 and SW6. Set these switch paddles to face towards the center of the printed circuit board.



The **T4-Board KIT (KIT-T4)** uses six switches. Four of the switches are ON-OFF-ON and will go into the switch terminal pads labeled S2N, S1N, S2B and S1B. Set these switches in the center (OFF) position. The other two switches are ON-ON and they go into the switch terminal pads labeled S5N and S5B. Set these switch paddles to face towards the center of the printed circuit board.

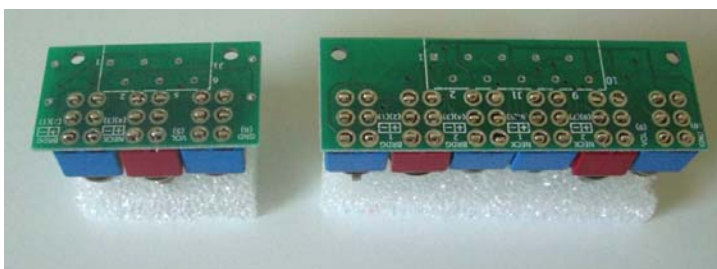
Note: Mount switches on correct side of circuit board.

Step-3:



Align the included **styrofoam block** so its perimeter is exactly over the printed circuit board perimeter and firmly press down to embed the switch paddles into the styrofoam. All switch paddles must be completely inserted into the styrofoam block up to the start of the threaded mounting shaft on the switches.

Step-4:



Grab and hold the printed circuit board and styrofoam block as a complete unit (just like a sandwich), flip this assembly over and place it on a flat hard work surface. The styrofoam block will now be on the bottom, supporting both the switches and the printed circuit board.

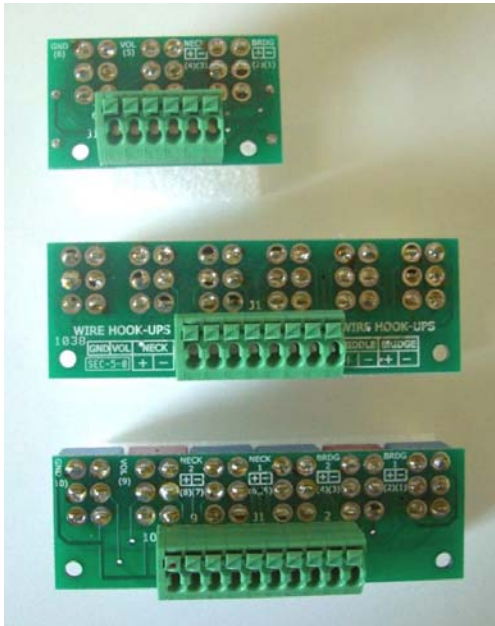
Slightly press down on the printed circuit board to firmly seat the board to the switch bodies.

Step-5:

Using a Low Wattage (25/30 watt maximum) soldering iron, "spot solder" each switch at diagonally adjacent terminals to *anchor* each switch to the printed circuit board. Continue soldering all six terminals of each switch, starting with the switch terminals that were not spot soldered. Work quickly as you spot solder to prevent switch damage caused by excessive heat from the soldering iron. The recommended switch terminal solder sequence going from switch to switch is A-F first for all switches, then B-D for all switches, followed by C-E.

WARNING: When soldering the switch terminals to the circuit board, do not try to completely fill the terminal hole with solder. Just solder each switch terminal enough to be "tacked" to the circuit board pad. If you *over solder* the terminals, this can damage the switch. Work quickly when soldering switches and terminal strip.

Step-6:



Remove but do not discard the styrofoam sheet. It will be used again during the Installation procedure.

Mount the included green 6-position, 8-position or 10-position *terminal strip* on the printed circuit board in the location shown within the rectangular line on the board. The correct orientation will have the green terminal strip exactly within the rectangular outline on the printed circuit board.

Incorrect orientation is when the green terminal strip body overlaps the rectangular outline on the printed circuit board.

WARNING: **Mount the terminal strip the same way the illustrations show or your product will not work.**

Step-7:



While holding the terminal strip and circuit board, flip the printed circuit board over and lay it down on the work surface.

Verify that the green terminal strip is in firm contact with the printed circuit board.

Solder the 6, 8 or 10 connections of the green terminal strip to the printed circuit board.

Step-7a:

Special extra step for a 2-pickup board.



If you have purchased a T2-Board (*KIT-T2*) for a non-Gibson LP style 2-pickup coil instrument, use the included 2" (5.08cm) length of 26 gauge bare copper wire. Cut it in half equally and bend the ends to jumper each of the two connections labeled “B” and “N” (each within a white rectangular outline) as illustrated.

Solder both ends of these two connections. Cut off excess wire, making sure that no shorting occurs on board.

Make a final visual inspection of all soldered connections and make sure there are no unsoldered joints, cold solder joints or solder shorts.

Proceed to the **Pickup Tone Multiplier Board Testing Instructions** (these instructions can be downloaded from www.AweSome-Guitars.com/docs) to confirm that correct results can be obtained from the assembled PTM product prior to installation.

Special Switch Body Color Note: Your kit contains mini toggle switches that have two different body colors; red body and blue body for both the ON-ON and ON-OFF-ON switch versions. Be sure you have identified the correct switches and they are in the correct position on the circuit board *before* you solder them. The red body switch (of the specified type: either ON-ON or ON-OFF-ON) must be in between two blue body switches.

In instances when manufacturer switch shortages occur, we will ship kits with only red body switches.

Special Switch Mounting Nut Note: These switches are no longer manufactured in the U.S. and now come from differing international manufacturers who do *not* have a standard for mounting nut threads. This means that the mounting nut threads for the blue body switches and the red body switches are different and cannot be interchanged. Make sure you identify which switch belongs to which nut before you remove them.

Hint: if a mounting nut does not fit onto one color switch, it probably belongs to the other color switch.

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