

ARIES SYSTEM 300 Music Synthesizer  
ARIES MODULE 313  
AR-313 KEYBOARD INTERFACE ASSEMBLY INSTRUCTIONS

The General Assembly Instructions were written as a general guide, to familiarize the builder with the components. Here, now, are the specific assembly instructions for building your Keyboard Interface. It is recommended that you do the following before you proceed:

Find a place where you can work through completion,, without disturbing your set-up.

Use adequate lighting.

Wash your hands before starting. This removes contaminating oils and perspiration, and makes assembly more comfortable.

As you proceed, check off each step with a pencil.

IMPORTANT! THE AR-313 INTERFACE CONSISTS OF TWO PRINTED CIRCUIT BOARDS ("A" AND "B") AND ONE FRONT PANEL CONTROL UNIT. IT IS DESIGNED TO WORK WITH THE AR-311 KEYBOARD, AND MOUNT IN THE AR-311 KEYBOARD CASE.

I. Board "A" Assembly

- ( ) 1. PREPARATION Lay the circuit board on a sheet of white paper. PLACE METAL FOIL SIDE DOWN! Also, turn board so that connector strip is to the LEFT. Use adequate lighting.

Lay the assembly drawing(layout) down near the board.

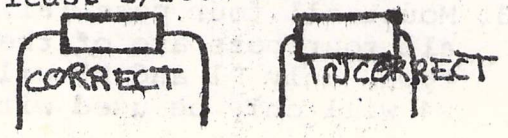
Unpack the parts carefully and place in a large box or tray so they won't get lost.

- Have the following tools nearby;
  - Pencil tip, soldering iron, hot and tinned(solder-coated)
  - Solder-Use only thin, rosin-core solder!
  - Small, diagonal wire cutters
  - Small wire stripper
  - Small long-nose pliers

- ( ) 2. JUMPERS Find jumper wire J1 on the drawing. Cut off a piece of insulated, solid wire, ONE INCH LONGER THAN J1. Strip 1/2 inch of insulation from each end (being careful not to damage the wire itself). Bend the bare ends to a right angle and insert into the holes on the board, according to the drawing. While holding the ends down against the board, bend them at a 45 degree angle on the foil side of the board, to hold the wire in place. Solder and cut off the excess. (Refer to introduction on parts installation.)

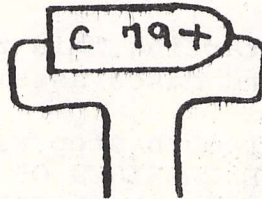
Install J2 through J5 in the same way.

- ( ) 3. RESISTORS Carefully install all 47 resistors (R122 through R168) on the circuit board. To avoid breaking the resistor leads, bend the leads at least 1/16th of an inch away from the body of the resistor. For example:



- NOTE: a) Resistors R1 through R60 are on the keyboard.  
b) Resistors R61 through R121 are on board "B"  
c) Resistor R154 mounts with one lead bent underneath, as shown on the layout.  
d) NOTE: R168 must be mounted as shown, with a piece of insulated wire soldered to one end.

- ( ) 4. CAPACITORS Install all 24 capacitors (C62 through C85). observe polarity where shown. NOTE: C79 is actually much larger than shown on the drawing. Bend the leads like this.



Install, being careful not to let its leads touch any other wires.

- ( ) 5. DIODES Install all 8 diodes (D62 through D70), observing polarity. (There is no D64).  
( ) 6. INTEGRATED CIRCUITS Install all 12 I C's (U1 through U12). OBSERVE ORIENTATION!  
( ) 7. TRANSISTORS Install all 5 transistors (Q1 through Q5).

THIS COMPLETES ASSEMBLY OF BOARD "A"

II NOW, WIRE BOARD "B"

- ( ) 1. Install all 61 resistors (R61 through R121).  
( ) 2. Install all 61 capacitors (C1 through C61).  
( ) 3. Install all 61 diodes (D1 through D61). NOTE: Observe polarity on capacitors and diodes. Don't forget R121, C61, and D61 on the right-hand edge!

THIS COMPLETES ASSEMBLY OF BOARD "B".

III PANEL WIRING

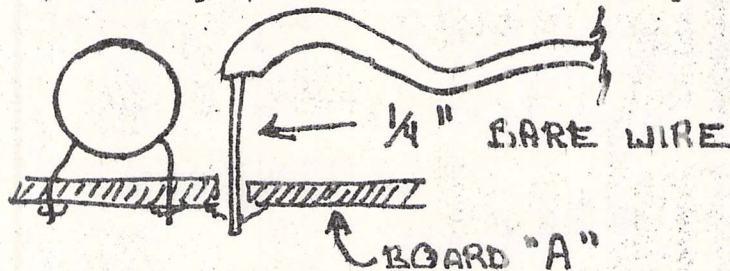
PLEASE REFER TO PANEL WIRING DIAGRAM.

- ( ) 1. Mount the 14 mini-phone jacks in THE EXACT POSITION SHOWN. Tighten all nuts.  
( ) 2. Mount the two switches (S1 and S2) as shown.  
( ) 3. Mount all four pots (P1, P2, P3, P4) as shown. NOTE: Although all four pots are of the locking-nut, screwdriver adjust type, only P1 and P2 will need the locking nut on. P3 and P4 will only be used with knobs.

- ( ) 4. Mount knobs on P3 and P4.
- ( ) 5. Solder a wire to the grounds of the four jacks on the left side (rear view) as shown.
- ( ) 6. Connect the two upper jacks together as shown.
- ( ) 7. Connect all four jacks in the next row down.
- ( ) 8. Repeat for the 3rd row.
- ( ) 9. Repeat for the bottom row.
- ( ) 10. Connect pins 1 and 2 of P2 together.
- ( ) 11. Connect pin2 of S2 to Pin one of P3.
- ( ) 12. Connect pin3 of S1 to pin 2 of P3.

IV NOW PROCEED TO WIRE THE PANEL TO BOARD "A".

- ( ) 1. Cut off 19 pieces of insulated wire, each 11 inches long. Strip 1/2" off each end.
- ( ) 2. Connect the wires from each point on the panel (shown by the arrow) to the corresponding point on Board "A". TO AVOID MISTAKES, CONNECT BOTH ENDS OF EACH WIRE BEFORE GOING TO THE NEXT WIRE. NOTE: When wiring the ground connection to Board "A", strip an extra 1/2" of insulation (one inch total) from the wire end. Push this wire through the board hole leaving 1/4" of BARE wire on top. SOLDER:



This is to allow two additional wires to connect here.

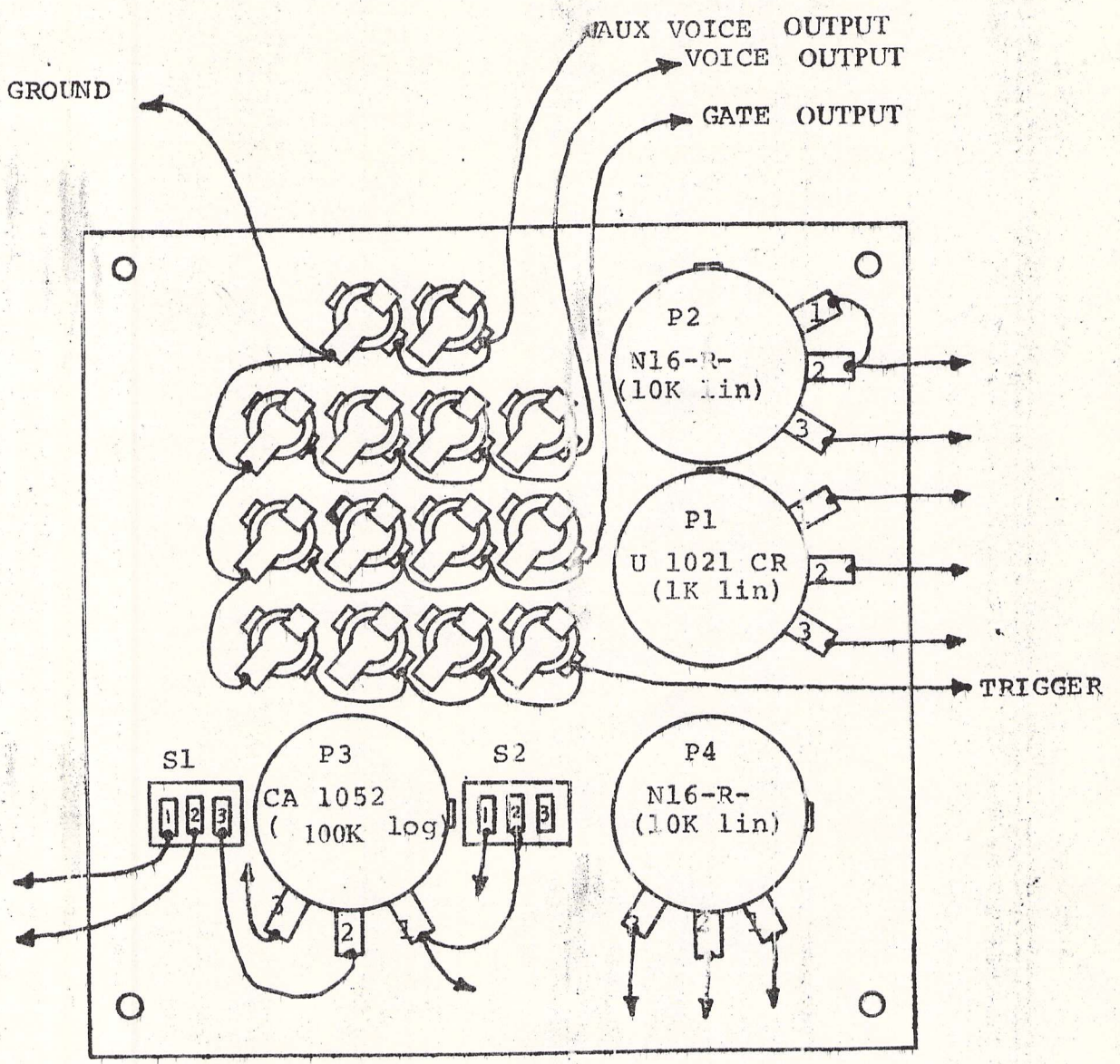
V NOW WIRE BOARD "A" AND BOARD "B" TOGETHER FOR THE POWER SUPPLY.

- ( ) 1. Cut a piece of insulated wire 45" long. Strip 1/2" of insulation from each end. Wrap one end around the bare ground wire on Board "A" (from previous step). Solder. Solder the other end in the hole on Board "B" labelled "GROUND" on the drawing.

- ( ) 2. Cut another 45" piece of insulated wire. Strip one inch of insulation off one end. Push through hole in Board "A" labelled "+15v supply" on drawing, leaving 1/4" bare wire on top, as you did on the ground wire. Solder. Solder the other end to the hole in board "B" labelled "+15 volts".

THIS COMPLETES ASSEMBLY OF YOUR AR-313 KEYBOARD INTERFACE.

ARROW INDICATES A WIRE TO BOARD "A"



AR-313 KEYBOARD INTERFACE

PANEL WIRING-REAR VIEW