

ARIES System 300 Music Synthesizer  
Module AR 314  
Voltage Control Filter Assembly Instructions

The previous pages were written as a general guide, to familiarize the builder with the components. Here, now, are the specific assembly instructions for building your  
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.

- ( ) 1. Preparation  
Lay the circuit board down on a sheet of white paper. PLACE METAL SIDE DOWN! Turn board so that connector strip is to the left.

Lay the assembly drawing down near the board.

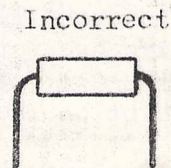
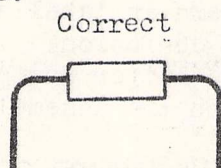
Unpack the parts carefully and place in a large box or tray so they won't get lost.

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 strippers  
Small long-nose pliers  
Regular pliers  
Flat blade screw driver

- ( ) 2. Jumpers  
Find jumper J1 on the drawing. Measure J1 on the PCboard. Cut a piece of insulated wire one inch longer than J1 measures on the PC board. 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 to hold the wire in place. Solder and cut off the excess. (Refer to the introduction on parts installation.) Install all 3 jumpers in the same manner.

- ( ) 3. Resistors  
Carefully install all 37 resistors on the circuit board. R13 is a 10K trim pot R5,6, and 20 are 50K trim pots. R 1,28,37,and 38 are potentiometers and will later be mounted on the panel.  
To avoid breaking the resistors leads, bend the leads at least 1/16 of an inch away from the body of the resistor.  
For example:



- ( ) 4. Capacitors  
Install all 6 capacitors on the board. (C3 through C8)
- ( ) 5. Transistors  
Install both transistors on the board. (Q4 and Q5)
- ( ) 6. Integrated Circuit Amplifiers  
Install all five Integrated Circuit Amplifiers on the board.  
U2 and 4 are CA3080. U1, 3, and 5 are LM301.

ALL BOARD COMPONENTS ARE NOW MOUNTED.

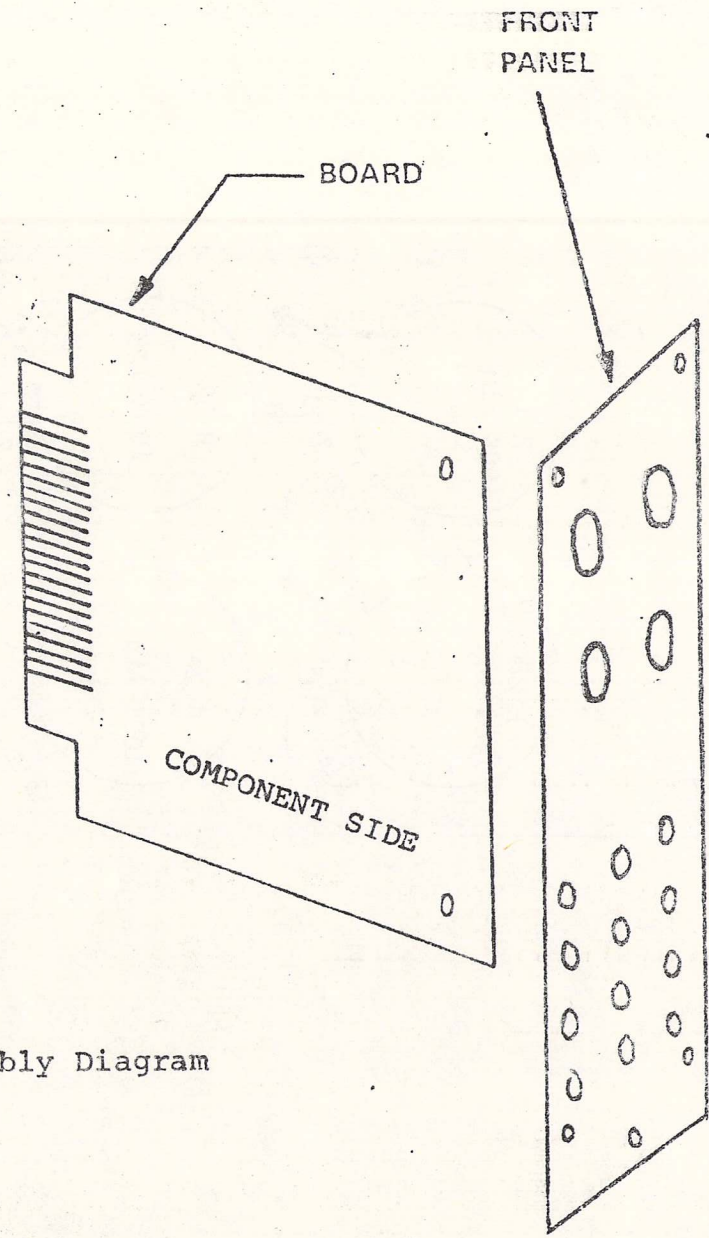
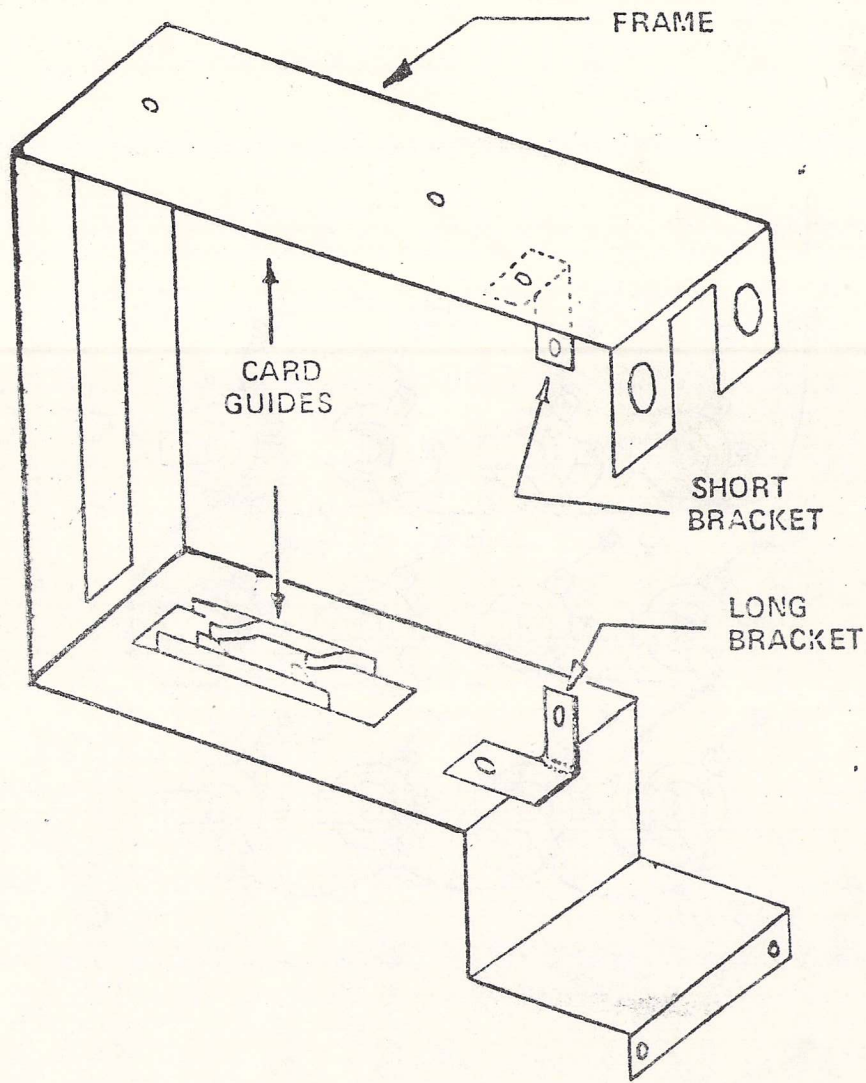
**MODULE ASSEMBLY-- Please refer to Module Assembly Drawing**

- ( ) 1. Unpack the frame, bag of hardware, and front panel.
- ( ) 2. Snap the two plastic card guides into the holes in the frame.  
Be sure that the pairs of tabs in the guides which hold the board point toward the rear of the frame. (The bottom one is shown installed in the drawing.)
- ( ) 3. Slide the circuit board into the frame, holding the top and bottom of the frame together against the board so that the board fits snugly in the card guides. Be sure that the pairs of plastic tabs pinch the edge of the circuit board properly.
- ( ) 4. Using 4-40X3/8" screws and nuts, mount the two angle brackets to the frame as shown in the drawing. The brackets should be entirely on the component side of the board.
- ( ) 5. Now screw the board to the brackets. Insert the 4-40 X 3/8" screw from the foil side of the board. **DOUBLE CHECK THAT THE HEAD OF THE SCREW DOES NOT TOUCH ANY FOIL!!!**
- ( ) 6. Unpack the front panel carefully. Avoid scratching its surface. **AT THIS POINT** you may if you wish skip steps 7-8 and proceed through the first few steps in the panel wiring (those in which wiring is done between components on the panel, but not to the board) before finishing the module assembly.
- ( ) 7. Mount the top of the panel to the top of the module frame using the top two potentiometers as follows: If there are tabs sticking up parallel to the shaft on the pots, bend 90 degrees inward out of the way. Put the locking washer on the pots. Insert the pot shafts through the matching 3/8" holes in the frame and the top of the panel. Put on the nuts and tighten them very snugly, but avoid scratching the panel.
- ( ) 8. Attach the bottom of the panel to the frame using the remaining 4-40 screws and nuts.
- ( ) 9. Install the other pots onto the panel.
- ( ) 10. Install all 12 mini-phone jacks as shown in the panel drawing.
- ( ) 11. Turn all pot shafts fully counterclockwise and mount the knobs pointing to the leftmost number. Tighten knob screws.

PANEL WIRING--Refer to panel wiring diagram and board assembly drawing.

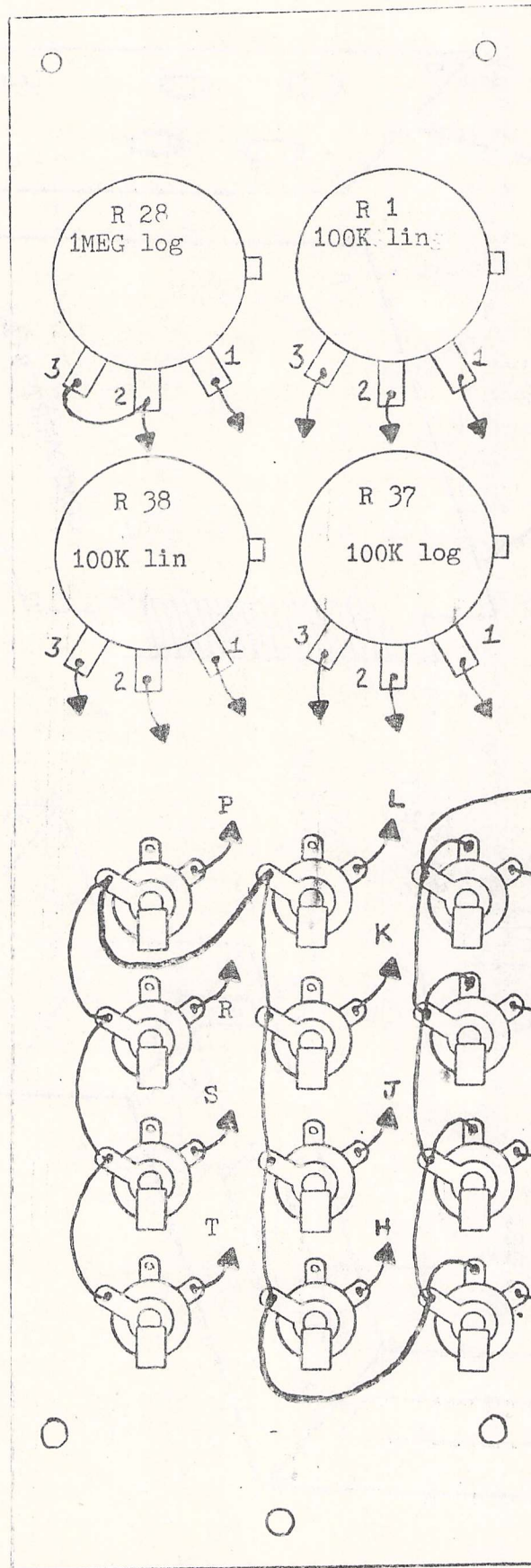
- ( ) 1. Run a wire connecting the grounds of all 12 mini-jacks, as shown, and from there to the point on the board labelled M on the assembly drawing. Note the shunt grounds on the 4 audio input jacks.
- ( ) 2. Run a wire connecting pins 1, 2, and 3 of each pot on the panel to the appropriate point on the board as labelled on the assembly drawing. Wire one pot at a time to avoid confusion.
- ( ) 3. Wire all jacks with arrows and a letter designation to the appropriate point on the board as labelled on the assembly drawing.

THIS COMPLETES ASSEMBLY OF YOUR AR 314 VOLTAGE CONTROLLED FILTER.



AR314 VCF Module Assembly Diagram

AR 314 VOLTAGE CONTROL FILTER PANEL WIRING DIAGRAM--rear view



Arrows indicate a wire to the PCboard. All wires with arrows and ground bus must be insulated.