SW30PS6B Heathkit Ameritron Ceramic Wafer Instructions

Rev 0 Mar24,2026 W8JI

This wafer fits Ameritron and Heathkit tank circuit applications. It has equal or higher voltage breakdown than the OEM wafer when properly installed. This wafer works for the rear tank coil, the middle L coil, as well as load padding capacitors. Depending on application, some terminal lugs may not be used. For some applications, unused terminals are left unconnected. We include 10 inches of #16 silver, #14 tinned, and #12 tinned wire with this wafer.

Figure 1 SW30PS6B rear view lowest band

In figure 1 the wafer rotor is set on the lowest band. This is the rear wafer view.

The rotor leading edge (counter clockwise rotation to higher bands from rear view) should not extend outside the leading clip edge. Consult figures 1 and 2. The tailing rotor edge can overhang beyond clips. The figure 2 blue arrow is the leading edge.

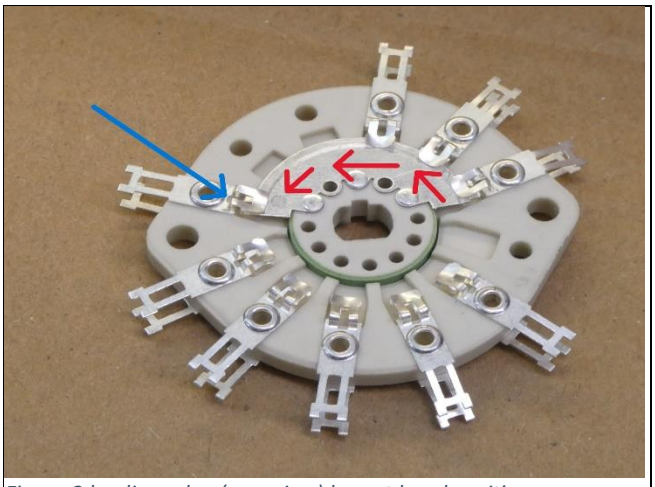

Figure 2 leading edge (rear view) lowest band position

The leading-edge position is set before attaching wires to any clips. Leave mounting screws loose while aligning the two #6 wafer support rod nuts loose. Always align the switch index before wiring!

Warning! Wafer insulation is prone to cracking from uneven pressure. ALWAYS use a non-metallic fiber washer against both sides of the wafer's mounting holes. Never put metal hardware directly against the ceramic body. Never overtighten fasteners.

Work in a well-lit clean area. Look at things carefully before seating, and always slide this wafer fully to seat by using even pressure. Never stress the lugs or rotor.

Soldering, Wire Prep, and Routing

Avoid stranded wire and braiding, which have two to eight times the RF resistance of solid bare bus wire. Tank circuit solder connections and wire ends should be smooth. Tank wiring should be rounded and free of sharp solder or wire-end protrusions. Minimize wire open ends sticking out of lugs. ***For longer life and a professional look, bend and pre-fit wires before soldering.***

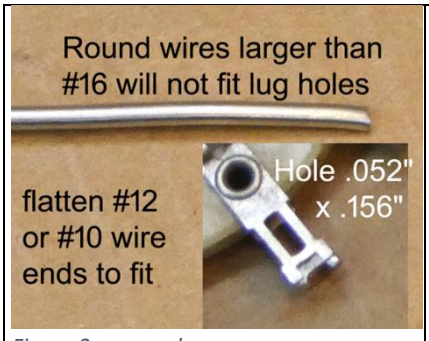

Figure 3 prep end

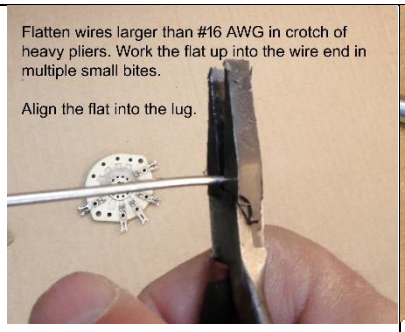

Figure 4 flatten to fit

Figure 5 match lug hole angle

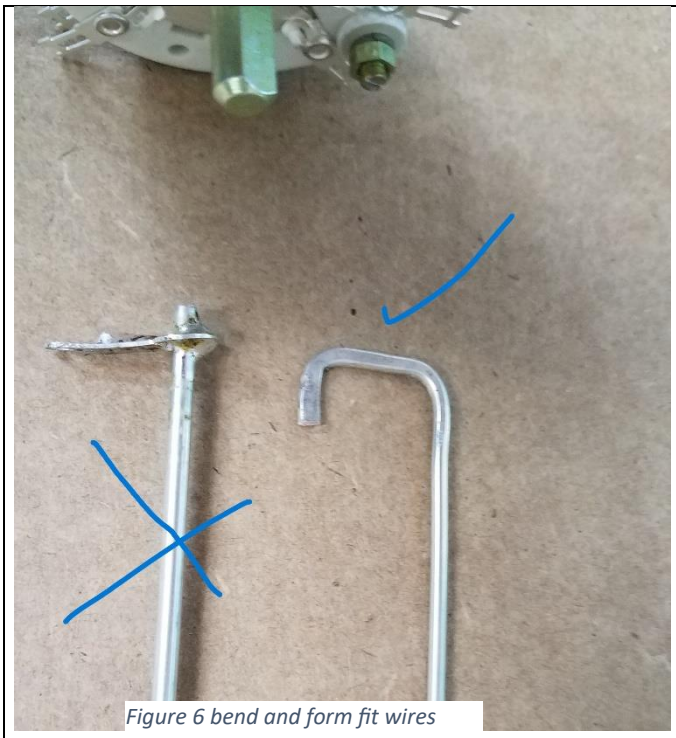

Figure 6 bend and form fit wires

MFJ sometimes used lugs to fit wires and often never trimmed things. Kits can also have similar poor tank wiring. Pre-fit trial bending and flattening not only looks better, there is less tendency to form corona and produce unwanted switch arcs. Continuous single wire connections are also lower resistance than lug-to-lug-to-wire and have less tendency to heat. Tank wiring can be a performance and life enhancement. It also looks better. Proper relay timing and sequencing, as well as heavy enough loading (low grid current), also increase switch reliability. All wires should reach the wafer in a resting state and not pull or twist on the terminal.

A properly soldered wire should look similar to this old switch (but clean it up with alcohol and toothbrush!):

Figure 7 prefit to lug without excess

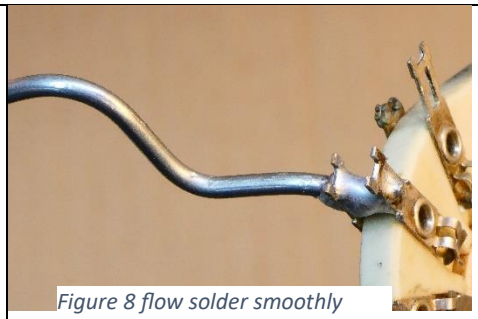

Figure 8 flow solder smoothly

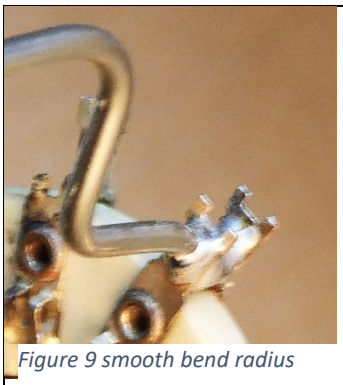

Figure 9 smooth bend radius

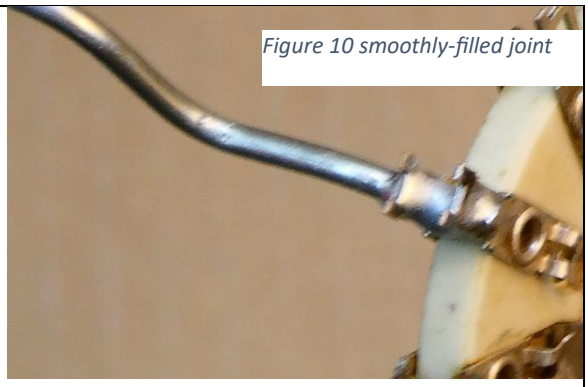

Figure 10 smoothly-filled joint

AL811 AL572 and AL80B Amplifiers

This wafer is a direct replacement for the Ameritron wafers. Please take clear photos of your old wafer before removing anything. Set the switch on 160M. Please read my instructions on input shaft removal and input shaft replacement in my AL811 kit instructions and my SW8RW wafer instructions. After reading the shaft instructions and understanding the process, remove the input drive shaft.

Read:
https://www.ctrengineeringinc.com/shared-files/1154/Input-Switch-Replacement-rev0.pdf

Look over page 6 and page 7 on:
https://www.ctrengineeringinc.com/shared-files/651/Upgrade-Kit-AL811-and-AL811H-amplifier-5final-1.pdf

The basic rear wafer and input drive shaft details in the links above can be helpful. Remember sharp points and long free-space open-end wire protrusions reduce switch breakdown voltage, especially on ten-meter contacts. AL8X style switches use this tank switch layout:

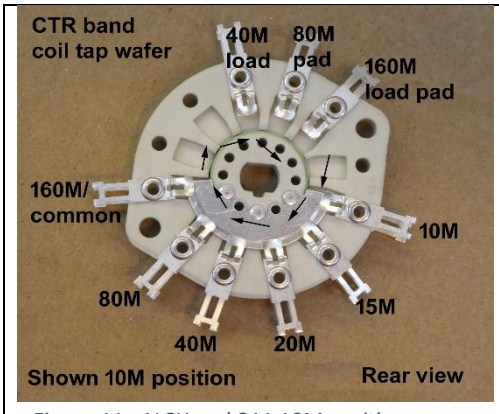

Figure 11 AL8X and 811 10M position

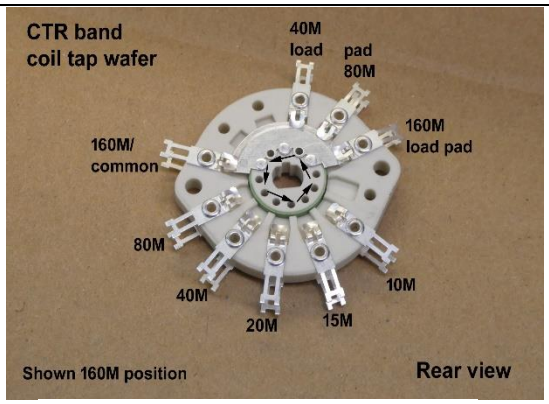

Figure 12 AL8X and 811 160M position

Heathkit Switches

This wafer is an improved replacement for Heathkit tank coil switches.

When I designed the Ameritron switches I copied Heathkit double ‘D” shaft indexing. The lowest Ameritron band is the same shaft position as Heathkit used for their lowest band, which is 80 meters. This was done so Ameritron switches could retrofit and adapt Heathkit amplifiers with one more band. This wafer relocates the ten-meter tank tap one additional position from the support post in Heathkit amplifiers. A subtle change in rotor design along with the relocated ten meter tap significantly improves switch reliability.

Switch taps move one position clockwise in Heathkit amplifiers. Unless a new switched 6-meter or 160-meter band is added, some terminals are not used. I’ve personally used this wafer in my SB230 amplifiers that were modified for 160-10 meters and 80-6 meters. There is no reason this would not work in other amplifiers with 30 degree indexing and similar shafts.

The contact positions are show in figure 13.

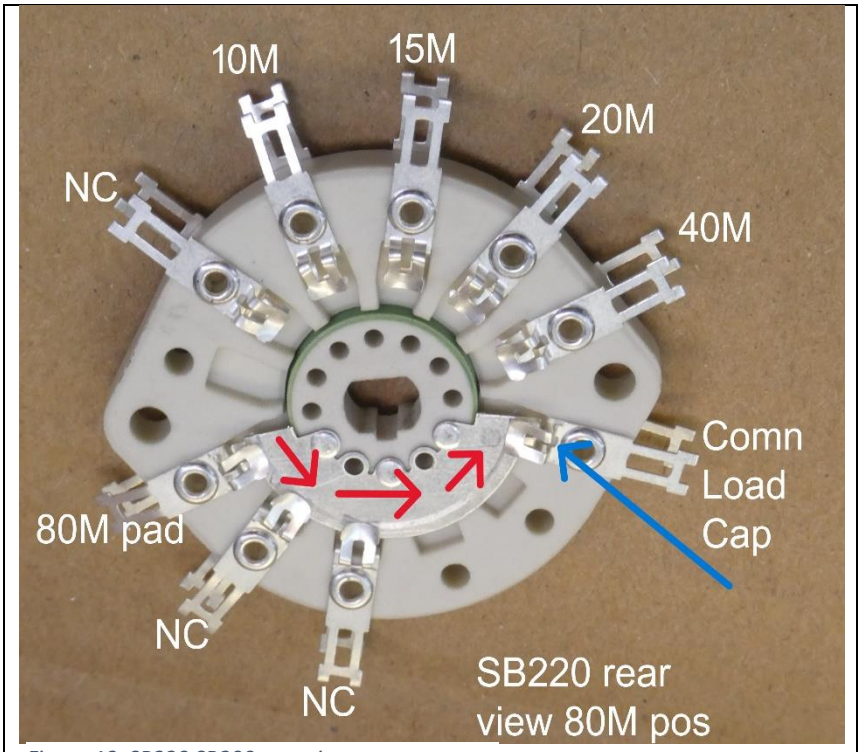

Figure 13 SB220 SB200 rear view

SB220 front view and this wafer overlaid:

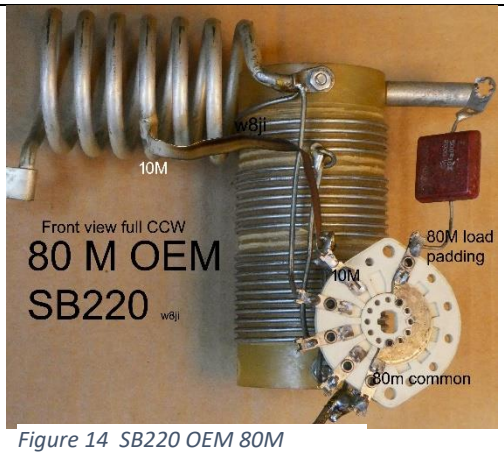

Figure 14 SB220 OEM 80M

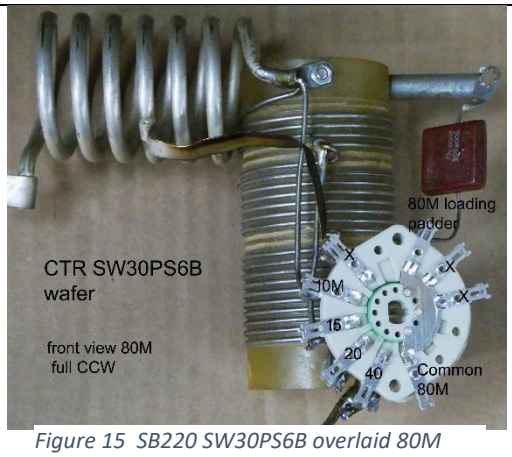

Figure 15 SB220 SW30PS6B overlaid 80M

The load padding capacitor remains in the same position while all tank coil taps move one terminal counter clockwise in this front view.

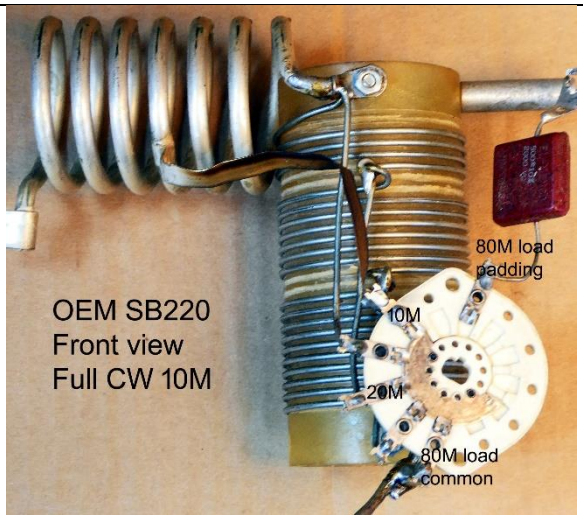

Figure 16 OEM SB220 10M

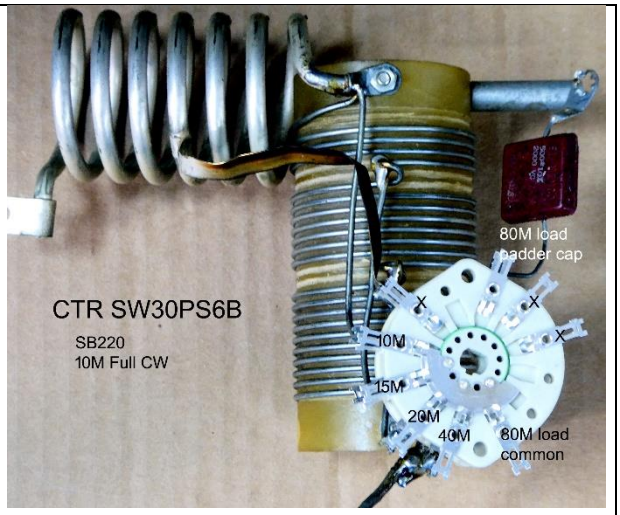

Figure 17 SB220 SW30PS6B overlaid 10M

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