

A Simple Improvement for the ART/13 Speech Amplifier

BY HERBERT GREENBERG,* W2EEJ

THE audio quality of the ART/13 can be improved and hum resulting from use of the filament supply for the carbon microphone source eliminated by a simple change. The cathode voltage of the driver stage is utilized to provide the voltage for the carbon current needed.

First, remove the speech amplifier from the ART/13. It may be advisable to remove the 837 before attempting this if there is not enough play for an easy operation. Turn the unit over and place it in the same position as shown in fig.

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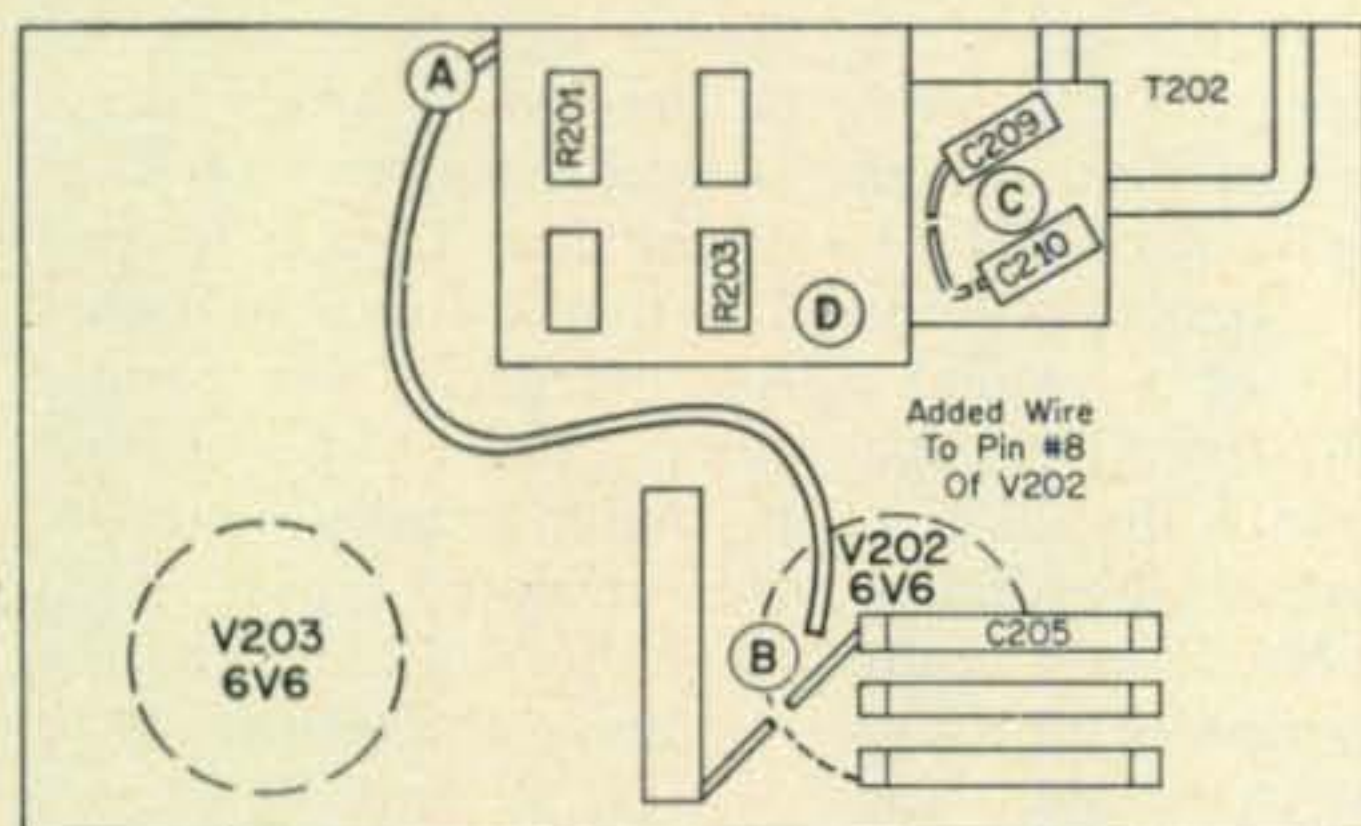


Fig. 1—Pictorial layout of the speech amp of the ART/13 showing the areas of modification.

1. Remove the two screws that hold the three mica capacitors to the chassis and save them.

Now cut the lead at Point A of the four resistor terminal board. This is one end of R₂₀₁, a 220 ohm 1 watt unit, which originally connected to the filament of the 6V6 m.c.w. oscillator and side tone amplifier (V₂₀₃) which physically is the one mounted in the corner of the chassis. Bend this wire back and tape the end to prevent any possible chance contact to anything.

Use a piece of insulated wire, about five inches long, first stripping and tinning the ends, and connect from point A to pin 8 of the 6V6 driver, (V₂₀₂), the one near the 12SJ7 and under the three mica capacitors.

Cut the bare wire from C₂₀₅ at point B, bending the leads apart to prevent accidental contact to each other. This improves the frequency response by eliminating the 12SJ7 plate bypass capacitor and prevents some of the "boominess."

For further extension of the response range, at point C cut one lead to each of the 0.01 capacitors, C₂₀₉ and C₂₁₀, if present. These are the 811 grid bypass audio "correction" capacitors. These were not used on some models, such as the ATC Navy version.

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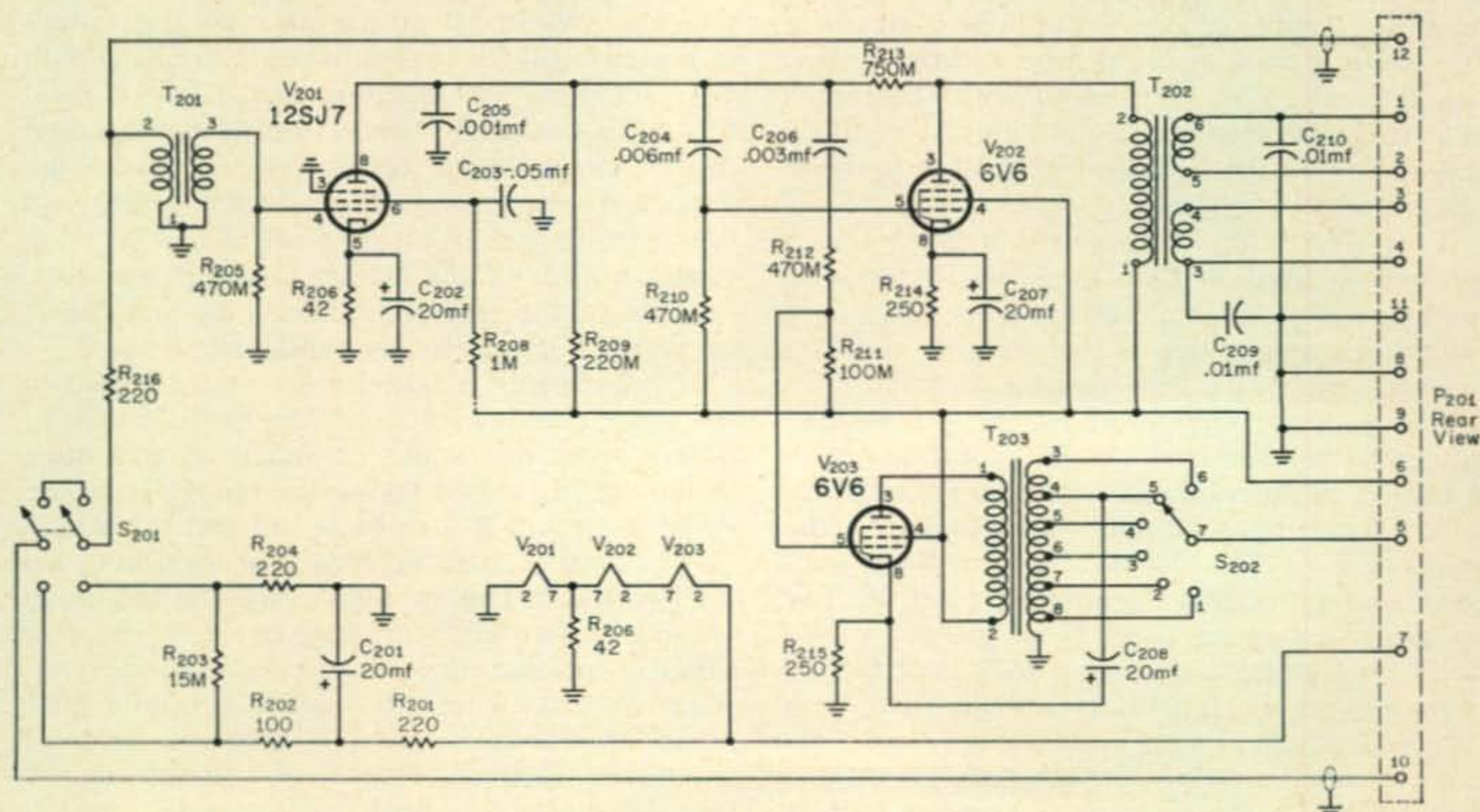


Fig. 2—Circuit of the ART/13 Speech amplifier before modification.

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Rock Crusher [from page 98]

minus wires are not to be connected to the chassis. All B minus connections should be tied to a buss line insulated from the chassis. The key jack, connected to the B minus line, must be insulated from the chassis with shoulder washers.

To reduce TVI, the cabinet should be tied to earth ground through a water pipe or a direct ground pipe if possible. If care is not exercised a shock hazard exists between the key and the grounded cabinet. The hazard is eliminated when the line plug is properly inserted in the outlet. The second neon bulb, marked Safety Indicator, lights up when a shock hazard exists due to wrong plug polarity. When this is observed, reverse the lineplug, the light will go out and the rig is safe.

Operation

Set up the transmitter by first connecting the earth ground to the cabinet. Plug the line cord in, turn the power switch on and check the safety indicator. If it lights, reverse the plug. Plug in the proper crystal for the 40 or 80 meter band. With the coil and capacitor combination used, the tank tunes both bands. Forty meter crystals will tune with the 365 mmf plate capacitor mostly unmeshed and 80 meters rocks will tune with the plates mostly meshed.

Set the ANTENNA tuning capacitor fully meshed and the PLATE capacitor (365 mmf) meshed or unmeshed, depending upon the band. With a 15 watt bulb connected to the antenna terminal, press the key. Tune the PLATE capacitor for minimum reading on the meter. Decrease the capacity of the ANTENNA capacitor until the plate current rises to 50 ma. Retune the plate capacitor to minimum. Repeat once or twice and you should be set. Connect the antenna, retune quickly and you are on the air.

Be sure not to operate the MK II when the safety light is lit. The MK II is a delightful and simple fun project. Make no mistake, it is not a toy but puts out a clean, respectable and very useful signal. ■

ART/13 [from page 28]

Since the cathode voltage is less than the original source, resistor R_{203} should be changed from 15,000 ohms or 4700, whichever was the value used originally, to 3300 or 2700, depending on the output of the microphone used. A slight increase in modulation percentage will result if the smaller value is used. This resistor is at point D in fig. 1.

The total result of the changes, which require no drilling, or special tools, and which can be accomplished in little time, will be a better sounding ART/13. For those who are absent minded, remember to replace the mica capacitors and the screws holding them before reassembling the speech amplifier in its cabinet.

Another bonus as a result of these changes is that the power supply for the filament, relay, and motor supply need not be filtered at all!

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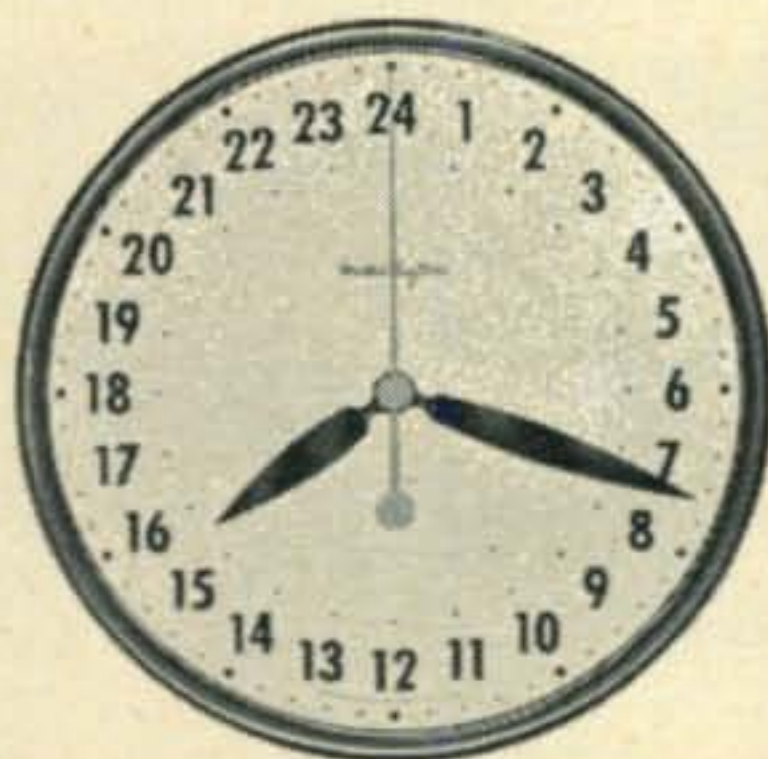
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Removing the large capacitors in the power supply filter will permit the rectifiers to run cooler. Any choke in the supply can also be removed or shorted across the terminals. If a.c. is used for the filaments as in some conversions, the need for a battery microphone supply is eliminated as well.

The net result will be a much better sounding signal from the ART/13 with a minimum of changes. If a telephone type F-1 or N-1 is used, little difference from most signals will be noted, and a substantial improvement over military types will result. ■

VHF Contest Result [from page 40]

K1JT0/1	Vermont				WN2OAB	58	17	18	22,185
	75	26	18	43,875	WB2DDA	46	19	15	16,388
					WN2LVW/ 2	30	14	14	9600
WA4APG	Virginia				WA2ZOW	31	7	17	4611
	1	1	1	1	WN2OAD	21	9	13	3071
					WN2OJU	18	10	2	450

Washington					New York				
Wisconsin					WB2CYL	166	51	23	243,398
K7VMA	34	7	19	5538	WA2GHN/				
WA9JCY	125	28	24	105,000	2	105	48	24	120,960
K9YGR	108	39	18	94,770	WA2YHS	128	26	21	69,888
WA9CBP	106	25	24	79,500	WB2CPC	67	19	19	30,719
W9HWQ	15	3	5	281	K2GSF	36	20	13	11,700
Canada					WA2DRK	38	20	15	11,400
VE3EWZ	8	4	8	256	WN2LBW	33	16	13	8580
					W2DGZ	34	13	13	7183
					KN3ZX1/2	16	4	8	640
					WB2NHN	6	2	3	45
					WB2FXB	1	1	1	

144 Mc Scores

Alaska					North Carolina				
W8KNC/ KL7	7	1	4	28	WA4REX	30	6	19	4265
					WA4MFG	28	5	19	3325
California					Ohio				
K4CHE/6	126	19	22	65,835	W8DYJ	177	75	24	318,600
W6YIO	116	20	20	58,000	W8SPR	32	16	12	7682
WB6KAP	77	16	17	20,944	K8YWF	26	13	10	3380
WB6CTY	61	9	18	12,353	K8RXD	18	14	12	3024
WA6RTM	29	10	14	4060	WA8JSL	12	3	8	360
WB6APK	25	6	17	3188					
W6YLL	11	6	9	743					
WN6KOK	10	5	8	500					
					Oregon				
					KN7ZFG/7	35	5	14	3063