The AM-33/ART for Six and Two

by WILLIE MAYES, K5ZND
3509 Woodside Drive
Midwest City, Oklahoma

Here is my version of the AM-33/ART power amplifier. It works swell for me; total cost for 500 watts plus some was about $5 plus a cleaner junk box!

The original AM-33/ART was a noise pulse amplifier designed to convert a 60-watt signal to an output of 250 watts.

The amplifier originally operated with negative 2000 volts on the grids, and the plates grounded through an RF choke (or in other words, a positive-ground supply system).

To convert the amplifier to one tuning both the 6 and 2 meter bands is extremely easy. Input to the converted rig will range from 600 to 850 watts in a package that measures only 10 by 9 by 9 inches including the tube blower fan! I have converted two of these units with no difficulties.

THE CONVERSION

Start by getting rid of the 400-cycle power supply. Saw off the chassis a half inch behind the amplifier itself.

Next, modify the input circuit by lifting the grounded end of the link coupling and insert a 50 pF variable capacitor in series between the link and ground. This makes easier the job of input tuning.

Leave the grid circuit intact (it will reach the 2-meter band with a little straining although it was rated only to 100 Mc). Bring the center-tap of the RF choke to a terminal for grid bias voltage. Bias requirement will be approximately minus 110 volts, to run a no-signal plate current of 40 to 50 MA.

Next, the filament wiring was modified slightly, by lifting the grounded side and wiring the filaments in parallel. If you have a 10-volt transformer in your junk box instead of the 5-volt unit I had, leave them in series.

Modification of the plate circuit consisted of removing the original antenna link winding in the plug-in coil, and winding a new link from two turns of wire with good high-voltage insulation. I stripped the shield from a piece of RG-58 coax and used the center conductor. Next, lift the grounded end of the link (at the socket pin) and insert a 100 pF series capacitor to ground.

To complete the conversion, lift the center tap of the plate coil socket from ground and insert an RF choke. I wound the choke from 40 turns of No. 28 enamel wire on a 5/16-inch diameter standoff. Bypass both ends of this choke to ground with 500 pF TV doorknob type capacitors.

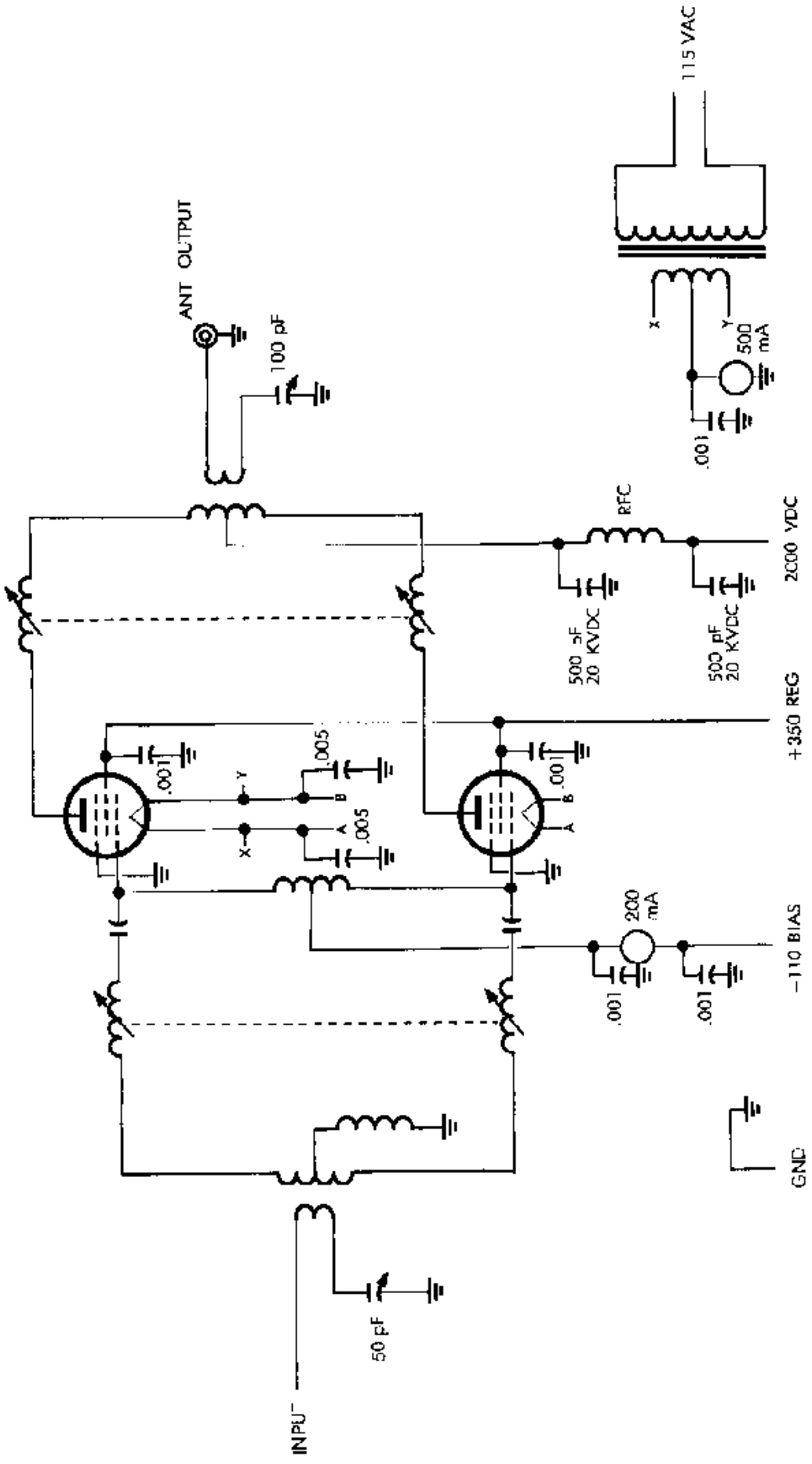
High-voltage requirement is 2000 volts, more or less. Check manufacturer's ratings for various operating conditions for the 4E27's.

One final caution — don't forget to ground the tube-socket subchassis. It originally floated 2000 volts negative to ground. I used several 1/4-inch wide copper straps to bond it to the main chassis.

That's it; have fun, and I'll see you on six!

—K5ZND

SCHEMATIC DIAGRAM (opposite page) shows circuit of amplifier after modification. Unlabeled components are those of original circuit. Electrical changes are minor although physical changes are not if full conversion is made. Not shown on schematic is blower wiring; if operation at full power is anticipated blower motor should be wired to 24 VAC to provide proper cooling of 4E27's.


115 VAC
X
Y
500 mA
.001
ANT OUTPUT
100 pF
RFC
2000 VDC
500 pF 20 KVDC
500 pF 20 KVDC
+350 REG
.001
.005
Y
B
A
.005
X
.001
B
A
200 mA
.001
.001
-110 BIAS
GND
50 pF
INPUT