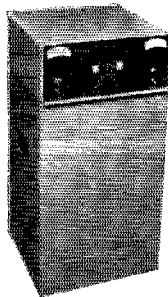


• Recent Equipment —



Henry 2-K Linear Amplifier

In a departure from the present trend of packing everything into one small box, Henry Radio has come out with a kilowatt linear amplifier, the 2-K, which in every sense of the word is rugged. The 2-K comes in two packages, the r.f. section and a separate power supply. There are two combinations available. The 2-K is a floor-mounted console with the r.f. section permanently mounted atop the power supply unit. Also available is the 2-KD, in which the r.f. section can be mounted separately from the power supply. If you want to build your own power supply, the r.f. section, 2-KR, can be purchased without the supply.

R.F. Circuit Details

The r.f. unit is a linear amplifier utilizing a pair of Eimac 3-400Zs connected in parallel and operated in grounded-grid. Any exciter capable of 80 to 160 watts p.e.p. output will drive the amplifier to full input. The amplifier covers the amateur bands between 3.5 and 29.7 Mc. Five fixed-tuned circuits, one for each band, are used in the grid r.f.-input section for driving the 3-400Zs. A single ganged bandswitch is used to switch both the input circuits and the tank circuit of the amplifier. A somewhat unusual feature of the 2-K is the pi-L combination used in the plate tank circuit, a switched L section being connected between the output of the pi and the antenna.

As Rinaudo pointed out in a *QST* article,¹ the pi-L circuit has the advantage of providing an additional 10- to 15-db. attenuation of the second harmonic and even more on the higher-order harmonics. This is particularly desirable in an amplifier operated at the kilowatt level, and even more so where multiband antennas are used with no provision for harmonic attenuation, such as a transmatch, between the transmitter and antenna. The pi-L network is designed to work into a 50-ohm load.

Two meters are used to measure the operating voltages and currents of the amplifier. One meter, 400 ma. full scale, is used to measure the grid current. A momentary contact switch mounted just below this meter can be pushed to measure the plate voltage, changing the full-scale range to

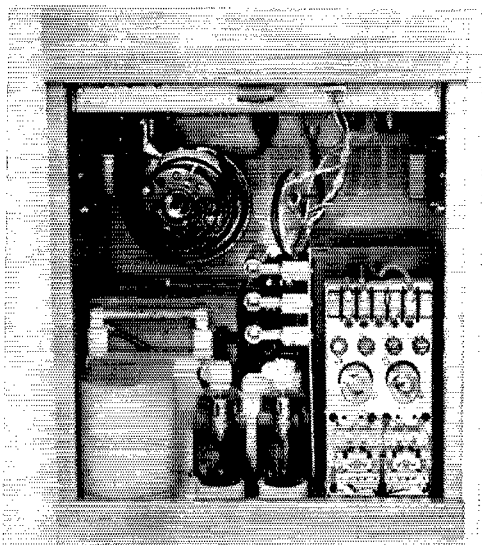
4000 volts. The other meter is a 0-1 amp. full-scale unit used to measure the plate current. The plate meter is connected in the negative lead of the high-voltage supply.

There are two switches on the front panel of the r.f. unit. One controls the filament supply for the 3-400Zs and turns on the plate power supply; the other switch controls the plate voltage.

Power Supply Details

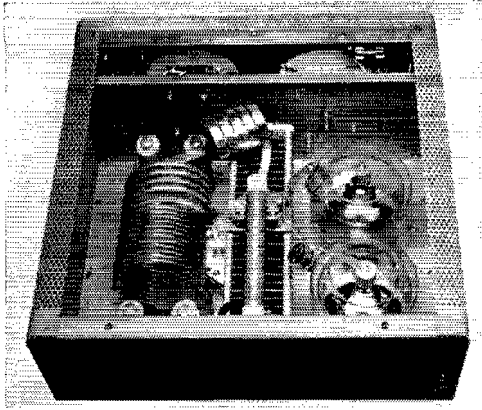
Earlier we used the word "rugged" when describing the 2-K. This certainly applies to the power supply. The high-voltage supply is a full-wave circuit using a pair of RCA 3B28 xenon rectifiers. A choke-input filter is used, the 8-henry choke being used in conjunction with 20 μ f. of filter capacitance. Either 115- or 230-volt a.c. input can be used for the supply.

A low-voltage supply that provides d.c. for the various control relays is also included. When



This view shows the interior of the power supply section. At the upper left is the blower used to cool the tubes. (In the desk mounted version, the blower assembly is mounted on the rear of the r.f. section.) The panel just to the right of the rectifier tubes contains the time delay switches and control relays for the supply and r.f. section.

¹ Rinaudo, "Pi-L Plate Circuit in Kilowatt Amplifiers," *QST*, July, 1962.



Looking down into the top of the r.f. compartment, the two 3-400Zs with their chimneys are at the right. The tank tuning capacitor is in the center and the pi-network inductor at the left. Not visible in this view is the L section which is mounted below deck. Safety interlock switches are used on both the r.f. section top cover and power supply front panel.

the filament switch in the r.f. unit is turned on, a system of time-delay relays protects the xenon rectifiers during their warmup period. Also, a blower used to cool the 3-400Zs is started. After approximately 20 seconds the high-voltage switch may be closed, applying the high voltage to the amplifier tubes, and the amplifier is ready for operation.

All of the power supply components are amply rated. For example, the power transformer is approximately 6000 volts, center-tapped, at 1 amp. This, along with the other heavy-duty components, contributes to a no-load to full-load regulation of better than 5 percent.

In the 2-K model, the blower is mounted below the r.f. section, near the top of the power supply. When the desk-mounted r.f. section is used, and the power supply is remote, the blower is mounted on the rear of the r.f. unit.

Other Details

Steel cabinetry is used for both units. The r.f. section sides and top are perforated. Shielding of the r.f. section is complete, even to the extent of using metal-backed panel meters.

It isn't necessary to disconnect the amplifier if you want to run your exciter "barefoot." When the plate voltage switch is turned on or off the switch also controls the antenna relay which is built into the amplifier. Turning off the plate switch routes the exciter output to the antenna, bypassing the amplifier. Also, the amplifier can be used with any transceiver that has provision for controlling an external relay, as most do. The antenna relay in the amplifier has an external connection point that can be connected to the transceiver control circuits. When this connection point is grounded (closing the antenna coil to ground) the antenna relay is energized, feeding the output of the transceiver into the amplifier. When the transceiver is in the receive position, the antenna relay coil is opened and the antenna is connected directly through the amplifier to the transceiver.

The instruction book provides complete details for tune-up procedure plus a circuit description and complete list of parts. Power-input specifications are 2000 watts p.e.p. on s.s.b. and 1000 watts on c.w. or a.m. Drive requirements are 60 to 150 watts p.e.p. for s.s.b. or c.w., and 40 to 60 watts for a.m. phone.

In the event the r.f. section alone is purchased, power requirements are 2500 volts d.c. at 400 ma., 5 volts at 29 amp. (3-400Z filaments), and 6 volts d.c. for relay control.

— WICP

Henry 2-K Linear Amplifier

Height: 29 1/2 inches.

Width: 11 1/2 inches.

Depth: 13 inches.

2-KD

Height: 12 inches.

Width: 11 1/2 inches.

Depth: 13 inches.

Weight: 2-K, 158 pounds, 2-KD 33 pounds.

Power requirements: 115 volts a.c., 30 amps., 230 volts a.c. 15 amps.

Price class: 2-K, \$675.00, 2-KD, \$475.00.

Manufacturer: Henry Radio, Los Angeles, Calif.

IMPORTANT NOTICE

Changes of Address

Important postal changes in handling second-class mail matter are now in effect. Please advise us *direct* of any change of address. Four weeks notice is required to effect change of address. When notifying, please give old as well as new address. Your promptness will help you, the postal service and us. Thanks.

Strays

All amateur radio operators who are members of the Knights of Columbus and who are interested in a K of C amateur radio network please contact Dr. R. P. Steigerwald, K8ENX, 217 Kurtz St., Wooster, Ohio.

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J. R. Hermann, W8TSF/Ø, 31 Fairmont Blvd., Rapid City, South Dakota 57705, would like to hear from hams who are professional librarians, with Master's degrees in Library Science.