

PERHAPS this month's page should be headed *Strays*, since its purpose is to correct a typographical error in the 1964 *Radio Amateur's Handbook*.

PAGE V31 of the *Handbook* interchanged the data for the 8122 tube used in the NCL-2000 two Kw amplifier with that for the 8121 — which is a convection cooled tube with a plate dissipation of only 150 watts. The 8122 is a high power ceramic tetrode designed specifically for SSB by RCA, and has a plate dissipation of 400 watts. Two 8122's are used in the NCL-2000 for a total of 800 watts of available plate dissipation — and they run very cool indeed at an average kilowatt. When you reverse the listings for the 8121 and 8122 in your copy of the *Handbook* ('65 *Handbook* is OK), you may also want to make a note that the allowable no-load plate voltage for the 8122 is 3000 volts when certain circuit parameters are met (details available from RCA's Tube Application Engineering Department).

THE ABOVE would not be particularly important, except for the fact that a number of early 8122 tubes used in the NCL-2000 failed when first placed in service because of manufacturing defects in the tube. These failures, coupled with the typo in the *Handbook*, led to supposition that the 8122 tubes used in the NCL-2000 were being run out of rating.

THE FACT is that the initial failures were due solely to eccentricity between the grid and screen of a number of 8122 tubes in a particular production run which resulted in grid-screen shorts very early in their operating life. NCL-2000 owners who experienced such failures found that these tubes were backed 100% by RCA's guarantee, and that they were immediately replaced with no questions asked. The defect was, of course, corrected by RCA as quickly as possible — and *all* tubes in new NCL-2000 amplifiers in distributor stock were replaced with tubes from the new production run.

TUBES from the new run were tested at RCA by running random pairs *continuously* for 500 hours at 2000 watts single tone "DC" input. Only one failure occurred — when the water cooling system to a dummy load failed and the dummy load was destroyed. These tests were performed, incidentally, at 150 Mc.

WE'VE covered quite a bit of detail about the 8122 because we're very jealous of our reputation for conservative design — and the suggestion (unfortunately given credence by the *Handbook* typo) that we would market a product with marginal tube ratings is an exasperating one.

THE NCL-2000 is the *only* amplifier on the amateur market with a manufacturer's I. C. A. S. rating of 2000 watts single tone D. C. input for the entire equipment. The NCL-2000 may be so operated into a dummy load indefinitely. As a matter of fact, the power transformer is the only component in the amplifier with a 2000 watt I. C. A. S. rating — all other components, including tubes, are rated at 2000 watts C. C. S.

SPEAKING of conservative design, the use of 8122 tetrodes in the NCL-2000 offers a number of important advantages over common grounded-grid circuits using zero-bias triode tubes — tune-up is much easier because tuning of the amplifier has no effect on the exciter — driving power is minimal (adjustable as low as 20 watts) instead of requiring as much as 100 watts and more for proper amplifier operation — exciter linearity is maximum, and potential TVI minimized because the exciter is not working in excess of its power capabilities — ALC control of the NCL-2000 is possible and compatible with our own NCX-5 and other transceivers and transmitters incorporating ALC provisions — the use of modified Class AB₂ operation in the NCL-2000 provides total protection from destructive peak currents resulting from accidental overdrive* — and passive grid operation permits the incorporation of a 50 ohm dummy load in the NCL-2000 grid circuit to allow exciter tune-up and adjustment into the amplifier without placing a signal on the air.

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*See the *National Page* in *QST* for July, 1964.



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