

Heathkit of the Month for April:
by Bob Eckweiler, AF6C



**The Heath C-7
 Lakota Kilowatt Transmitter.**

Note: I was unable to find time to write an article this month due to another time wasting venture. The father of my good friend Larson April Jr., who evidently follows this series, volunteered to fill in. - AF6C

Introduction:

Of all the ham transmitters built over the years only a few came equipped to run the full legal amateur power. Add-on external linear amplifiers became popular after the growth of SSB, but surprisingly, the two complete full legal power transmitters were older AM units featuring plate modulation. Collins made such equipment but it was not designed for ham use. There are two others of note:

The first is the E.F. Johnson **Desktop Kilowatt**, and even it cheated a bit by using its **Viking** transmitter as the exciter part of the unit. The Johnson **Desktop Kilowatt** is actually built into a metal desk and runs a pair of 4-400A final tubes in class-C and plate modulates them by a pair of 810s in push-pull for AM. The amplifier part of the transmitter mounts where the file drawers would be in a standard desk. Optional drawers were available on the other side of the desk for user storage, logbooks, etc. The receiver can sit atop the desk beside the **Viking** Exciter.

The other full legal limit transmitter is the very rare Heathkit **Lakota C-7** which was introduced 50 years ago on the first day of this month. This was before political correctness; and Heath at the time was naming much of its ham gear after American Indian tribes. Unlike most Heathkits of the time, the **Lakota** was

actually comprised of multiple kits that assembled into one unit. Also, much like the Johnson Kilowatt, this unit is housed in a piece of furniture - a low cupboard instead of a desk. The low cupboard made up one kit, the exciter section a second, the amplifier section a third, the power supply a fourth, and the modulator section the fifth. An additional kit, a custom microphone, was also included. While each of these kits were separate with their own name and packaging, they could only be purchased as a combined package, which was given the same name as the amplifier section - **Lakota**. Let's look at each of the components individually:

Rosebud Enclosure:

One has to talk about the furniture part first. Heath gave it the nomenclature of *Rosebud*. No, this has nothing to do with the movie, *Citizen Kane*. Instead it refers to the Rosebud River in Montana near where Heathkit had its research reservation - situated on the Wyoming-Montana border. The low cupboard is unique to say the least. It is made from Walnut and is in the style *Lyle's Antiques* refers to as "Sitting Bull". The exciter is accessible through the top of the cupboard and the amplifier controls through a door in the front. The power supply and modulator sit on a raised floor of the cupboard and are only accessible by unscrewing wooden panels in the back. There are also unused drawers that can hold linens, dishtowels and bric-a-brac, - or spare rolls of solder and miscellaneous electronic components, - depending upon whether the owner is a bachelor or not.

Heathkit had always been an avid, though limited, manufacturer of furniture kits. There have been speaker cabinets, wooden cabinets for their hi-fi gear, a hutch that holds their clock, and many other examples. In the 1990's Heath actually went deeper into the furniture kit business and included a separate kit furniture catalog that could be removed from their electronic kit catalog.

Crook - Custer - Gibbon Power Supplies:

The Power supply was named the *Custer*. Originally the **Lakota** was to be handled by three separate power supplies, one each for the exciter, the modulator and the amplifier. They were named the *Gibbon*, the *Crook* and the *Custer* respectively. The *Crook* got delayed because of a conflict with the *Rosebud*, and the *Gibbon* (alternately known as the *Terry*) was split from the *Custer* when it appeared that the *Custer* could handle the whole **Lakota** demand by itself.

Sioux Exciter:

The exciter is rather ordinary. It's design came pretty much from the **Cheyenne MT-1** (reviewed recently) and another little known Heathkit transmitter called the *Sioux*, which never made it into production. When not in use the exciter, which took over the *Sioux* nomenclature, lay in wait inside the *Rosebud*. The *Sioux* could not be run barefoot, but did have a "moccasin" mode.

Comanche Modulator:

The modulator is named the *Comanche*. This not named for the indian tribe as was the **Comanche MR-1 Receiver** reviewed a few months ago; instead it is named for a famous horse of the 1870's and well remembered on the Heath reservation. The modulator's name became a joke among the users of the **Lakota** as the transmitted audio tended to make the user's voice sound "hoarse". However this audio problem was actually caused by the microphone. The Modulator uses a pair of high power tubes using, instead of filaments, Gatling emitters that were originally to be part of the *Custer* assembly, but were not believed to be needed in the final assembly.

As the Heathkit C-7 was nearing production. Heath's research reservation was working on a new microphone. It was based on the oversized studio mic of the time known as the *Bighorn*. Heath developed a much smaller version of that mic, but in doing so they lost a lot of the audio response that made the original mic so

famous. Heath named the mic the *Tomahawk*, but users and Heath Engineers commonly referred to it as the *little bighorn*.

Lakota Amplifier:

Finally, we get to the *Lakota* amplifier. To say the least the *Lakota* is massive. Specifications give its capability in horsepower instead of kilowatts. It has tremendous dynamic range and uses the latest (at the time) fire-stick emitters operating in parallel. With all its strength it has one fault. Using so many polarized components the *Lakota* amplifier tends to shed the arrows that mark polarity and they can land on the *Custer* below, causing damage.

Personal Observations:

When working, this fine Heathkit puts out a loud signal. Even with the hoarse quality of its audio, it was heard across the nation and onto other continents. Unfortunately production was stopped after just a few months on June 26th. While the reason Heath stopped production after such a short run was never given, the problem was surmised to be failure of the *Custer* power supply. As large as it was, it couldn't handle the powerful **Lakota**. The original design of *Custer*, being reinforced by *Crook* and *Gibbon* to supply additional power, probably would have resulted in success. Perhaps if the Gatling emitters were incorporated, as well as extra iron the designers were offered, this would have resulted in a normal life-span for the *Custer* power supply.

One other serious problem that I encountered with the **Lakota** was also due to the power supply. Being heavy it caused the wood that made up the floor of the cupboard to sag severely. At first I tried supporting the floor by placing a cigar box under it. The box was crushed. Next a platform from a small aluminum chassis was tried without success. Finally a stand welded of steel bar-stock was constructed that fit tightly under the cupboard floor below the *Custer* power supply. This last platform worked!

Still, the *Custer* quickly died. It was beyond repair and I scrapped the whole transmitter. The only part I kept was the little platform I built, after three tries, to support the *Custer* power supply. Now, every year on April first and again on June 26th, I sit down next to the platform, pour out a shot-glass of **George Dickel** (no ice - 'cause water's for bathin'), and think of the **Lakota**, *Sioux*, *Comanche*, *Crooke*, *Gibbon* and *Custer*. As I sip my Whisky I reminisce about the **Lakota**, the *Sioux* and the *Cheyenne* all under *Sitting Bull* overpowering *Custer*; and *Comanche* also falling by the power of the **Lakota**. I can almost hear sounds ringing into the *Little Bighorn*. When I finish the whisky, I place it gently on the steel platform, which is now known as *Custer's Last Stand*.

73s,

- Larson April the First

Editor s Note: *After reading this interesting article about a Heathkit I wasn't aware of, I kind of became a bit suspicious. Maybe I'm wrong, but Larson April Sr. seems to be pulling our leg? His uncle, Larson E. Rapp, was noted for some of the finest April literature ever to grace QST.*

73, from AF6C



Remember if you come across any old Heathkit Manuals or Catalogs that you do not need, please pass them along to me.

Thanks - AF6C

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