

Part 2a: How K-AMP circuitry can be used in actual fitting situations

# The K-AMP hearing aid: Clinical impressions with fittings

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Part 1 of this article gave an overview of what K-AMP® circuitry does, its features, and the benefits of these features for hearing-impaired persons. Part 2a summarizes how well the K-AMP high fidelity hearing aid works as demonstrated by the results of the first 70 units fitted. Finally, in Part 2b, some representative clinical cases will be discussed.

These clinical impressions with K-AMP® high fidelity hearing aids are the result of 70 K-AMP fittings completed prior to March 3, 1991. (A fitting refers to one ear.) The 70 K-

**Experienced hearing aid wearers were generally successful K-AMP hearing aid wearers. . . . Some preferred to have an operational K-AMP/ "linear" switch.**

AMP hearing aids were fitted on 45 patients; 44 patients were successes and one was a failure; 68 K-AMP hearing aids were kept (Fig. 3) and two were returned. Of the 45 patients fitted with K-AMP hearing aids, 25 were binaural fittings and 20 were monaural fittings. Twenty-four of the 25 binaural fittings remained binaural and one patient became a monaural wearer. Nineteen of the monaural fittings kept the K-AMP, and one changed to a more powerful BTE hearing aid.

A successful hearing aid fitting was defined here as one in which the individual kept the hearing aid; the wearer anecdotally noted use of the hearing aid. The age and sex distribution of the patients fitted with K-AMP hearing aids is shown by decade in Fig. 1. Generally, there were more men than women fitted in each decade except for the 60s' and 90's.

The greatest numbers of individuals fitted were in their sixties. The distribution of first-time hearing aid wearers and experienced hearing aid wearers is illustrated as a function of age in Fig. 2. There were approximately twice as many new wearers as experienced wearers in the group, although the numbers of new and experienced wearers were equal for those individuals in their sixties.

### A wide range of losses fitted

The 45 patients or 70 ears fitted with K-AMP hearing aids had a wide range of hearing losses. The hearing losses for 68 successful K-AMP fittings are shown in Fig. 4a and 4b. Fig. 4a shows audiograms of essentially high frequency hearing

**K-AMP Fittings**  
(45 Patients as of 3/03/91)

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- 51 SUCCESSFUL K-AMP Fittings with HIGH FREQUENCY Hearing Loss
  - 19 Binaural (19 SN)
  - 13 Monaural (11 SN, 2 Mixed)
- 17 SUCCESSFUL K-AMP Fittings with FLAT or REVERSE-SLOPE Hearing Loss
  - 5 Binaural (3 SN, 2 Mixed)
  - 7 Monaural (5 SN, 2 Mixed)

Fig. 3. The 68 successfully fit K-AMPs are categorized by type of loss.

losses ranging from mild to severe. Fig. 4b shows audiograms of generally flat or reverse slope hearing losses, ranging from mild to moderate low and middle frequency losses with normal-to-severe high frequency losses. The G and P labels indicate the two different manufacturers of K-AMP hearing aids fitted during this period: G=General Hearing Instruments and P=Precision Hearing Instruments.

In the first year following introduction of the K-AMP circuit to the hearing industry, there were few manufacturers incorporating the K-AMP circuit. Now it is carried by many manufacturers. It is important for dispensers when making the selection to realize the variety of K-AMP circuits available and to choose appropriately for the hearing loss.

There were 51 successful K-AMP fittings with high frequency hearing loss (Fig. 3). Nineteen of these patients, who were fitted binaurally, had sensorineural hearing losses. Eleven of the 13 patients who were fitted monaurally had sensorineural hearing losses and two had mixed losses.

There were 17 successful K-AMP fittings with flat or reverse-slope hearing losses. Three of the five patients who were fitted binaurally had sensorineural hearing losses, and two had mixed losses. Five of the seven patients who were

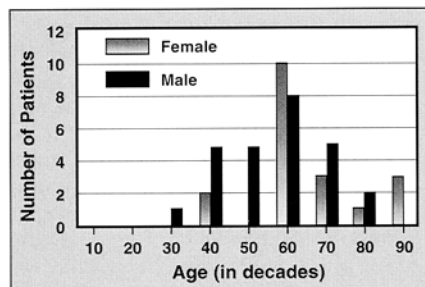


Fig. 1. The age and sex distribution of the patients fitted with K-AMP hearing aids is illustrated by decade.

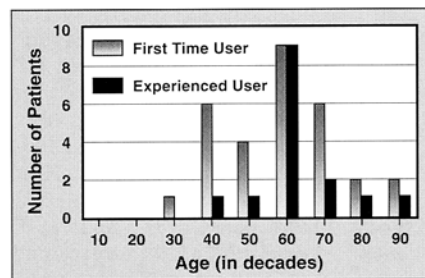
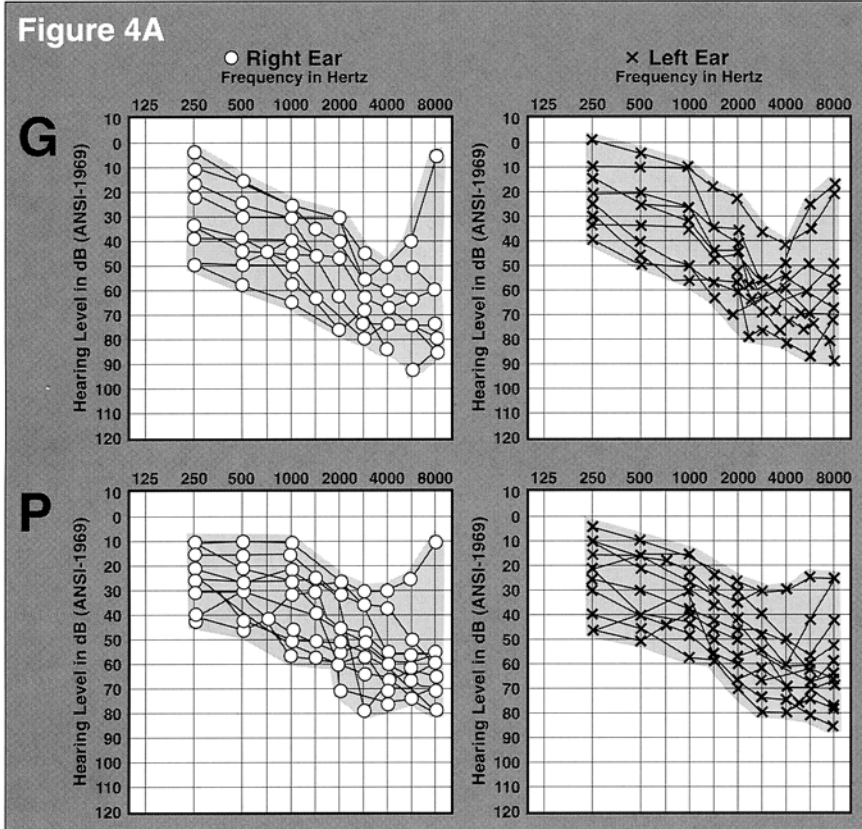


Fig. 2. The distribution of first time hearing aid users and experienced hearing aid users is illustrated as a function of age.

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## K-AMP clinical impressions



fitted monaurally had sensorineural hearing losses and two had mixed losses.

### Unsuccessful fittings

The two unsuccessful K-AMP fittings were first time wearers. In one case, the appropriateness of amplification at all, i.e., of any type, was questionable. This patient, with normal hearing except for a moderate 4kHz notch (Fig. 5a), became a monaural wearer, using a hearing aid in the ear with greater loss. The individual representing the second unsuccessful K-AMP fitting had a moderate low frequency loss and a severe to profound high frequency mixed loss (Fig. 5b). She had undergone surgical reconstruction of the middle ear with unsuccessful postoperative results. Her other ear had no measurable hearing. A K-AMP hearing aid with a strong receiver (3075) was not strong enough. She is presently wearing a strong BTE.

### Experienced wearers

Several of the individuals fitted were experienced hearing aid wearers (Fig. 2). It should be noted, however, that experienced hearing aid wearers were generally successful K-AMP hearing aid wearers. They indicated that they pre-

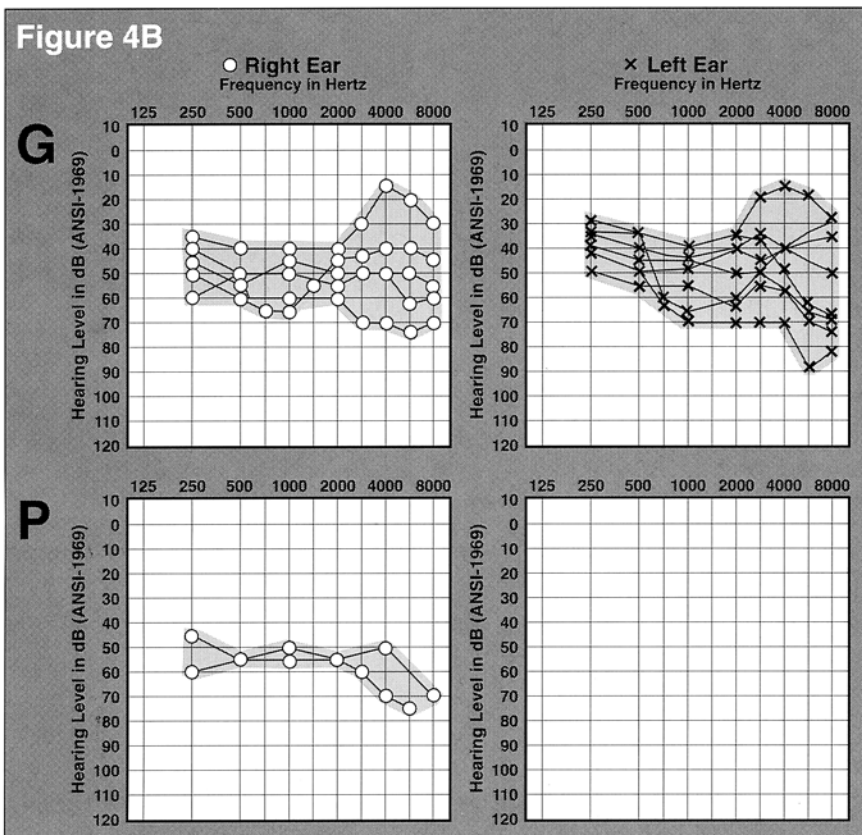


Figure 4. The audiograms for the 68 ears successfully fitted with the K-AMP circuit. Figure 4a shows audiograms with generally high frequency hearing losses. Figure 4b shows audiograms with generally flat or reverse slope hearing losses. (G and P indicated two different manufacturers.)

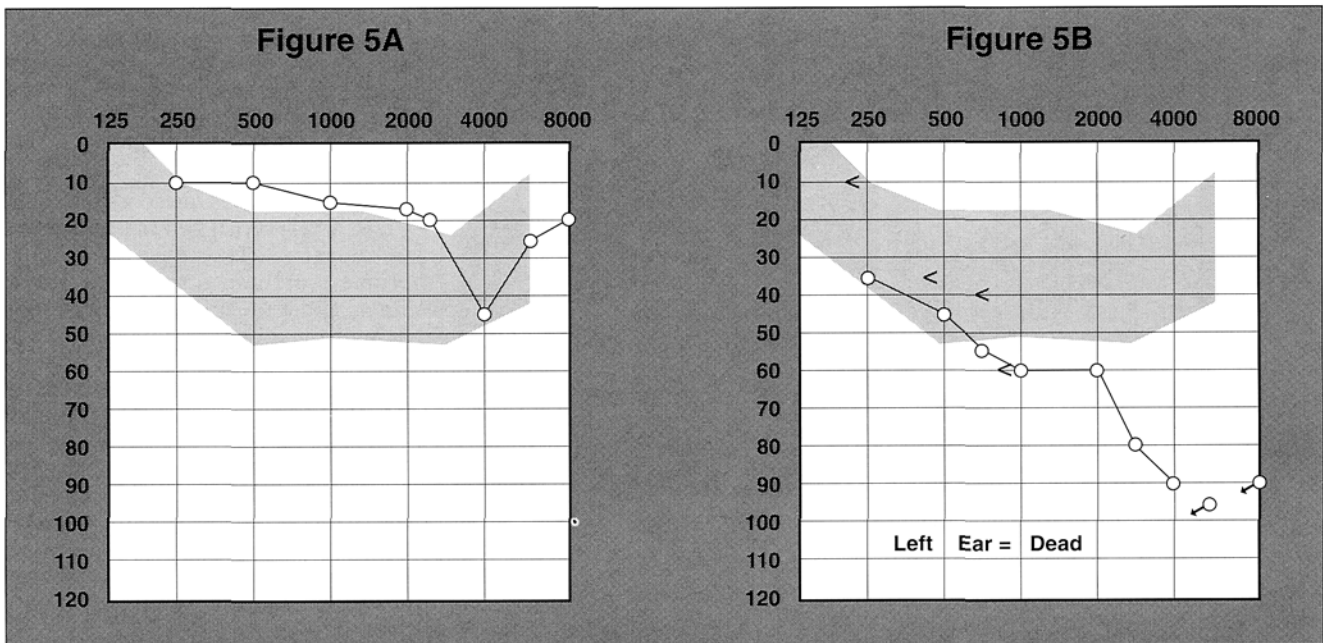


Figure 5. The audiograms for the two unsuccessful K-AMP fittings, both first-time wearers, are shown. Figure 5A shows normal hearing ear with a narrow moderate notched sensorineural hearing loss. Figure 5B shows a moderate to severe mixed hearing loss.

ferred the K-AMP device to their previous hearing aids with linear and/or wide-band 2:1 compression circuitry.

Some of the experienced wearers preferred to have an operational K-AMP/“linear” switch. They report using the “linear” mode (which preserves the low-level K-AMP features

but provides greater gain for more intense sounds) in most situations and the K-AMP mode in noisy situations and on the phone. □