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OLD RADIO

Microphones

Probably the best-known ham microphone is the D-104 by the Astatic Company. Since the 1950s, when I first became interested in ham radio, it is the one microphone that I remember best. It seemed like every older ham had one in his shack. I wanted a D-104, but of course I couldn't afford one at the time, which made it even more desirable.

Today I have a few of them and I feel much better now.

I'm not alone. Most of my collector friends have at least one in their collection. They are easy to find. At just about every hamfest they can be found for as little as \$20, making them easy to bring home.

I remember one old-time ham who bought a D-104 every time he went to a hamfest. He had almost 30 of them on his shelf. It was impressive.

In preparing for this column, I searched on the Internet and found www.astatic.com. I found that Omnitronics LLC now owns Astatic. The Web page has good information about the D-104 and there is a support forum where you can ask questions. They also have a short history of the company compiled by Keith P. Graham from the 1946 Astatic Catalogue where I found the following information. Please visit the Astatic Web page for more.

In 1930 the Astatic Company was started in Youngstown, Ohio by two radio amateurs, Creed Chorpene, W8WR, and F. H. Woodworth, W8AHW. Before 1930 they had been using carbon microphones. When they learned about the new condenser microphones, they built a few. Soon friends were asking, could you build one for me? So they formed a partnership and went into business.

An old friend, Charles Semple of Cleveland, asked them to visit him at the Brush Laboratories, where he worked. He had been experimenting with phonograph pickups using Rochelle salts (sodium potassium tartrate), and thought they would be interested.

Through [Charles] Semple, the two visitors met A. L. Williams, electrical and mechanical engineer, and Dr. C. B. Sawyer, scientist, who demonstrated the action of these new elements in relation to microphones, phonograph pickups, speakers, recording heads, earphones and other devices where it was desired to transform mechanical energy into electrical energy or the reverse. Here, it seemed, they had found the answer to a simple, low-cost, dependable "mike" for the "ham rig."

In 1933 they incorporated and started building Crystal Microphones and Crystal Phonograph Pickups. Charles Semple joined the company as designer and later became the general manager.

The first advertising for Astatic I found was in the November 1933 issue of *QST* on page 83. It said:

There is something new under the sun. It's the PIEZO-ASTATIC Crystal Microphone. A highly developed general-purpose microphone ruggedly constructed having excellent frequency response. Cannot be overloaded acoustically. No adjustments required. No carbon rush or internal noise. No blasting or freezing; no button or field current; no polarizing voltage. Connects direct to grid or may

be used with matching transformer. Chrome plated, 3" diameter, 1" thick, with 6 ft. shielded cord. THE MOST PRACTICAL MICROPHONE EVER OFFERED. Licensed under Brush Development Co. patents.

They offered it initially for \$17.50 in a suspension or stand mounting. By the following November the list price had risen to \$21, but was offered to hams for a net price of \$12.60.

By the end of 1934 they claimed thousands of sales to amateurs. I own one of the early D-104 microphones, serial 15,559, and based on Astatic's claims, I figure it was made in 1934 or 1935. It is the suspension mount version and was well used.

I remember reading in *QST*, I think, in the 1960s, that Astatic celebrated an anniversary and was searching for the earliest serial number still working. They offered some sort of a prize. I was not able to find this data, but it would be interesting to ask readers to let me know your early serial number, and whether it is still original and working. I'll print the best found in a future column.

How can you tell the early ones from the later models? Figure 1 shows three D-104 labels. The top one is my early 1935 version, the middle is from the 1960s and the bottom one is from the 1970s or 1980s. You can see the differences. The early ones have ID plates with a serial number and rivets, while the newer ones have a sticker label, without a serial number.

D-104s are still used on a regular basis in many ham stations today. Wiring diagrams and hook-ups are available on the Internet so they can be adapted to almost any radio. They are especially popular with the radios of the AM era and early SSB rigs. They often show up at garage sales, flea markets, antique shops and on the Internet, so good hunting. Replacement elements are available from many sources if yours doesn't work. And there is enough room inside to adapt almost any modern pickup in there.

Microphone Collecting

I've included several photos of microphones in groups, to help you identify mikes worth adding to your collection. If you aren't collecting yet, here's a great place to start. I'll begin with the earliest microphones, which tend to be fairly expensive as they become harder to find.

Suspension, or "ring" microphones, are



Figure 1—Three labels from various models of the D-104. The mikes are from 1935, 1960 and the 1970s or '80s.



Figure 2—Two examples of a suspension microphone, a Shure 5B on the left and the Amplion GM on the right. The taller one is an old "Conn Tel & Elec Co" telephone converted into a mike, and the hand mike is an Amplion MH from the late 1920s or early 1930s.



Figure 3—Several popular mikes designed for Amateur Radio use.



Figure 4—Several models of RCA microphones, which were popular in ham shacks for many years.

always fun to find. They look great displayed anywhere in your ham shack. Figure 2 shows two, a more common Shure 5B on the left and a rare Amplion GM on the right. The Amplion GM was probably used in commercial broadcasting. (It is serial number 4 by the way, very early). The taller one is an old "Conn Tel & Elec Co" telephone, which some ham adapted to his early 1920s transmitter. The hand microphone is an Amplion MH from the late 1920s or early 1930s.

Figure 3 contains a representation of popular "ham" mikes. These are available at most hamfests from time to time. From left, Shure 737A, Turner CX, Astatic 77, Electro Voice 630, Shure 555W, American D4TZ, Astatic D-104, Western Electric 633A (also known as the "Salt Shaker") and finally an Electro Voice 638. Each company mentioned has many models, so look for others.

Commercial grade microphones are really great to find. Most of these types originally cost a lot more than ham mikes, and will still cost you more today. Figure 4 shows some of the popular RCA microphones. From left, model 46 (also called the "Paintbrush"), MI-6226, a chrome "Aerodynamic," MI-6204 (an early ribbon mike), MI-2016 a two-tone Aerodynamic, model 45B, model 88 and an MI-12021. Note the stands they are on. The two chrome bases and the black stand under the 6204-ribbon microphone are early stands. You should look for these types to properly display your earlier mikes. The large stand in the center-front is modern, from the 1970s.

Art-deco microphones really stand out in your shack or display. In Figure 5, from the left, a Rauland W-1247C (also sometimes labeled Webster 1248), Amperite PGL "flying saucer," American D33 and an Altec 639B "Birdcage," also made earlier by Western Electric. Altec was a spin-



Figure 5—A selection of cool Art Deco style mikes.



Figure 6—At the left and right, two inexpensive Japanese mikes, with a suspension mike in the center.

off of Western Electric when they were made to divest themselves of the movie sound business. Altec later became Altec-Lansing.

The saucer-like disc on the Amperite microphone was said to increase the output of the microphone 4 dB. It was typically used on stage where the speaker was

more than 12 inches from the mike. This microphone was also popular in ham shacks, with and without the ring. The plastic ring snaps on and was sold as an accessory.

In 1958 when I was getting started in VHF, I needed a microphone. Still in high school, I found that the Japanese manufactured affordable microphones. Figure 6 shows two of them. On the left is a Crown MC-60 dual crystal element mike, designed to look like an expensive RCA model 77. It sold for under \$10. On the right is a single element crystal mike, a Herald M105. This was available for under \$5. Both of these mikes were sold by many of the chain stores, under several names: Aiwa, Argonne, Calrad, Fen-Tone, Midland, Olson and Philmore, to name a few. They all looked the same, except for the name labels, which were glued on.

In the center sitting on a coffee cup is an old suspension mike from Japan, supposedly brought home by a GI after WW II. I have not yet been able to find any information on it. The English lettering says "LA-1" and "NO 168." The rest is in Japanese. It is a heavy piece, with the body carved out of white marble, and the works set inside. I'm guessing it is from the 1930s.

Microphone 101

So there you have it—Microphone 101. I hope you will be successful finding suitable ones for your collection. One note though: I occasionally get e-mails asking how much a mike is worth. I'm not a good person to ask, as I have not researched prices. I go by the rule *if I like it, if it is reasonably priced and I can afford it at the moment, I purchase it*. What I would pay is probably different from what others would pay.

Look for my hat at the hamfests, and say hello.—K2TQN

QST