

# The Astatic D-104 Microphone

**This “lollipop” microphone enjoyed one of the longest production runs of any piece of Amateur Radio gear.**

## John Ellis, NP2B

Perhaps no other piece of Amateur Radio gear has ever enjoyed the popularity of the iconic Astatic D-104 microphone. Affectionately known as the “lollipop” microphone because of its shape (see Figure 1), it was manufactured from 1937 to 2001, enjoying perhaps the longest production run of any piece of Amateur Radio equipment.

## History

The D-104 was conceived in 1930 by two Amateur Radio operators — C.M. Chorpeneing, W8WR (later W8MJM), and F.H. Woodworth, W8AHW — who wanted a better-sounding microphone. Working with Charles Semple of Brush Development Company — who was experimenting with Rochelle salt crystals at the time — they founded the Astatic Microphone Laboratory and brought Semple in as the general manager. Astatic began manufacturing the D-104, along with other crystal microphones, crystal phonograph pickups, and similar devices.

Astatic provided microphones, crystal cartridges, and hydrophone and sonar equipment to the military during World War II. During that time, they moved their operations from Youngstown to Conneaut, Ohio. After the war, they changed the name of the company to “the Astatic Corporation” and continued manufacturing. They discontinued produc-



Figure 1 — The Astatic D-104 Microphone.

tion of the D-104 in 2001 and, in late February of 2012, they were acquired by DAS Companies Inc., of Palmyra, Pennsylvania. Astatic continues to produce microphones and microphone accessories today.

## The Companion G Stand

The D-104 was designed to be a com-

munications microphone, and because of its unique frequency response characteristics, it was only suited for that purpose. As such, it made sense for it to be handheld or desk mounted — hence, the emergence of the “G” stand (see Figure 2). The G stand was nothing more than a desk-type microphone stand with a connector on the top to accommodate the D-104, and a bar on the side which activated a push-to-talk (PTT) switch (the “G” stands for nothing more than “grip-to-talk,” aka “push-to-talk”). The stand went under the nomenclature of “UG8.” It had a little clip on the bottom of the PTT bar, which could be slid up to lock the PTT switch on.

In the 1960s, Astatic decided to put a small preamp in the stand. Those stands can be identified with the letter “T” preceding the “UG,” making it a “T-UG8.” Although the crystal element in the D-104 had plenty of output voltage, it was originally meant to work into a very high-impedance load, such as the grid of a tube. The preamp served as an impedance-lowering device as much as anything, making it much more compatible with the newer solid-state radios. Plus, it had a level control on the bottom of the stand, allowing the gain to be set to match the radio.

The D-104 was an excellent communications microphone for AM use, but wasn’t so great for single sideband



**Figure 2** — The D-104 stand, with the microphone head removed from the stand.

(SSB). It had a much higher output at 2,000 Hz than it did at 400, thereby driving the SSB transmitter to full power at predominantly the higher speech frequencies. And, while that might be good in contests, the microphone sounded “tinny” or hollow in normal use. It was still useable, but there were far better sounding microphones for SSB available.

Sometime later, they came out with the “T-UG9” stand, which was essentially the same as the T-UG8, but with a more standard PTT bar added to the front of the unit in addition to the bar on the side, making it more convenient for conventional desk-type operation.

Actually, there were two other microphone heads that were designed to work with the G stand — the 10D and the 10C. They were identical in appearance, but one had a dynamic element and one had a ceramic element. They worked well and had a much flatter frequency response, but they never achieved the iconic stature of the D-104.

### The D-104 Today

Even though it was discontinued over 15 years ago, these microphones can still be found today, especially on online auction sites like [eHam.net](http://eHam.net) or [eBay.com](http://eBay.com). Be sure to read the description and look at the photos. Many will

## Batteries and Corrosion

When purchasing a D-104 on one of these stands with a preamp, remember that they were powered by 9 V batteries. It's not a bad idea to take the bottom cover off of the stand and take a look at the condition of the battery. Many times, a new owner will install one, forget it's in there, and allow it to sit unused. Eventually, the battery can deteriorate to the point where it leaks and can destroy the electronics in its vicinity. In my particular case, the battery had rusted and leaked so badly that you couldn't even see the original color of it. Luckily, the corrosion was limited to the battery, its holder, and the aluminum plate to which it was affixed, with no damage to the electronics. The holder and battery were discarded, the mounting plate was cleaned, and a fresh battery was installed.

With any piece of equipment that has a battery, be sure to open it up every once in a while and make sure there's no corrosion or evidence of leakage or moisture around it. If you see any, remove and discard the battery immediately and clean the area at once.



**Figure A** — This is why you should inspect any equipment that contains a battery. Fortunately, in this case, the corrosion had not yet gotten to the electronics in the stand.

be advertised as “untested” or “what you see is what you get” (see the sidebar, “Batteries and Corrosion”). Purchasing these can be a risk, but if you wind up buying a dud, all is not lost. There are a number of companies that sell microphone cartridges, and if you want a complete refurbishment kit — designed with the D-104 in mind — one is available from Heil Sound as a “5.1 retrofit kit with transformer,” which will allow the D-104 to accommodate most any modern radio.

The D-104 is long in history and rich in heritage. With its classic style, it looks good in any station, modern or vintage.

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## Strays

### QST Congratulates...

Tim Crane, WM8A (right), the Genesee County, Michigan, ARES Emergency Coordinator, who received an ARRL Michigan Section Commendation Award from Dave Wallick, N8LBF, the Michigan District 3 District Emergency Coordinator, on December 3, 2016. Tim was recognized for his “innovative leadership of Genesee County ARES, resulting in re-invigoration of the organization through ambitious recruitment of new members and leaders, strong commitment to public service, and dramatic restoration of group spirit.” [Dana Crane, photo]

