

MC AUDIOTECH

WBLS Transducer White Paper

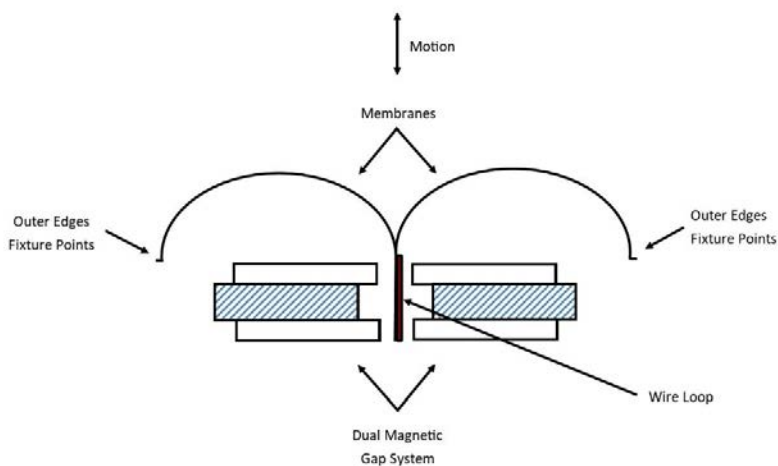
The MC Audiotech wide band line source (WBLS) Transducer used in the Model **Forty-10**, **TL12** and **TL-8** loudspeakers is a unique dynamic device that covers, as the name suggests, a large range of the audio frequencies. There are 10 of these transducers in each loudspeaker forming a Coupled Array. The WBLS is the result of 40 years of R & D!

This WBLS belongs to its own unique classification – operating in a fundamentally different manner than others. The term “Bending Wave” or “Traveling Wave” while certainly true of this device, only hint at its operation. It might more properly be called a “predictable flexible membrane” transducer.

Devices of this type date back to the patent “gold rush” era of the 1920’s. All these devices were (ostensibly) driven by an electro-magnetic armature system. No evidence exists of commercial offerings, nor were they written about in any overviews of “Loudspeaker types” in books or magazines.

My original invention, patented in 1985, married a twin cylindrical diaphragm driven at its junction by a vertical wire loop located between a twin magnetic gap “voice coil” system. This device was offered by the Linaeum Corporation from the late 1980’s through much of the 1990’s. The early 2000’s Impact “Airfoil Loudspeaker” later employed a slightly different design with a single membrane – again my design.

Since that time, I have continued to develop and improve the concept, resulting in the WBLS transducer which exhibits greatly enhanced bandwidth, sensitivity and reliability.



Above is a general top view of this device. The flexible membranes are plastic about the thickness of paper. The wire loop bonded to the central area, interacting with the magnets driving the conjoined membrane from the center in the direction shown. This physical action sets up wave motion in the membranes which radiates through the plastic expending their energy as sound. The origin is a WAVE LINE SOURCE. No other audio transducer realizes this heretofore theoretical ideal.

The Curvature, size and physical qualities of the plastic membrane(s) define the predictability of the transducer. In practice the devices “width” changes in operation – becoming larger with decreasing frequency and, conversely, narrower with ascending frequency. That this is so, is shown by the extremely even and broad polar pattern, smooth response and a non-reactive impedance curve.

There is considerable “art” and experience in development of this device. The result is heard in the magical sound of our Loudspeaker!

Paul Paddock,
Designer - MC Audiotech