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# Phase Technology PC-9.5 Speaker & WL-12 Subwoofer

RIGHT HERE at the top of this review, we *TAV* writers need to stop and do a proper acknowledgment of how this dual by-line review is being done. Basically, the physical description of the two speaker systems and listening portions are being done by Mike Driscoll, longtime member of the The Audiophile Society, which has membership in New York City, northern New Jersey, and Connecticut. Gene, of course, is the editor and publisher of *The Audiophile Voice,* having purchased it from The Audiophile Society after he left *Audio Magazine* in 1995. Gene will do some of the physical description, but also will write about the history of Phase Technology.

Phase-Tech, as the firm is affectionately known these days, is part of the MSE group, which is located in Overland Park, KS. MSE also includes Induction Dynamics, another speaker maker but which tends to concentrate more on custom installations rather than speakers for standard stereo pair use. This should not be construed to mean the Phase-Tech doesn't do custom install products; it does. In fact, almost all speaker makers these days have to pay attention to that market segment and understand the variations that run from whole house sound to home theater and sometimes wind up in specialty installations such as a state-of-the-art multichannel surround for movies or a stage system for the rock'n'roll kid in the family. Other firms in the MSE group include Rockustics, Solid/Drive, and SoundTube.

Begun in 1981, Phase-Tech has a long history and is the current incarnation of United Speaker Systems, which was started in 1955 by Bill Hecht who earlier had worked for General Projection in New York installing projectors and sound systems during the early part of the 1950s.

When General Projection went on strike in 1955, Hecht began making loudspeaker systems for home use, incorporating some of his pro-side knowledge. These early speakers were made one at a time and exhibited at local hi-fi shows and sold via a NYC radio and hi-fi dealer. United's ads and literature had a great promotional line – "Theater sound for the home." Indeed, the whole story points at how the knowledge and technique, hard won in the professional area in the years following WW II, were transferring themselves to the consumer side.

One of the most interesting results of this cross-pollination came when Avery Fisher read some glowing reviews of Hecht's speakers and contracted with United to design and build the first loudspeakers to carry a Fisher brand. (Yes, *that* Avery Fisher, the one who lent his name to Fisher Radio and Fisher Hall in Lincoln Center, New York City.) These speakers included the famous Fisher XP-1 bookshelf system which, together with Fisher electronics, established that company in the home audio field. And Hecht, who had been making his own speakers one at a time by hand in his garage, ramped up to 10,000 during the first year of working for Fisher.

During the next decade or so, United Speaker continued primarily as an original equipment maker (o.e.m.), which is to say that they made speaker systems for other firms, though they did design and market systems with their own brand. This gave Bill Hecht the time and financial backing to develop some very important speaker components. Perhaps the most important was the 1967 development of the soft-dome tweeter, for which he received U.S. Patent #3,328,537, and which became what is probably the single most-used speaker driver.

Not only did Hecht patent the idea and design, United started making them for use in their own systems as well as for use by other firms. The editor has heard one of his predecessors at *Audio Magazine* say that the soft-dome tweeter was one of the most important audio developments of the era after WW II. That may stretch things some, given the importance of solid-state amplification and signal handling, as well as the move from analog records and recording to digital. But one must also consider that the soft-dome tweeter is still in use some 35 years later, in an era where "new and better" seems to come every month.

Bill Hecht has four other important and interesting patents. One is for a woofer voice coil that is self-damping. Another is for a process to manufacture solid, flat-piston drivers. Hecht came up with a way to inject silicone into drivers so that resonances are damped. He got one for a basketless mounting system for woofer/midrange units (non specialists will probably not get that, but it's a good thing). Bill's last patent was for the making the RPF flat-piston drivers. United was the first U.S.-based speaker maker to use expensive, high-performance neodymium magnets in tweeters so that the speakers would have very linear output with very low distortion.

Editor Gene can remember visiting the United/Phase Tech facility which was located about 20 minutes drive from the current *TAV* offices prior to the firm's move to Florida. One thing in particular that stood out during that period was the manufacture of the soft-dome tweeter. He may have been lucky to see a "trade secret." As Gene remembers it, a two-inch "dot" or circle of loose-weave cloth was clamped around its circumference. Next, a hemi-sphere was shaped in the cloth by pushing up into it from the bottom with a smoothly rounded

## NOTES

**Phase Technology PC9.5**, $1775.00 each, **Phase Technology WL-12,** $1775.00 each. Phase Technology, 6400 Youngerman Circle, Jacksonville, FL 32244, Phone: 888-PHASE-TK, Fax: 913-663-9790**,** replacement parts and service: 913-663-9770; e-mail: sales@phasetech.com.

**Associated Equipment**

Primaluna Prologue Three preamplifier, Primaluna Prologue Five amplifier, VPI HW 19 jr. turntable, Audioquest AQ5 tonearm, Sumiko Blue Point Special cartridge, Denon DVD 2900 universal disc player, Monitor Audio BR 7 loudspeakers, Discovery 1 2 3 speaker cable, Kimber PBJ interconnects, and assorted acoustic fixes, footers, cones, points, etc. scattered near a shrine to St. Phoius, patron saint of audiophiles.

dowel. The cloth was next sent to a "spinner" stage where the clamped assembly was turned several times per second while some white substance rather like Elmer's Glue in consistency was slowly drizzled onto the dome, starting at the apex and then down to near the clamp. The "drizzled" domes were sent off for drying or baking, and were later attached to voice coils and the balance of the speaker. Definitely, an "Ah, ha!" moment. While another process mastered by the firm wasn't "eligible" for a U.S. patent, United Speaker was one of the first speaker makers in the country to wind its own voice-coils. This can save big money in manufacturing speaker drivers, offers greater precision and accuracy, and running design changes can be implemented more easily.

**The PC-9.5 is the best system in the Phase Technology Premier Collection; the WL-12 sub only makes it better.**

## What Have We Here?

Phase-Tech offers seven systems in its Premier Collection, the firm's high-performance series aimed at the discriminating audiophile. A couple of years ago, Ron Nagle and editor Gene reviewed the PC-1.5 in Vol. 13, No. 4; it's second from the bottom. We thought that at $495 each, it was "more than merely reasonable" and that it "could be the starting point for a very decent audio system." The PC-9.5 should be considered as the company's top-of-the-line system and intended for use as the main pair in a stereo or multi-channel surround set-up.

All systems in the Premier Collection use the Phase-Tech soft-dome tweeter, the firm's patented flat-piston RPF drivers and their proprietary Absolute Phase crossover. The intent of the crossover design is to create a deep and balanced soundstage over a very large listening area. Finishes are either a real wood furniture-grade cherry veneer or nine-layer, high-gloss piano black.

We will frequently refer to the speakers under review collectively as the PC-9.5s but you should understand that the Phase Tech WL-12 subwoofer was a main part of the listening system. Good addition, but not essential as the PC-9.5 can stand alone. They are, in short, a wonderful-sounding pair of loudspeakers. The driver complement includes a 1-inch soft-dome tweeter, a 1.5-inch midrange driver, and 6.5-inch RDF solid-piston woofers. The WL-12 subwoofer adds a 12-inch low frequency driver driven by an internal 300-watt, solid-state amplifier. The rated frequency response for the PC-9.5 is 32 HZ to 22 kHz, with the WL-12 sub's response specified as 22 to 200 Hz. The impedance is 4 ohms nominal, and the efficiency is said to be 91 dB.

In general, what you want a subwoofer like this one to do is fill out the bottom end, particularly if you like organ music or BIG thunks on symphonic tympani. And remember those Japanese kodo drummers on that early Sheffield CD, *Heartbeat Drummers of Japan*? To get proper bass response, down deep enough and with a big enough initial PUSH of air on the front edge of a drum whack, you really need a large, well-designed sub, pretty well something like the WL-12. In addition to letting the whole system play louder and lower, the extra driver covering the very low bass takes a lot of distortion out of the mid-range. It is usually a surprise to the novice when he notices that there's less distortion in the middle, and he sometimes thinks he's hearing things. Not so, however, as properly done bass keeps all sorts of distortion from appearing in the output of the other drivers.

When Driscoll set the PC-9.5s up, the first thing he found was that the bottom plate, which must be attached to the speaker with four bolts, was a high gloss black, while the speakers themselves were in a cherry finish. This is an unusual combination, but the guys at Phase Tech say they like the visual contrast. As Driscoll lived with them for awhile, the contrasting finishes kind of grew on him, and he began to like the contrast. The second thing we found is something that seems to happen with far too many high end products lately, an owner's manual that gives the new owner little or no information about the product. No specs, no driver complement, just a wiring diagram explaining how to connect the speakers to the amp.

## Specs

**Notes on the PC-9.5**
**Tweeter:** One-inch, soft dome.
**Midrange:** 1.5-inch, soft dome.
**Woofer:** 6.5-inch RPF solid-piston.
**Frequency Response:** 32 Hz to 22 kHz.
**Sensitivity:** 91 dB SPL.
**Impedance:** 4 ohms, nominal.
**Inputs:** Bi-wireable.
**Recommended Amplifier Power:** 20 to 250 watts per channel.
**Outside Dimensions:** 14¾ inches deep by 9 inches deep by 45⅓ inches tall.
**Shipping Weight:** 67 lbs. each.

**Notes on the WL-12**
300-watt average, 900-watt peak power internal amplifier, signal-sensing auto turn on/off, gain control, phase switch, variable crossover, wireless 2.4 GHz uncompressed audio streaming, line/lfe input, ultra long excursion woofers and passive radiators, servo-controlled amplifier, which monitors and adjusts output for dynamic and undistorted response.

That those are our only gripes says a lot about the overall quality and performance of these speakers, product with lots of thinking behind it, thinking done by experienced speaker makers.

## Set-Up and Sound

Driscoll bi-wired them to his Primaluna Prologue tube amp (36 watts nominal) and began to listen. The first CD Mike auditioned was *Eric Clapton Unplugged*, and he initially found that the balance between the mids and highs was not really quite right. The speaker didn't sound as if the two were integrated into a whole or into a single singer-guitarist presentation. Fortunately, this was easily solved with these loudspeakers, because the tweeters are mounted so they can be swiveled to aim them in the direction where they sound most integrated with the other drivers into a whole. A little experimentation and all was right with the world. The attack and decay of Eric's guitar was as good as he had ever heard, midrange was crisp and clear as a bell. Bass was there where it should be, with no hint of artifacts or distortions.

Blues music and these speakers were just made for one another. *Muddy Waters Folk Singer* is a good case in point, and of the many great songs on that album, "Good Morning Little Schoolgirl" stands out as sounding as clear and clean as he had ever heard it. (As an aside, if Muddy released that song these days, he would end up on some pedophile list. Great song, anyway.)

These first few trial tracks were auditioned using the PC-9.5 alone, without the sub. Mike wanted to hear the difference when the main system was used both with and without the added bass from the WL-12. What he found, at least initially, was that the 9.5s do quite well on their own for most rock and pop music.

Hooking up the sub gave Driscoll a real surprise. While rock and acoustic music didn't really need it, classical and a few rock discs benefited from the enhanced low frequencies greatly. Holst's "The Planets," for example, became a true, large-scale symphonic event in his listening room. The soundstage opened up, and Mike found he, too, was IN the concert hall. All classical music checked also benefited from the sub, but a few rock discs did also. The Cowboy Junkies *Trinity Sessions,* for example, showed a far more realistic sense of the church where the recording took place with the subwoofer than without it. "Way Down Deep" from Jennifer Warnes' *The Hunter* also benefited from the sub, as that track contains a lot of low-frequency energy.

**It is very unusual these days to find a speaker company who actually makes the speakers; it helps!**

The final conclusion Driscoll finally came to was that music with lots of low end, as well as music recorded in a live acoustic space and having extended lows, did indeed sound far superior when reproduced using the subwoofer. When he played DVDs through the system, the sub really shone. Any movie, which had explosions, car crashes, or any such mayhem was greatly enhanced by the WL-12 subwoofer.

## Summing Up

This, however, is a magazine about audio, not movies, so what was the final score on this speaker system? Well, it did everything most audiophiles would ask of a speaker system, and did it well. If a person's main focus were on studio-recorded rock and pop, the PC-9.5s alone would be all he or she could ask for. If, however, that audiophile listens to a lot of classical music, or jazz, rock, and pop with a lot of low frequency content, then our advice would be to go for the sub. Also, if a system serves a dual purpose, as a music and home theatre system, also go for the sub.

One way or another find a dealer and have a listen to these great loudspeakers. You'll be glad you did. If only for the education of your taste in quality speaker systems.

**Most all of the speaker parts manufacture and driver assembly is done in house at Phase Technology, an unusual occurrence.**

**Bill and Ken Hecht, father and son, second generation speaker builders at Phase Technology, about their voice coils.**