

The Olds Custom CHR & Reynolds ERA Trumpets

This article is an attempt to put together all the information that I have found on the trumpet designs created by William Cardwell and carried out to production in the mid-1970s by Olds and Reynolds. This would not be possible without the knowledge of R. Dale Olson, a close friend of Cardwell and, at the time, an Olds consultant who worked with Cardwell to develop the trumpets. I will start with a little background on these two men.

William T. (Bill) Cardwell



Excerpted from a letter by R. Dale Olson and posted on the International Trumpet Guild website as part of Cardwell's obituary in 2012:

"Possibly few of those who will read this knew Bill Cardwell, and perhaps an even smaller number have ever read and studied his landmark United States Patent #3,507,181, of April 21, 1970. Bill Cardwell was, in the opinion of the few who understood his work, one of the finest minds that ever addressed the issue of tapered sections of trumpets, and, as such, was the ultimate authority on trumpet design. Bill was the authority to whom other authorities turned for advice. As with many great men, the profundity of his work, underscored by a soft, gentle, humble personality, went largely unnoticed, often overshadowed by the exaggerated, and nearly universally unfounded, claims of "designers and gurus" whose mental acuity and technical expertise does not allow comprehension of the depth of Cardwell's concepts.

"Professionally, Bill was employed by Chevron Research in LaHabra, California for over 40 years in various technical capacities. His hobby of trumpet design was such that his home acoustics lab was larger and more professionally created and operated than those of any trumpet manufacturer. Quietly, and unnoticed by all but a few colleagues such as K.O. Skinsnes, Zig Kanstul, Cliff Blackburn, and some of the finest trumpet players in the world, Bill worked on the tapers of bells and leadpipes which would produce precisely the goal of "perfect" intonation, while controlling and

manipulating the tonal quality. His work was epitomized in the 1970s by the creation of four different trumpets, each possessing the same intonation pattern, but with tonal qualities covering most of the wide spectrum demonstrated by contemporary trumpets, cornets, and flugelhorns. Acoustically, each model possessed a different "cut-off" frequency, the point in the upper register where pronounced resonance peaks ceased to exist. One model was commercially produced as the Olds CHR and Reynolds ERA. Bill was also associated with Cliff Blackburn, not only in a consulting capacity, but as a close personal friend.

"For many years, Bill and I would meet at the local IHOP restaurant in Fullerton, California, and discuss trumpet design and acoustics. Bill brought a stack of papers to discuss with me, and I had a pile to share with him. Our meetings would typically extend to four to six hours. On one memorable occasion, we met at 8:00 a.m. and remained until lunch, at which time Bill suggested we either leave to allow others to be seated, or order lunch. We ordered lunch, and continued to talk into the afternoon. Bill and I referred to our visits as the "IHOP International Conference on the Acoustics of The Trumpet". It was a very small "conference", as no one else was ever invited!

"As the ITG Conference begins next week, it will do so without Bill and Betty Cardwell. For most of the Conferences prior to 2000, Bill and Betty were perennial fixtures. As this Conference starts, the double Cs will drown out the subtle memory of Bill Cardwell's life and work. It would be nice, but unexpected, if somehow, someone could officially recognize that we have just lost a giant.

"I will never be able to walk into an IHOP without a tear in my eye."

William Thomas Cardwell Jr was born in Boulder, Colorado on May 27, 1917 to William and Lillian Cardwell. By 1920, the family had moved to Berkley, California, where William Sr worked as an attorney. William Jr received his Masters degree as a chemical engineer in 1939, and soon after starting working for Standard Oil Company (census & other public records).

Bill started on the trumpet in 1926 and continued playing until 1965, when he suffered a detached retina. His passion for the acoustic study of the trumpet began in 1959 and intensified after his retina problem. His first trumpet produced was in high F and was made by Domenick Callicchio in 1966 (two photos below) (obituaries at ITG & Stomvi USA).



The acoustic research that he did was his search for better intonation in all registers and better response in higher registers. The most noticeable result of this design is the bell flare, which is quite different than traditional ones, and has an abrupt flare at the end.



This research culminated in filing for a US patent on October 25, 1967. This was finally granted on April 21, 1970 with #3,507,181A. Reading this patent is a great study on how acoustic research can enable someone to see outside of the traditional design box.

April 21, 1970

W. T. CARDWELL, JR

3,507,181

CUP-MOUTHPIECE WIND INSTRUMENTS

Filed Oct. 25, 1967

A.

4 Sheets-Sheet 1

Fig. 1.

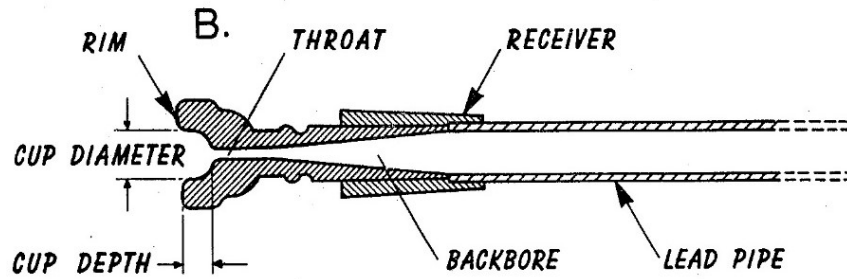
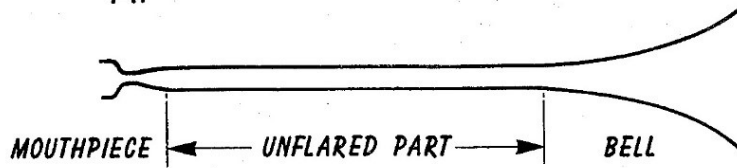
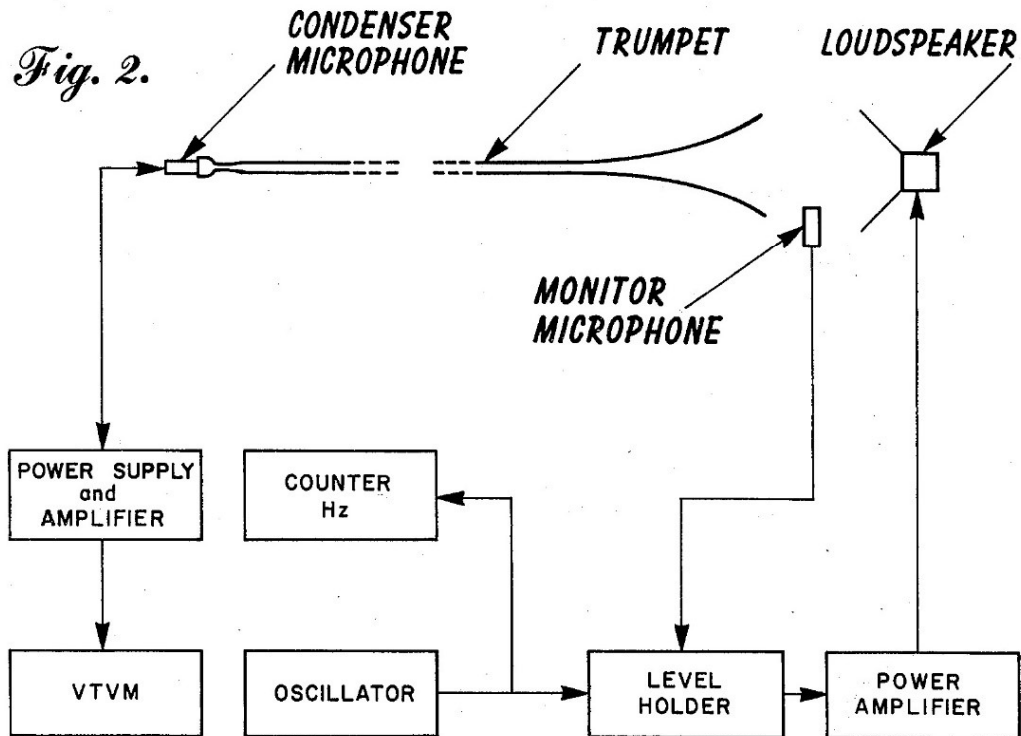


Fig. 2.



R. Dale Olson



R. Dale Olson was born in 1935 in Texas, received his BA in music in 1956 from the University of North Texas, and received his MM degree in 1957 for trumpet performance. In January of 1961, Olson joined F.E. Olds & Son as a designer and director of research for trumpets. He joined Zig Kanstul, who provided the manufacturing knowledge needed to provide quality products at Olds.

During the 1960s, Dale worked with Zig to develop the Custom line of trumpets, including the C, D, and Alto F versions. Dale left Olds in 1968, but was retained as a consultant on projects. He went on to patent a plastic mute which his company, Acoustic Instruments, made for Bach until closing in 2021. He also patented a trumpet design in the early 1970s which later became the Olds Pinto and Reynolds Ranger.

The Olds CHR / Reynolds ERA Trumpets

Here are some comments from R. Dale Olson in 2021:

“The Reynolds ERA and Olds CHR were virtually identical horns, both of which I was intimately involved with in conjunction with Bill Cardwell. In fact, both Bill and I received royalty checks for every horn sold. The full history is rather complex and lengthy, but clearly available in my memory. Some of the materials now in my library will, someday, be included in a book on Olds I sporadically work on. They contain many communications between CMI and both Bill and me, our original contract, and even the communication from Bill to CMI to terminate the contract due to low production by CMI, that failed to reach minimums defined within the contract.

“As brief background, Bill and I were very close friends with whom I engaged in research for about 20 or so years. The ERA ("Extended Range Altissimo") and CHR ("Custom High Register"), two absolutely terrible horn names created by the CMI marketing people, were both based upon Bill's 1970 U.S. Patent (#3,507,181), 21 April 1970. This patent is highly (repeat highly) important in the 20th Century literature related to brass instrument technology, although virtually unknown by most players and teachers, and even the "gurus.”

“Perhaps the most informative current book on musical instrument acoustics is by Murray Campbell and Clive Greated, of the University of Edinburgh. Campbell and Greated cite Bill's patent as being of considerable importance.”

Trumpet Examples:

Olds Custom Crafted CHR (P12H)
Serial #834575 from 1973



Olds Custom Crafted CHR

Serial #884166 from 1974



The Olds version was part of their Custom line of instruments called the Custom High Range. These are not in their 1973 or 1978 catalogs, and more examples are needed to narrow down the years that they were made.

The Reynolds version came in two forms; the Professional ERA or Clarin ERA. These are not listed in their 1973 catalog but the Professional ERA model TU-15 is in the January and June 1974 price lists. In the December price list, they have added the Clarin ERA model TU-08. The Clarin was the most expensive trumpet at \$650 while the Professional ERA was \$475. The difference in cost was due to the Clarin, like the Olds CHR, being made with the tuning bell and fixed leadpipe. The Professional version had the special Cardwell bell but used a standard tuning slide in the leadpipe and a fixed bell. These two models continued to be offered in 1975 and 1976, but by 1978, only the TU-15 Professional was still available.

Reynolds Professional ERA
Serial #273797 from 1973



Reynolds Professional ERA
Serial #273824 from 1973





**Reynolds Professional ERA
Serial #287363 from 1975**



Reynolds Professional ERA
Serial #287429 from 1975



Reynolds Clarin ERA
Serial #294056 from 1976

