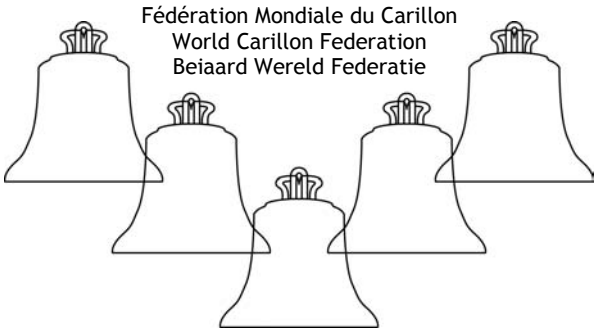

History of the Keyboard 2000

Keyboard 2000 is a type of hybrid keyboard that combines ergonomic elements of the North European (1983) and the GCNA (1981) standards. To date, this keyboard has been installed at Berea (Kentucky, USA), Springfield (Illinois, USA), Dallas (Texas, USA), Zwolle (NL), Den Bosch (NL), Taninges (F), Oslo (N), Bloomfield Hills (Michigan, USA), Lokeren (B) and Detroit (Michigan, USA). It has been employed by different carillon builders worldwide because of the range of ergonomic, aesthetic and user-friendly design features it affords carillonneurs.

Since the introduction of the European standard keyboard in 1983, this keyboard has been criticized. This criticism centered on the depth of the keystroke, the distance between manual keys and pedals, the pedal/manual axis for three-octave keyboards, etc. The American keyboard was also criticized. Although it has a radial and concave pedalboard, which plays very comfortably, the pedals are too far apart.

Since 1983, much research has been done towards changing the European standard keyboard and also in the United States developments were being made. However, a detailed proposition for a possible world standard had not yet been presented.

At the World Congress 2000 in Springfield, Richard Strauss presented a new design for a carillon keyboard. Strauss, who has a long career making technical improvements for carillon installations, made his first keyboard in 1983 for the carillon of San Antonio, Texas. In Berkeley, he carried out technical improvements at the carillon of the University of California. For a brief period after 1999, Strauss was associated with the Verdin Company, Cincinnati, Ohio, as the carillon engineer. Thanks to his well thought-out ideas and the financial support of Verdin, a new keyboard was designed that has been well received.

The *Keyboard 2000*, as Strauss and Verdin called the new keyboard, was a further development of the hybrid keyboards that have seen daylight in the last 15 years in The Netherlands, combining a European manual with an American pedal. On the theoretical side, confirmation of the ergonomics of this keyboard came from the book "Anthropometry for Designers," from which Richard Strauss showed excerpts and illustrations at the Springfield WCF Congress. Also on the theoretical side, he researched "Strength of Materials" formulas to make a stronger pedal transmission. The reduced keyfall and pedalfall that Strauss suggests is possible only because transmission response is much more direct today in all countries by all builders. If lighter carillons need extra keyfall, Richard Strauss suggests building those keyboards accordingly. For this reason, the WCF standard 2006 gives a variable keyfall between 40 and 55 mm.

In 1990, a keyboard was placed in the Oude Kerk of Amsterdam where efforts were made to unite the two standards. It was an initiative of Todd Fair, who was then city carillonneur of Amsterdam and coordinator of the WCF keyboard committee. The manual key centers were 48 mm, which is approximately half-way between 50,8 mm of the North American keyboard and the 46 mm of the North European keyboard. The pedals used the American standard, with a compass reaching from c^1 to a^2. In the meantime, Gert Oldenbeuving ordered new keyboards for the carillons at Nijmegen, Zutphen and Lochem with a European manual (key centers 46 mm) and a smaller American pedal (key centers 85 mm instead of 89 mm). He used the same starting points as did

Strauss for his Keyboard 2000, i.e. combining certain ergonomic elements of existing standards - the compactness of European manuals and the comfortable American pedalboard. In France, a similar installation was made at Chambéry in 1994.

Two other similar hybrid types have been designed and installed:

- The Olympic 'Universal Standard' keyboards at The National War Memorial Carillon, Wellington, New Zealand and at the Laura Spelman Rockefeller Memorial Carillon in The Riverside Church, New York USA. The Olympic design varies the center-to-center distance from 46 mm to 47,625 mm, to achieve a more generous hand clearance (e.g., the distance between notes c and e when note d is depressed) of 79,5 mm on compound, elliptically-domed manual keys. K2000 pedalboard concavity/radiation is virtually identical to the Olympic pedalboard, although the Olympic pedalboard range is (f^0), g^0 to d^3.
- The new keyboard at Alverca, Portugal (2005), which post-dates the K2000 model, maintains the historic pedal/manual axis of c^2 under c^3.

In the meeting of the Committee of Delegates in Oslo (2004), it was decided that the Keyboard Committee would work towards the following goal: Consensus of a world standard for new instruments with certain variables as a third standard next to the existing North European standard and GCNA standard. Many delegates preferred the Keyboard 2000 as designed by Richard Strauss to be the new world standard.

Keyboard 2000 combines the advantages of the European standard with the advantages of the American standard. It was designed by one of the leading engineers in keyboard building, Richard Strauss. Further analysis and detailed consultation between committee members over a two-year period has resulted in the attached specification list.

Current users of both the GCNA and North European standard will feel comfortable with the amended Keyboard 2000 design. For Europeans, the center-to-center manual key distances remain the same and American players will encounter the same pedal/manual axis of b^1 under d^3, as well as a concave and radial pedalboard.

Sufficient flexibility has been allowed in the specifications of the WCF Keyboard 2006 to fit varied circumstances. There is no intention to eliminate historic keyboards of the past, but rather to provide guidelines for newly-built instruments and renovations where desired.