
When is a Pipe Organ NOT a Pipe Organ?

Pipe Organs Incorporating Other Sound Sources

By Arthur E. Schlueter, Jr.

The pipe organ is an ancient musical instrument that utilizes wind-blown pipes as its sound source.

Prior to electricity, pipe organs were played via a mechanical action, using trackers or tumbler pneumatics. Tracker and tumbler pneumatic actions require close proximity of the organ keyboard to the organ pipe work.

The advent of electricity resulted in the ability to play pipe work by means of electro-pneumatic and electric action. By using low-voltage direct current (DC) electricity the organ keyboards could be detached from the organ pipe work, utilizing electronic magnets with valves and electro-mechanical actions to play the pipe work.

Electricity also allowed other musical sounds to be played with the organ pipes. Chimes (tuned metal bars that imitate the sound of a harp), glockenspiel, xylophone, pneumatic controlled piano, and bells, are a few of other musical sounds electrically controlled from the organ keyboard which were used to augment the organ registration. Theatre and Municipal auditoriums had extensive percussion and special sound effects that were used in conjunction with wind-blown pipes.

The invention of the electronic organ by Laurens Hammond, introduced in 1934, and the development of the electronic organ during the 1940's ushered in the incorporation of electric and electronic "organs" which attempted to imitate the sound of pipe organs, albeit in a limited way. These early electric and electronic organs imitative sounds were quite primitive, when compared to the majestic sound of a wind-blown pipe organ.

Several of the major American pipe organ builders in the 1940's and 1950's were involved in a study to develop analog organ pedal stops that would take less space and cost less than sets of wind-blown 16' and 32' pipes.

The most noteworthy example of the use of such analog stops was by the famous Aeolian-Skinner Pipe Organ Company. Although not the same tonal quality as real wind-blown pipes, Aeolian-Skinner's position was that the analog stop was acceptable if space was not available for wind-blown pipes.

Digital pipe sampling technology has reproduced the sound of organ wind-blown

pipes, recorded and reproduced through electronic processors, amplifiers and speakers.

The inexpensive digital electronic organ has allow individuals and churches with a limited budget access to this technology.

American and European pipe organ builders in some cases are incorporating pedal digital stops; this is a growing trend in pipe organ building. Some pipe organ builders also incorporate custom digital stops into the pipe organ in divisions other than the pedal division, or use digital stops to augment the wind-blown pipes. Examples of situations where a pipe organ builder may include digital stops include:

- Pipe organs that were built and installed with a stop “prepared for,” meaning there is a stop control in the console in anticipation of possible future expansion, however, the pipe work is not installed.
- Pipe organs that have a complete division of the organ “prepared for” (i.e. Antiphonal, Solo or Choir division) digital stops can be incorporated into the pipe organ for a fraction of the cost of wind-blown pipe work.
- A pipe organ that has stops borrowed between divisions, such as playing the same set of pipes in the Great, Swell and/or Pedal divisions.
- A stop may be unified, meaning one set of pipes plays at different pitches in the manual divisions and/or Pedal division.

In the above instances, digital stops could be incorporated into the pipe organ without replacing pipe work, intending to supplement and play with the pipe work.

When is a Pipe Organ NOT a Pipe Organ?

It is not sufficient to say that pipe organs are built by pipe organ builders and electronic organ and combination organ are built by electronic organ or instrument companies.

The distinction is that a Pipe Organ is a wind-blown instrument and its design, mechanical and electrical engineering, and installation make it a fixture of the building where it is installed. Pipe Organ building actually encompasses thirteen trades or construction specialties.

Pipe Organ Builders custom build instruments that are one-of-a-kind and which will not be reproduced, because it has been specifically designed and engineered for a particular room or space and use, which results in a unique instrument, physically, visually, and tonally.

Electronic organs and combination organs (electronic organ incorporating wind-blown pipes) are built with their primary sound source based on digital technology. The intent of a digital organ is essentially to clone, or artificially reproduce the pipe organ sound. Generally electronic organs are mass produced, although choices may include different models, specifications, console finishes and accessories.

Although electronic organs can be ordered with custom features, generally the majority of the organs purchased are based on similar specifications and console designs, and are produced in prescribed models, which are changed periodically.

The question arises "what makes a pipe organ a pipe organ, and does adding digital stops to a pipe organ change it from a pipe organ to something else?"

When a large number of digital stops is added to an existing pipe organ, it still is a pipe organ; it was conceived, designed and built as a pipe organ.

When a digital electronic organ console is added to a pipe organ, does the organ become a electronic organ or combination organ? **In this case it is still a pipe organ, as originally conceived.**

So the answer to the question, "when is a pipe organ NOT a pipe organ?" is simply NEVER!

What's the Difference?

It is important that there are distinctions between the three types of organs: pipe organs, electronic organs, and combination organs.

When insuring organs against damage, notice the distinction that Pipe Organs are considered a building fixture, as they are attached and in some cases the structure has been built around the physical requirements of the organ, while electronic organs are classified as accessories, which generally are not permanently attached.

This is further verified in the National Electrical Code, which has an entire section of code specifically for wiring pipe organs, Article 650 Pipe-Organs, and includes the codes related to Electronic organ wiring separately under Article 640.

How then do we classify a Combination Organ, that is an electronic organ which was designed as a digital or analog organ and then augmented with one or more sets of wind-blown pipes?

A combination organ would be in the same classification as an electronic organ. The wiring in the organ console would be governed by the NEC Code 640, and the pipe organ pipes and associated equipment added to the digital organ must comply with the NEC Code 650 for pipe organs.

The pipe organ is a musical instrument which has evolved over the centuries, and although there have been changes in technology and engineering, it is still the standard and model that subsequent instruments such as the digital organ and combination organs try to mimic.

About the Author

Arthur E. Schlueter, Jr., founder and CEO of A.E. Schlueter Pipe Organ Company, has extensive experience writing and developing standards, guidelines and codes. He was the Associate Executive Director of the Southern Association of Colleges and Schools responsible for setting standards for higher education. For nine years he has served as a committee member of the National Electrical Code Panel 12 and was the principal submitter of Code 650 - Pipe Organs, and Code 640 which includes electronic organs. He is licensed in multiple states as a low-voltage electrician, has earned B.A., M.Ed., and Sp.Ed. degrees, and is a doctoral candidate.

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