

Accu-Bell Sound Inc.

Unit 1307, Hanla Sigma Valley,
345-90, Gasan-Dong, Geumcheon-Gu, Seoul, Korea
Telephone: +82-2-2163-0060~0065/+82-2-6443-4696
Fax: +82-2-2163-0066/+82-2-6443-4695
Contact Email: accutronics@naver.com

The History of Spring Reverberation (Hammond-Accutronics)

When Laurens Hammond introduced the first Hammond Organ in 1935, most people were only familiar with the traditional pipe organs they had heard at churches and theatres. So, when they purchased a Hammond for their homes, they expected the same room filling sound they had come to know and love. Of course, in their thickly carpeted living rooms with low ceilings and drapery covered windows, they did not get it.

Thus, Laurens Hammond needed to find a way to add reverberation to the living room. He discovered that Bell Labs had devised an electromechanical device to simulate a single delay experienced on long distant calls. The device used two springs to transmit the delaying signal and four additional springs to dampen and centre the driver saddle. While the dampening springs were housed in long tubes filled with oil, one of the springs transmitting the delay signal ended in a short tube which, by varying the amount of oil in the tube, varied the decay time. After modifying the reverb to create many echoes, it was perfect for Hammonds needs.

At the time, the unit stood four feet tall. But size was not a problem because all Hammond organs came with a separate tall Tone Cabinets which contained speakers and reverb the unit. As time went by, though, Tone Cabinets became shorter or unnecessary with smaller, self-contained organs. Three Hammond Organ Company engineers, Alan Young, Bert Meinema and Herbert Canfield, developed the necklace reverb, so-named because the springs hung in the same fashion as a necklace. Introduced in 1959, the necklace reverb was about 13 inches wide, 1 inch deep and 14 inches tall. The metal framework, or housing, was shaped like a T and the springs drooped from one end of the horizontal T line to the other, creating a necklace effect. This improvement made the reverb unit smaller, lighter, less expensive and more natural sounding, yet it had one annoying problem: when the unit was jarred or shaken, the springs would bang against each other and the metal T frame. This created a thundering, crashing sound in the speakers, something that in the 1950s was definitely not part of the act. Nor was it acceptable in Grandmas living room.

In 1960, Alan Young was again assigned with the task of developing yet another reverb unit that would solve the previous units problems. A fine engineer, Young was also a musician who frequently took projects home to experiment at night and on weekends. Since Young wanted a reverb unit to be no bigger than his brief case, his efforts resulted in what is now called the Accutronics Type 4 reverb unit. At this time it was the Hammond Type 4. With the bugs worked out, the new unit caught on with organ makers and anyone else requiring reverberation. One such customer was Leo Fender, maker of Fender guitars, who added the Type 4 to his now famous Fender Twin Reverb. With that type of endorsement, the Type 4 became the industry standard.

By 1964, the increasingly busy Hammond Organ Company had run out of room to produce the reverb units. So Hammond moved production to another Hammond-owned unit, Gibbs Manufacturing, in Janesville, Wisconsin. In 1971, the reverb business moved again to another Hammond unit, Accutronics, in Geneva, Illinois. Meanwhile, employees at Gibbs decided to start making their own reverb manufacturing company called O.C. Electronics, giving Accutronics major competition in the reverb market. Many service technicians still recall O.C. Electronics because of the popular sticker attached to each of their units stating: Made by Beautiful Woman in Janesville, Wisconsin.

In 1974, Accutronics, still a division of Hammond Organ, acquired a printed circuit boards maker in Cary, Illinois, which was renamed Accutronics. Meanwhile in 1977, Hammond Organ became a member of the Marmon Group of companies, a Chicago-based association of manufacturing and service companies. In 1982, the two operations were combined in the Cary plant. By this time, the reverb units were beginning to be known as the Accutronics Reverb and the founder of O.C. Electronics was getting ready to retire. In late 1985, Accutronics acquired O.C., once again uniting the two companies trained in the design and manufacture of the original Hammond reverb units.

In 1990, the reverb division had outgrown its home in Cary, so it was moved to a new 37,000 square foot plant across town and renamed Sound Enhancements, Inc. Sound Enhancements also includes the Morley line of special effects pedals and switches, which was purchased in 1989.

In 2005, the company changed its name to Sound Enhancement Products, Inc. and continued makes the world-famous Accutronics Reverb for such major amplifier manufacturers as Fender, Marshall, Peavey and others. Despite the introduction of digital reverb several years ago, Accutronics reverb business continues to grow because of its warm, true sound, its reliability and its great reverberation since 1939.

In 2009 Accutronics reverb was sold to Belton. The staff at Sound Enhancement Products, Inc. continued to produce reverbs until November of 2009. All of manufacturing was then transferred to Belton and the Engineering staff followed to train the new owners on how to continue on the production of Accutronics reverbs with the same degree of quality Accutronics is famous for. Accu-Bell Sound Inc. is committed to producing the finest Electro Mechanical Spring reverbs in the world and continue on with the long heritage started by Hammond Organ in 1959.

Type 1



A small low cost two spring unit designed for application when price is a major factor. Ideally suited for practice amps. Outer channel dimensions are 9.25" Length x 3.375" Width x 1.313" Height

Type 4



The **industry standard** for years, the Type 4 is still manufactured today using Hammond's **original design**. Four counter wound and coupled springs deliver superior mechanical performance and the classic sound that helped make the Fender Twin Reverb Amps famous. Outer channel dimensions are 16.75" Length x 4.375" Width x 1.313" Height.

PART NUMBERING SPECIFICATIONS FOR TYPE 1 &

TYPE 4

EXAMPLE: 4EB2C1B

DIGIT #1 - REVERB TYPE

1 for Type 1 or 4 for Type 4

DIGIT #2 - INPUT IMPEDANCE

- A = 8 Ohm
- B = 150 Ohm
- C = 200 Ohm
- D = 250 Ohm
- E = 600 Ohm
- F = 1475 Ohm

DIGIT #3 - OUTPUT IMPEDANCE

- A = 500 Ohm
- B = 2250 Ohm
- C = 10000 Ohm

DIGIT #4 - DECAY TIME

- 1 = Short (1.2 to 2.0 sec)
- 2 = Medium (1.75 to 3.0 sec)
- 3 = Long (2.75 to 4.0 sec)

DIGIT #5 - CONNECTORS

- A = Input Grounded / Output Grounded
- B = Input Grounded / Output Insulated
- C = Input Insulated / Output Grounded
- D = Input Insulated / Output Insulated
- E = No Outer Channel

DIGIT #6 - LOCKING DEVICES

- 1 = No Lock

DIGIT #7 - MOUNTING PLANE

- A = Horizontal Open Side Up
- B = Horizontal Open Side Down
- C = Vertical Connectors Up
- D = Vertical Connectors Down
- E = On End Input Up
- F = On End Output Up

Type 8



Designed for applications in which the overall sound quality is important and a compact package is required. Small in size, this three spring reverb approaches the rich textural quality of our larger reverb units. Outer channel dimensions are 9.25" Length x 3.375" Width x 1.313" Height.

PART NUMBERING SPECIFICATIONS FOR TYPE 8

EXAMPLE: 8EB2C1B

DIGIT #1 - REVERB TYPE

8 for Type 8 or 9 for Type 9

DIGIT #5 - CONNECTORS

- A = Input Grounded / Output Grounded
- B = Input Grounded / Output Insulated
- C = Input Insulated / Output Grounded

DIGIT #2 - INPUT IMPEDANCE

A = 10 Ohm
 B = 190 Ohm
 C = 240 Ohm
 D = 310 Ohm
 E = 800 Ohm
 F = 1925 Ohm

DIGIT #3 - OUTPUT IMPEDANCE

A = 600 Ohm
 B = 2575 Ohm
 C = 12000 Ohm

DIGIT #4 - DECAY TIME

1 = Short (1.2 to 2.0 sec)
 2 = Medium (1.75 to 3.0 sec)
 3 = Long (2.75 to 4.0 sec)

D = Input Insulated / Output Insulated

E = No Outer Channel

DIGIT #6 - LOCKING DEVICES

1 = No Lock

DIGIT #7 - MOUNTING PLANE

A = Horizontal Open Side Up
 B = Horizontal Open Side Down
 C = Vertical Connectors Up
 D = Vertical Connectors Down
 E = On End Input Up
 F = On End Output Up

Type 9



Six springs, counter wound, coupled and placed in parallel, combine to create Sound Enhancements' fullest, richest reverb effect throughout the full range of musical sound. Ideally suited for keyboard, sound reinforcement and pedal steel applications. Outer channel dimensions are 16.75" Length x 4.375" Width x 1.313" Height.

PART NUMBERING SPECIFICATIONS FOR TYPE 9

EXAMPLE: 9EB2C1B

DIGIT #1 - REVERB TYPE

8 for Type 8 or 9 for Type 9

DIGIT #2 - INPUT IMPEDANCE

A = 10 Ohm
 B = 190 Ohm
 C = 240 Ohm
 D = 310 Ohm

DIGIT #5 - CONNECTORS

A = Input Grounded / Output Grounded

B = Input Grounded / Output Insulated

C = Input Insulated / Output Grounded

D = Input Insulated / Output Insulated

E = No Outer Channel

DIGIT #6 - LOCKING DEVICES

1 = No Lock

E = 800 Ohm
F = 1925 Ohm

DIGIT #3 - OUTPUT IMPEDANCE

A = 600 Ohm
B = 2575 Ohm
C = 12000 Ohm

DIGIT #4 - DECAY TIME

1 = Short (1.2 to 2.0 sec)
2 = Medium (1.75 to 3.0 sec)
3 = Long (2.75 to 4.0 sec)

DIGIT #7 - MOUNTING PLANE

A = Horizontal Open Side Up
B = Horizontal Open Side Down
C = Vertical Connectors Up
D = Vertical Connectors Down
E = On End Input Up
F = On End Output Up