This is the position the performer assumes when playing the Theremin. Notice that the performer is not in physical contact with any part of the instrument.

"The musical possibilities of the Theremin are infinite."
Sir Henry Wood

In conception as well as in mode of operation, the Theremin is the most modern of musical instruments. Its tones are produced electronically, but are controlled by the movements of the performer's hands in the space surrounding the instrument. There are no buttons or keys that determine the pitch or intensity of the Theremin tone. The Thereminist exercises virtually the same amount of control over the production of the Theremin tone as the singer exercises over his voice.

One of the great advantages of the Theremin is its unusually versatile pitch range. Any pitch within its range may be produced. A continuous glissando, or glide, from one pitch to another may also be readily produced. In determining the pitch, the performer places his right hand in the space surrounding the pitch antenna, a slender rod extending from the top of the instrument. To raise the pitch, he brings his hand closer to the antenna; to lower the pitch he moves his hand away from the antenna. A beautiful full vibrato may be easily produced by moving the right hand back and forth rapidly through a small distance. This produces minute and rapid variations in pitch, corresponding to the effect a violinist produces in moving the wrist of his left hand back and forth rapidly.

The performer uses his left hand to determine the loudness of the tone. To make the note softer, the player brings his left hand nearer to the volume antenna, a slender curved rod extending from the left hand side of the instrument; to make the note louder the performer moves his left hand away from the antenna.

These are the only movements involved in playing the Theremin. As with all musical instruments, some practice is necessary to achieve a proper technique. If the prospective player has had any musical experience, or is musically inclined, the fundamentals of Theremin playing will be quickly mastered. Once the fundamentals have been learned, the player will find it easy to develop techniques and effects to suit his needs.

Originally developed in 1928 by Leon Theremin, the Theremin quickly gained acceptance in musical circles. Because of its ability to impart intense emotional qualities to a melody, it has been used to produce the theme music for Spellbound, the Lost Weekend, and other motion pictures. Performances of orchestral and chamber music on the Theremin were given at frequent intervals between the years 1930 and 1948.

In 1954, the R. A. Moog Co. began to produce Theremins of new design. The existence of these instruments encouraged many Thereminists to once again perform in public. This has initiated a revival of interest in Theremin music. In 1957, the R. A. Moog Co. started an extensive development program, the object of which was to design Theremins which would embody all features which most Thereminists deemed desirable. The instruments described in this brochure are the result of this development program. The Vanguard Model Theremin is a modern adaptation of Leon Theremin's original design. The Professional Model Theremin is a completely transistorized instrument, and in addition offers the musician a choice of four tone colors. Both Theremins are played in the same manner; their difference lies in the mechanism of tone production, and in the variety of tone color which is available.

THE *Vanguard* MODEL THEREMIN

The Vanguard is a completely self-contained electronic musical instrument. The tone is generated by purely electronic means, without the use of motors, strings, or other mechanically moving parts. A specially designed vacuum tube oscillator circuit, whose operation is sensitive to movements of the player's hand, generates an electric wave. When this wave leaves the oscillator, it passes through another circuit which adds the correct degree of overtones to give a pleasing and musical quality to the tone. Without this circuit, the tone would sound dull and mechanical.

Still another circuit enables the loudness of the tone to be controlled by the player's hand. After leaving this circuit, the tone is amplified, and converted into sound waves by a loudspeaker. The entire electronic mechanism, including the loudspeaker, is housed in a single cabinet.

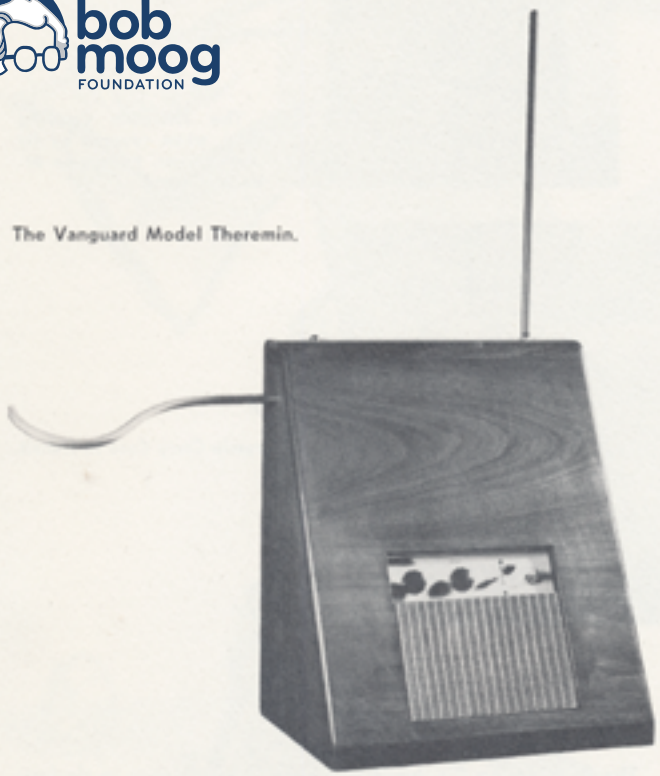
The pitch range of the Vanguard encompasses three and one-half octaves, extending from an octave below middle C to two and one-half octaves above middle C. The loudness range extends from full volume to the softest whisper, and even to complete inaudibility. At full volume, the instrument may be heard by an audience of any size.

The mechanism of the Vanguard is housed in a handsome, hand-rubbed solid mahogany cabinet. The tuning adjustments and two switches are located on a panel which the performer faces while playing the instrument. The cabinet is twenty

inches high, seventeen inches wide, and twelve inches deep at the base, and is designed to stand on a table twenty to twenty-two inches high.

Setting up the instrument is extremely easy. The cabinet is set on a suitable table, and the two anodized aluminum antennas are inserted in receptacles. The power cord is then plugged into a convenient power outlet, and the instrument is turned on. After a one minute warmup period, the instrument is tuned, an operation which takes but a few seconds.

The Vanguard Model Theremin.



Aside from the plugging in of the Vanguard, no other connections to the instrument need be made. In addition, the Vanguard will require little maintenance. A periodic service inspection every two or three years will usually suffice, since there are no moving parts to wear out or components to go out of tune. This combined simplicity and reliability of operation which is inherent in the design of the Vanguard Model Theremin is a prime requisite for a true musical instrument.

THE *Professional* MODEL THEREMIN

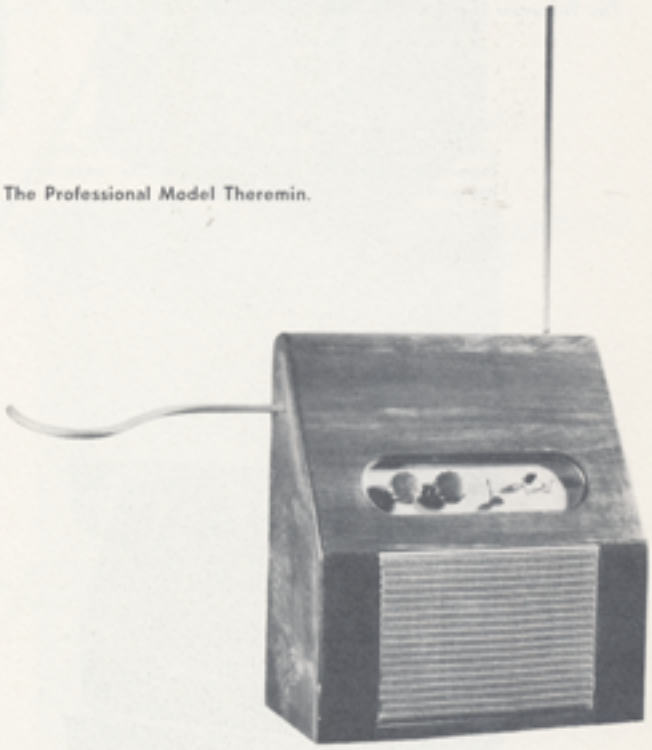
The Professional Model Theremin differs from the Vanguard Model in two main respects. First, the Professional Model is completely transistorized, and uses no vacuum tubes. Second, a choice of four distinctive timbres is available to the musician.

The introduction of transistors within the last few years has revolutionized the electronics industry. A transistor is a device composed of a specially produced single crystal, and is capable of performing virtually the same functions in electronic equipment as vacuum tubes. Its characteristically small size has permitted the design of electronic instruments with a degree of compactness and lightness that would have been impossible with vacuum tubes. The Professional Model Theremin is such an instrument. In addition to all the features of the Vanguard, the Professional Model contains the means of providing four different tone colors, and a larger loudspeaker to give voice to these timbres with greater fidelity.

Tone color, or timbre, is that characteristic of a tone through which the listener usually identifies the nature of the tone source. The four tone colors of the Professional Model Theremin are named PRINCIPAL, HORN, WOODWIND, and STRING. These names are not intended to indicate that the Theremin tone will exactly duplicate the effect of another musical instrument, but rather indicate the broad general quality of the Theremin tone. The Principal tone is mellow and ethereal, like a flute, and is the timbre traditionally associated with the Theremin. The Horn tone is sharp and nasal, like that of an oboe. The Woodwind tone is hollow and woody, like a clarinet. The String tone is rich in overtones, like that of any stringed instrument.

These four timbres may be selected by a switch on the front panel of the Professional Model. The choice may be made while the instrument is in operation, to provide contrasting tonal voices within a piece of music. The different tone colors also encompass different pitch ranges. The Principal and Horn tones encompass a pitch range of from one-half octave below middle C to three octaves above middle C. The pitch range of the Woodwind and String tones extends from one and one-half octaves below middle C to two octaves above middle C. Thus, the total pitch range of the Professional Model is four and one-half octaves.

The Professional Model Theremin.



The cabinet is of solid, hand-rubbed mahogany, and is twenty inches high, eighteen inches wide, and ten inches deep at the base. It is designed to stand on a table twenty to twenty-two inches high.

The Professional Model Theremin has been designed to meet every need of the accomplished Thereminist. No effort has been spared to produce an instrument of as high quality as the state of the art of electronic instrument manufacture permits. As such, the Professional Model proudly takes its place in the foreground among modern musical instruments.

ACCESSORIES FOR THE THEREMIN

The Theremin Stand is a table twenty-two inches high, which is designed to support either the Vanguard or Professional Model Theremin. Like the Theremin cabinets, the Theremin Stand is tastefully styled in solid mahogany, and has a hand-rubbed finish.

The Theremin Carrying Case is a hardwood case that is specially fitted to house either the Vanguard or the Professional Model while it is being transported. The interior of the case is padded with rubberized padding, and completely lined with heavy velvet. A cloth cover which is supplied will convert the carrying case into an attractive stand for use at public performances, thus eliminating the necessity of supplying a separate stand at temporary locations.

The Theremin Carrying Case, when covered by its cloth cover, makes an attractive stand.

The Theremin Stand.

The Theremin Carry Case in transit.

This instrument, which is a portable, battery operated Theremin, is representative of the custom Theremins which the R. A. Moog Co. has made in the past.

CUSTOM MADE THEREMINS

The R. A. Moog Co. has had years of experience in designing and constructing Theremins to order. Virtually any special requirement can be met. For instance, Theremin cabinets made from any hardwood can be supplied, or a specially shaped cabinet can be designed.

An example of special Theremin design is a completely transistorized, battery operated, portable Theremin. This entire instrument weighs only eighteen pounds, but has the same range and playing characteristics of the standard models.

Inquiries concerning custom-made Theremins will receive the prompt and careful attention of the R. A. Moog Co., and will be promptly and courteously answered.

GUARANTEE

All R. A. Moog instruments carry a one-year guarantee against failure due to defective components or construction. All instruments are supplied with a service manual, with the help of which a competent electronic technician can correct most troubles that could arise. Any cost of servicing an R. A. Moog instrument by a competent technician will be borne by the R. A. Moog Co. for the first year of the instrument's operation. For those who wish to send the instrument to the R. A. Moog Co. to be serviced, a prompt repair service is offered.

This information is stated more for the customer's assurance than out of practical necessity. Experience has shown that most R. A. Moog instruments perform for five years or more without requiring repair.

R. A. MOOG CO. BOX 263 ITHACA, N. Y.

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