

SYNTHESPIN MK-II



- * INTEGRATED CIRCUIT DESIGN
- * WIDE "ROTATING" SPEED RANGE
(.2 to 15 kHz)
- * VOLTAGE CONTROL OPERATION

For years electronic organs have used mechanical rotating speakers to produce a tremolo effect. Recently these speakers have gained added popularity with musicians because the sound they produce is totally unlike electronic forms of tremolo. However, mechanical speakers are too bulky and heavy to be conveniently carried from one date to the next and their high cost puts them beyond the means of many amateur and semi-professional musicians. The Synthespin was designed as a low cost, portable electronic simulator of the rotating speaker effect.

The Synthespin MK-II is an updated and improved version of a similar unit sold by PAIA for several years. In addition to the rotating speaker effect the MK-II also produces numerous effects ranging from very slow phasing type sounds to a bubbling pseudo-reverb. Electrical inputs on the rear of the case provide for optional foot pedal control of the rotating effect as well as allowing instantaneous foot switch cancellation and bypass functions.

Complete kit includes: circuit board, all parts, wire & hardware, pre-finished case and step by step instructions. A wired and tested model is also available.

#1702K	SYNTHESPIN MK-II kit	\$24.95	shipping wt. 3 lbs
#1702A	SYNTHESPIN MK-II assembled	\$49.95	shipping wt. 3 lbs

OPERATION

As anyone who has taken high school physics knows, sound coming from a moving source appears to change frequency depending on whether the source is moving toward or away from the observer. In essence, this is the principle behind the vibrato produced by mechanical rotating speaker systems.

As it happens, though, vibrato is not the only effect that a spinning speaker has on the sound it produces, there is also an associated cyclic sound level variation (tremolo) as well as effects that originate from the variations in room acoustics as the speaker radiates sound in different directions.

In a mechanical system all of these changes occur after the loudspeaker has changed the form of the energy from electrical to mechanical. But as a practical matter the original electrical signal is an exact analog of the sound that the speaker will ultimately produce so it is reasonable to make the changes in the electrical analog of the sound rather than the sound itself.

This is where the Synthespin MK-II comes in. It is essentially an electronic package that modifies the electrical output of the instrument in approximately the same way that a mechanical rotating speaker would modify the mechanical signal.

CONTROLS

There are four front panel user controls:

SPEED - sets the "apparent rotating speed" from one revolution every 5 seconds to 15 revolutions per second.

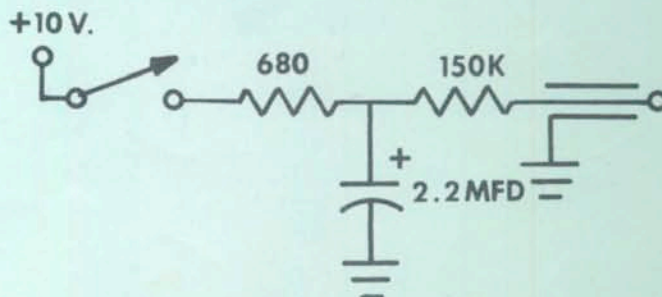
ACCENT - sets the prominence of the effect. At minimum setting the change in the sound is barely noticeable but advancing the control fully produces a resonant peaking that is amazingly similar to reverb.

BAND CONTROLS - center and span controls work together to determine how much of the instrument's frequency spectrum is involved in the total effect.

There are three remote programming input jacks on the rear apron of the case:

CANCEL - closing the contacts of a switch (such as the PAIA 4720 foot switch) plugged into this jack causes the entire unit to be electronically by-passed.

SPEED - a variable 0 to 10v. source can be plugged into this jack to remotely vary the "rotating speed". Typical applications of this feature would be foot control of rotating speed or the addition of a "celeste/chorale" switch such as those used on some mechanical rotating speakers. If an arrangement such as the one shown in the accompanying diagram is used, the speed changes associated with opening and closing



the switch will be gradual rather than abrupt and will approximate those caused by the inertia of the mass of the rotating mechanism in mechanical systems.

CENTER - This is the voltage control equivalent of the front panel "center" control. Using an external circuit similar to the one described above, this input can produce a sweeping effect similar to a phaser as the switch is opened and closed (with front panel "span" control set to minimum) or with the front panel span control at some intermediated position can cause the cyclic variations to sweep downward through the frequency spectrum of the instrument.