

THE MODERN electronic organ has been profoundly influenced by recent developments in circuitry. A variety of advances have been made, including, among others, new voices and automatic playing functions.

With a host of manufacturers offering a wide range of models, it's no simple matter to choose an organ for home use. The multiplicity of options, the many exclusive features that differ from one manufacturer to another, and the broad range of prices are bewildering. Since an electronic organ represents a considerable investment, it is best to choose carefully from among the many different types offered. With this in mind, let us take a look at what makes up the basic organ and what manufacturers offer today.

The Basic Electronic Organ. The organ is a keyboard instrument. Unlike the standardized piano, however, there are startling differences between various makes and models of organs. Nevertheless, all electronic organs share common characteristics.

Except for the least expensive models, you will find two keyboards, or manuals, that cover from 3½ to 5 octaves each. The reason for the two manuals—and sometimes more—is that different manuals can have different tone settings. You can play melody accompaniment on yet another keyboard arranged as pedals. (An organ can have as few as 13 pedals for one-octave coverage or as many as 32 pedals for a full 2½ octaves, like pipe organs, depending on the size and cost of the instrument.)

In addition to keyboards, all organs have "stops" that determine the tonal characteristics of the final sound. Stops produce modified sounds that are sometimes similar to traditional instrument "voices" (trumpet, flute, oboe, even plucked instruments like celeste and harpsichord), and sometimes sounds that are peculiar to the organ.

Stops in different "pitch registers" can give voicings in different octaves. An organ might have a TRUMPET 8' stop (8' reads as "8-foot," a reference to the length of the particular pipe in a pipe organ), which means that you would hear a sound voiced like a trumpet, in the same octave as the key you are holding. You might also use a TRUMPET 4' stop, which sounds a trumpet an octave higher than the key.

How to Choose an Electronic Organ

A detailed guide to home electronic organs—types, operation, functions, and buying considerations

BY CRAIG ANDERTON

A TRUMPET 16' stop sounds an octave lower than the depressed key.

Couplers are controls that transfer stops, add sounds from one keyboard to another or sound them in different octaves. For instance, if you are playing on the upper (Swell) keyboard, depressing a SWELL TO SWELL 16' coupler adds to the normal sound the same sounds an octave lower. Or, if you are playing on the upper keyboard and

wish to add voices from the lower (Great) manual, you would depress the GREAT TO SWELL 8' coupler.

Since organ keys are not dynamically sensitive, like those of a piano, a foot-operated volume control (the swell shoe) is provided—sometimes one for each manual.

Many organs have a percussion feature that produces sounds similar to struck or plucked instruments. "Sus-



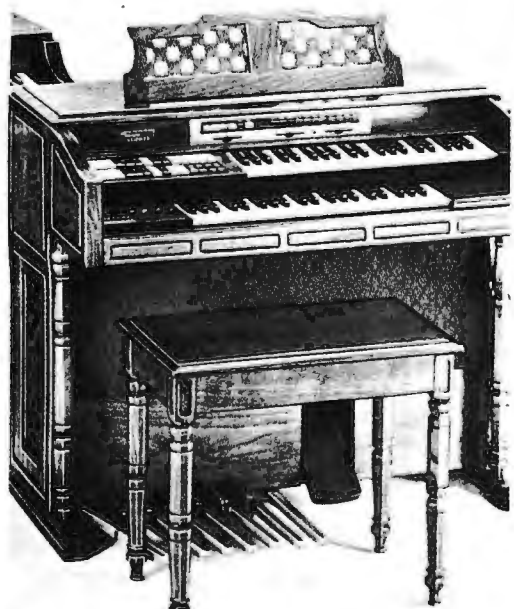
Wurlitzer 315 Funmaker Spinnet



The Schober theatre organ has two full manuals and the familiar U-shaped ring of stops.



Baldwin's Zodiac model includes a synthesizer on the left end of the solo console.



Heathkit/Thomas TO-1260M spinet organ comes in kit form. (See Product Test Report.)

tain" sometimes is available to make notes fade away gradually when a key is released rather than stopping immediately in the usual way.

Another function often found on organs is reverberation. It simulates the effect of spaciousness produced in a large hall, and greatly enhances the pleasure of playing. There is also vibrato, which makes a periodic pitch change over a small range, like the warm effect produced by the fluttering of a violinist's left hand. There may be several vibrato speeds and intensities available. Rounding out the basic organ is the amplifier/speaker combination.

Even in the basics, electronic organs differ from each other. For example, the stops on one type might be tabs connected to switches; or they might be drawbars, or even a card reader. In addition to the basic sound functions, organ manufacturers have added a host of special effects, most of which would not have been possible only a few years ago.

The effectiveness and quality of each of these items, and the quantities vary from model to model. You cannot judge an organ by what is written about it on paper; all we can do is tell you what to look for and listen to.

New Organ Technology. The first organs were, and the best still are, the acoustic types that used pipes for resonance and forced air to make sound. Early electronic models used synchronized relaxation oscillators or flip-flops, or independent oscillators, with tubes. Several companies developed transistorized organs, then integrated-circuit organs, some of which use LSI chips in tone generation. Almost all solid-state organs employ synchronized flip-flops or independent oscillators.

It was not long before rhythm units, synchronized chord patterns, built-in cassette decks and other "gimmicks" appeared. Dividing lines became clearer as organs began to fit into one of three categories: (1) The combo organ, designed for travelling entertainment groups, is the smallest, lightest, and least versatile instrument. (2) The home organ in the \$1000 to \$6000 range is more sophisticated and has a variety of special effects. (3) The recital organ is designed for serious home organists as well as for use in churches, stadiums, etc. Further divisions are shown in an accompanying table.

Home organs routinely come with a variety of electronic devices to enhance and simplify playing. One of the most popular is the rhythm section that is capable of simulating the sounds of percussion instruments: bass drum, snare drum, bongo, cymbal, etc. There's often an automatic rhythm device with a choice of different patterns: waltz, polka, rhumba, rock, etc. Tempo controls and a flashing tempo light are usually included.

Some of the automatic types also have a down-beat control so that the rhythm pattern can be held off and started again with the resumption of playing. There are other rhythm-section possibilities. For example, Baldwin's "Real Rhythm" allows the triggering of manual drum rolls in addition to the metronome-like sound of the basic rhythm box. Schober takes a different approach with its "Dynabeat" accessory in which the drums are either manually played or triggered by the lower manual keys and the pedals. Hence, the rhythms can follow your playing instead of being automatic. The company's "Dyna-master" option adds many automatic rhythm patterns and even allows the organist to design five of his own automatic patterns.

On many home-type organs, the pedal and lower manual circuits are synchronized with the drum tempo by flipping a switch. Holding down one bass pedal gives a bass note triggered with the drums. As you continue to hold it down, the note recurs, triggered by the beat and sometimes even alternating to other harmonically related notes. The Heathkit TOA-60-1, among others, provides alternating bass pedal notes to fit rhythm patterns, and Gulbransen makes an "Automatic Walking Bass" accompaniment available as an option on many organs.

Synchronization with the lower manual usually means that holding down a chord will trigger that chord repeatedly on the beat, in a manner similar to that used for the automatic bass pedals. The Kimball "Entertainer II" system is a good example of this type of feature. An optional KEYED RHYTHM makes the rhythm accompaniment (drums) start when you begin playing and stop when you stop. When it starts with your playing, it is always on the down beat. The MUSICAL RHYTHM option has the lower manual and pedals come out in time with the drums, starting on the down-beat and

alternating between the pedal and the left-hand chord.

A MAGIC-CHORD switch allows you to depress a single key on the lower manual and hear a correct chord accompaniment (with pedal) alternating in rhythm and starting on the down-beat. (GTR takes a different approach in its model M-600 organ. A feature called RHYTHM MEMORY remembers the chord you play and plays it until you depress the next chord.)

Automatic arpeggio allows you to have the notes of a chord sound individually in sequence. Baldwin's "Fantom Fingers" system is a sophisticated example of this. By playing a chord and selecting a mode, the chord notes can be played normally, strummed or played as arpeggios up, or up and down, at a rate chosen by a rate control. You can change chords because the Fantom Fingers automatically change, too. There is also provision for the arpeggio rate to increase as the volume level increases. And the degree of sustain (time each note takes to die away) can be adjusted.

On Lowrey's "Symphonic Golden Harp," the options are arpeggios up and/or down over a switch selected one-, two-, or three-octave range. Holding the volume pedal to the right activates a pushbutton switch that starts and sustains the arpeggio for as long as the chord keys are held down by the player.

Another trend adds the capability of generating chords from a single note. Wurlitzer's "Sprite" line uses TOUCH TONE. It is similar in approach to chord organs, in that pressing a single button generates either a major, minor, or seventh chord, which also synchronizes with the rhythm section. Lowrey's contribution is AOC (Automatic Orchestra Control). If you sustain, say, a major chord on the lower manual, playing a single note on the upper manual will come out like a major chord, no matter where the note is. The more notes played, the more come out.

Many organs are now starting to emphasize synthesizer sounds and technology, whether by adding a synthesizer manual, or by adding synthesizer voices to the upper manual. For example, Thomas has collaborated with Moog Music on a series of synthesizer presets on its bigger organs. The Wurlitzer Custom 550 organ has a separate two-octave synthesizer manual available with sine-wave outputs, preset sounds, var-

iable attack and decay times, waa-waa, delta pitch (or pitch bending), and other features.

Kawai builds a synthesizer into its top-of-the-line Model T6 organ, with voltage-controlled filters and other synthesizer effects. Baldwin's "Syntha-Sound" is a three-octave manual. It is available as a separate unit, and has variable attack and decay times, etc. The Yamaha Model EX-42 organ adds another type of synthesizer controller to the traditional keyboard. This is similar to a Moog ribbon controller that provides a variety of glissando or sweeping sounds. (Interestingly, synthesizers combined with electronic organs can accurately reproduce the sound of many musical instruments.)

There have been many advancements in organ playing instruction, too. Generally, manufacturers provide either books or a cassette course to get you started playing right away. Companies such as Conn, Thomas, and Heathkit/Thomas backlight the letter keys on their organs. Gulbransen has gone so far as to include a digital cassette system in which organ pieces are converted into digital information that then "plays" the organ in much the same way as punched paper rolls do in a player piano. The same cassette "computer" also forms the basis of the "Musical Computer Organ Teaching System," in which individual key lights indicate the notes to play on the upper and lower manuals. As a natural outgrowth of the many cassette programs, several organ manufacturers offer cassette decks as an option or as original equipment, or at least provide inputs and outputs for installing a cassette deck of your own.

Narrowing Down Your Choice.

Though there are many features to consider when buying an electronic organ, it is possible to make the decision easier by examining category choices available.

If you're a neophyte, for example, and have no real desire to play well—just have fun—then you might consider one of the smallest instruments that are not actually called organs. They go by the name of "baby" organs, usually known by "trademark" names such as Wurlitzer's "Funmaker Sprite", Lowrey's "Teenie Genie", Baldwin's "Fun Machine", etc. The latter instrument is typical of the category, with a single 37-note



This Allen organ uses digital computer cards to generate different sets of voices.

keyboard, 13-note rhythm-section keyboard, automatic chord programmer, percussion patterns, and single-channel amplifier, but no pedal keyboard.

For those who have some musical experience or seriously plan to develop instrument playing, the next step is the "Spinnet" organ. It generally offers two keyboards, 44 keys each, and 13 pedals. These are often supplemented by a rhythm section and automatic features. The higher-priced spinnets often feature two-channel amplifiers, as well as more voices, additional automatic functions, waa-waa effects, multiple vibratos, better speaker systems, built-in cassette machines, etc. Some also offer built-in synthesizers.

For more serious organists, there

are classic-style and theatre organs (horseshoe styled cabinetry with overhanging voice tabs). These always have two or more manuals with 61 keys each and 25- or 32-note pedals. Beyond this are electronic organs which meet specifications of the American Guild of Organists.

Though the foregoing may seem to have put more emphasis on special effects and gadgets than on the basics, that is only because special features vary from maker to maker and take more words to talk about.

The fact is that your first and greatest attention ought to be focused on the basic capabilities of the organ—the largest possible variety of pleasing basic organ tones, the most flexible coupler system, and the largest number of generated tones. If



The Schober recital organ meets standards of the American Guild of Organists.

ELECTRONIC ORGAN COMPANY SAMPLER

The following is a list of companies that manufacture and/or distribute electronic organs and accessories. Kit suppliers are identified by an asterisk preceding the company name.

ALLEN ORGAN CO., Macungie, PA 18062

ARTISAN ELECTRONICS CORP., 5 Eastmans Road, Parsippany, N.J. 07054

BALDWIN PIANO & ORGAN CO., 1801 Gilbert Ave., Cincinnati, OH 45202

CONN ORGAN CORP., 616 Enterprise Drive, Oak Brook, IL 60521

GENERAL ELECTRO MUSIC, Northvale Industrial Park, Northvale, NJ 07647

GTR PRODUCTS INC., 42 Jackson Drive, Cranford, NJ 07016

GULBRANSEN INDUSTRIES, INC., 8501 West Higgins Road, Chicago, IL 60631

*HEATH COMPANY, Benton Harbor, MI 49022

HAMMOND ORGAN CO., 4200 West Diverser, Chicago, IL 60639

KAWAI ORGAN CO., 24200 S. Vermont Ave., Harbor City, CA 90710

KIMBALL ORGAN CO., 15th and Cherry Sts., Jasper, IN 47546

LOWREY ORGANS, Norlin Music, Inc., 7373 N. Cicero Ave., Lincolnwood, IL 60646

*NEWPORT ORGANS, 842 Production Pl., Newport Beach, CA 92660

ROCKY MOUNT INSTRUMENTS, INC., Macungie, PA 18062

RODGERS ORGAN CO., Hillsboro, OR 97123

SAVILLE ORGAN CO., 2901 Shermer Road, Northbrook, IL 60062

*SCHOBBER ORGAN CORP., 43 West 61 St., New York, NY 10023

THOMAS ORGAN CO., 7310 N. Lehigh Ave., Niles, IL 60648

WHIPPANY ELECTRONICS INC., 1275 Bloomfield Ave., Fairfield, NJ 07006

WURLITZER CO., 1700 Pleasant St., De Kalb, IL 60115

YAMAHA INTERNATIONAL CORP., Box 6600, Los Angeles, CA 90620

*Also supplies organs in kit form.

you can afford the space, a separate, well-built speaker system that can be placed at a distance from the organ console gives better sound than any speakers mounted in the console can, and the distance of the sound source from the player adds much to the pleasure of the sound. *After* you are sure an organ has these basic organ qualities you can consider the gadgets and gimmicks, all of which are fun as novelties, but become much less important to your satisfaction than basic musical quality over the long run.

A dramatic addition to any organ is a rotating speaker system that provides cyclic phase/frequency and volume change and resulting warmth and excitement. The Leslie™ Speaker has pretty much dominated this market over the years. But there are other methods of achieving this effect, including both mechanical and electronic systems.

Another important organ feature is reverberation. In addition to the spring-type reverb units and electronic delay circuits on the market, the Schober Organ Corporation makes the Reverbatape Unit, a small tape-type reverberator designed to be placed inside electronic organs of almost any make.

To play the electronic organ without disturbing others, headphone jacks will doubtlessly be an important feature. There are a variety of other electronic organ features that are available depending upon the manufacturer's design, such as chuff circuitry to simulate wind noise from a pipe organ.

In the Store. The first major rule, especially if you are relatively unfamiliar with organs, is never to buy the first organ or brand you see—at least not until you have seen as many others as you can find. The price of an organ involves a considerable investment.

Do not buy on impulse or because you are impressed with the first demonstration you hear.

The second rule is to require a demonstrator to show you how the organ sounds when none of its gadgets are used—just the basic organ voices. The gadgets can make for a fascinating demonstration, just because they seem to accomplish fantastic results. Most of this appeal is novelty. What should determine your long-term satisfaction is a large variety of pleasing organ voices. Then consider the more useful of the special effects.

Electronic organs (other than kit organs like Heathkit/Thomas and Schober) are always sold by local dealers, who are also responsible for their maintenance, both in and out of guarantee. Check the dealer's reputation for good service, preferably with other customers.

Understanding electronics will do you little good unless you have both the technical data on the organ (usually available in the service manual, which any reputable dealer will at least let you examine and which you should insist on receiving if you buy the organ) and a general understanding of electronic organs. The latter can be obtained from various magazine articles and a few books, such as *Electronic Musical Instruments*, 3rd Edition, (\$10.00) or *What Is An Electronic Organ?* (25 cents) both available from Schober Organ Corp., 43 West 61 St., New York, N.Y. 10023.

Remember that organ owners tend to trade up, moving toward more sophisticated instruments as their talents and tastes progress. So, check your retailer's policy on trade-ins. On the same subject, keep in mind that a second hand instrument might be a good buy. But before you buy a used organ, check the "Official Organ Bluebook" (available from Sight & Sound Systems, Inc. 6055 West

Fond-du-lac Ave., Milwaukee, WI, 53218) for market values. However, remember that many used electronic organs have been traded in because new electronic innovations have outstripped what these models offer.

It cannot be stressed strongly enough that intriguing and even useful electronic gadgets can never be a substitute for good, basic music sounds, voice variety and wide octave range. Listen carefully to the different voices on an organ. They should sound distinct, authentic, and clear. Potentiometers and other controls should not be scratchy, and the keyboard should feel "right." Another important consideration is the amplifier built into the organ. It should have sufficient power for the size of your listening room, as well as displaying low distortion. In many instances organ manufacturers do not have provisions for external hi-fi systems so you'll have to depend on the built-in system.

Kits Save Money. Price is an important consideration in any purchase, of course. Since an electronic organ you can "grow into" starts in a four-figure price category, one might pause before buying. However, while most electronic organs are factory-built, there is one way you can save a considerable amount of money without sacrificing quality. Build your own electronic organ from a kit!

The two most prominent names in kit organs are the Heath Company and the Schober Organ Corp. Heath, though not specializing in organs, sells two spinet electronic organ kits and a rhythm accessory kit, all of which are basically Thomas organs sold assembled by dealers. Schober, on the other hand, specializes in electronic organs, offering a broad line of electronic organs and accessories of its own design.

The Heath organ spinets are sold as all-inclusive kits, including assembled/finished cabinet and bench. (An automatic rhythm section kit is available separately.) Schober offers a wide range of organ kits—from studio through recital types—plus a host of optional equipment kits and accessories that can be purchased all-inclusive or a section at a time to permit one to build an instrument that his budget and time will allow. Further savings are possible by purchasing cabinetry in kit form. Both companies offer time payment plans. ♦

ELECTRONIC ORGAN TYPES

Type	Features	Cost (\$)*
Single keyboard	Easy to play, limited octave range.	500 to 1000
Small spinet or studio	Dual 44-note keyboard and 13-note pedal, with automatic features.	Up to 2000
Large spinet	Same as above with many features of consoles, such as additional voices, dual amplifiers. Some with built-in synthesizers.	2000 to 6000
Console & theatre	Dual 61-note keyboards, 25- to 32-note pedal, additional voices.	35 to 10,000
Recital organ	Meets AGO specifications.	5000 and up

*Assembled unit; kits are less.