moog®

Synthesizer 55

- A Total Studio System with Complete Synthesizer Functions
- Incorporates a Sequencer Complement for Programmed Control
- New, State-of-the-Art 921 Series Oscillators
- Increased Control Capabilities for Greater Versatility
- Switch Selection of the Most Common Control Functions
- Expandable to Suit Future Needs
- Improved Power Supply for World-Wide Operation
- 100% Professional Quality Construction — Reliable and Durable

The Moog Synthesizer 55 is:

the largest and most sophisticated standard studio system, housed in three furniture-grade walnut cabinets. A total of 36 individual instruments, each with a specific function in sound generation, processing, or control, are contained in the two main consoles. The Synthesizer 55 system also includes a 951 Five Octave Keyboard Controller, in a separate cabinet. Only the finest, 100% professional quality components are used in construction of the Synthesizer 55, to provide reliable performance and durability. Careful consideration has been given to the placement of individual modules within the system, to provide convenient and logical interconnections. Instrument controls are comfortably large, accurately calibrated, and spaced for instant access and ease of adjustment. The most used control connections can be internally selected by switches, to reduce external patchcord use. Most important, these features are the culmination of more than a decade of collaboration between Moog Music, Inc. and leading musicians throughout the world—to create a system providing musical control of the vast potential of electronic sound!

The Synthesizer 55 contains:

an exciting new blend of modules, to provide more processing capability and the most desired control functions. Sound generation capabilities are also increased by the new, state-of-the-art 921 series voltage controlled oscillators. These instruments fall into four categories, defined by their principal function: Sound Generators, Signal Processors, Control Signal Generators, and Signal Routing panels.

Sound Generating modules include the 921 series voltage controlled oscillators and the 903A Random Noise Generators. The 921 series oscillators set new standards for frequency range, stability, and precision tracking. They also provide many new and musically exciting functions, such as phase-lock frequency synchronization, linear and exponential frequency modulation, rectangular waveform width modulation, and waveform clamping. Phase-lock frequency synchronization permits "beat-free" intervals and chords throughout the audio range, and true additive synthesis of complex waveforms. Oscillator "banks," consisting of a 921A (See Fig. 1) Oscillator Driver and three 921B (See Fig. 2) Voltage Controlled Oscillators, can be frequency modulated with exponential control response, and each 921B provides two frequency control inputs with linear response. Rectangular waveform width modulation permits dynamic timbral changes not possible through signal processing. Waveform Clamping allows the musician to control both when and where a control effect starts—a trill could start on the upper or lower pitch, or a repeating glissando at the top, the bottom, or any pitch between. The Synthesizer 55 also includes a 903A Random Noise Generator, providing "white" and "pink" noise sources.

Fig. 1

Fig. 2

Signal Processing modules include a bank of fixed frequency, half-octave filters 914 (See Fig. 3), a voltage controlled lowpass-resonant filter 904A (See Fig. 4), a voltage controlled highpass filter 904B (See Fig. 5), five voltage controlled amplifiers 902 (See Fig. 6), a dual trigger delay (911A), and several mixers, attenuators, and separate lowpass and highpass filters located on lower panels. The fixed filter bank permits precise tailoring of formants, useful in simulating traditional instrumental timbres or in

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

creating new sounds by subtractive synthesis. The two voltage controlled filters permit a wide variety of dynamic timbral effects, such as "wah-wah" resonances, wind noises, string plectrum sounds, etc. The 902 voltage controlled amplifier shapes the loudness of a sound, or the strength of a control signal, in response to any of the system's voltages. The dual trigger delay produces two switch trigger signals, when activated by an incoming switch trigger. Each of these trigger signals can be delayed for a time period, variable between two milliseconds and ten seconds, either concurrent from or in sequence from the point of activation. Mixers and attenuators provide amplitude control for audio and control signals; the mixers also provide inverted signal outputs, for a variety of musically useful control applications.

Control Signals can be obtained from five envelope generators (911 See Fig. 8), the keyboard (951), the sequencer complement (960, 961, 962), and any other signal generating modules. Any of these signals can be used to control, for example, the loudness of a sound passing through a 902, the timbre of a sound passing through a 904A or 904B (or by rectangular width modulation), or the pitch of the sound at the oscillator frequency control input. The envelope generator, when activated by a switch trigger, produces a voltage contour commonly used to create articulation (loudness) patterns; attack and decay times can vary from two milliseconds to ten seconds. The keyboard produces a different voltage level for each key depressed, and is commonly used for pitch control of one or more oscillators. The sequencer complement produces a wide variety of programmed voltage levels in a sequence, at a rate determined either by the internal clock oscillator or an external signal. The voltage level pattern can be used as a single output with up to 24 "steps," or as three outputs with up to 8 steps. It is commonly used to produce a melodic line, a chord progression,

Fig. 8

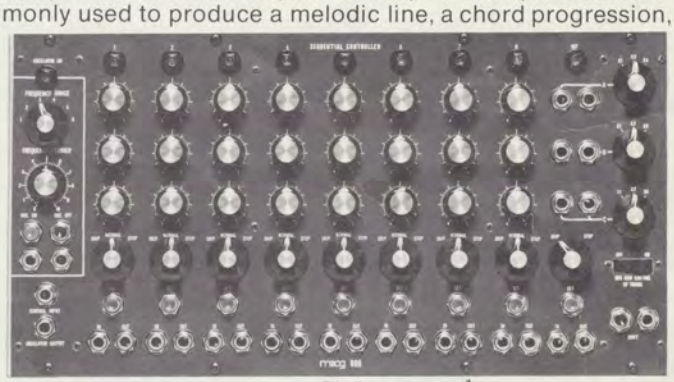


Fig. 9

or simultaneous control of up to three parameters of the sound. Any of the seven oscillators can produce repetitive control voltage contours to create vibratos, trills, or "sirens"; the 921 oscillator, with a frequency range as low as .01 hz., is particularly versatile in such control signal applications.

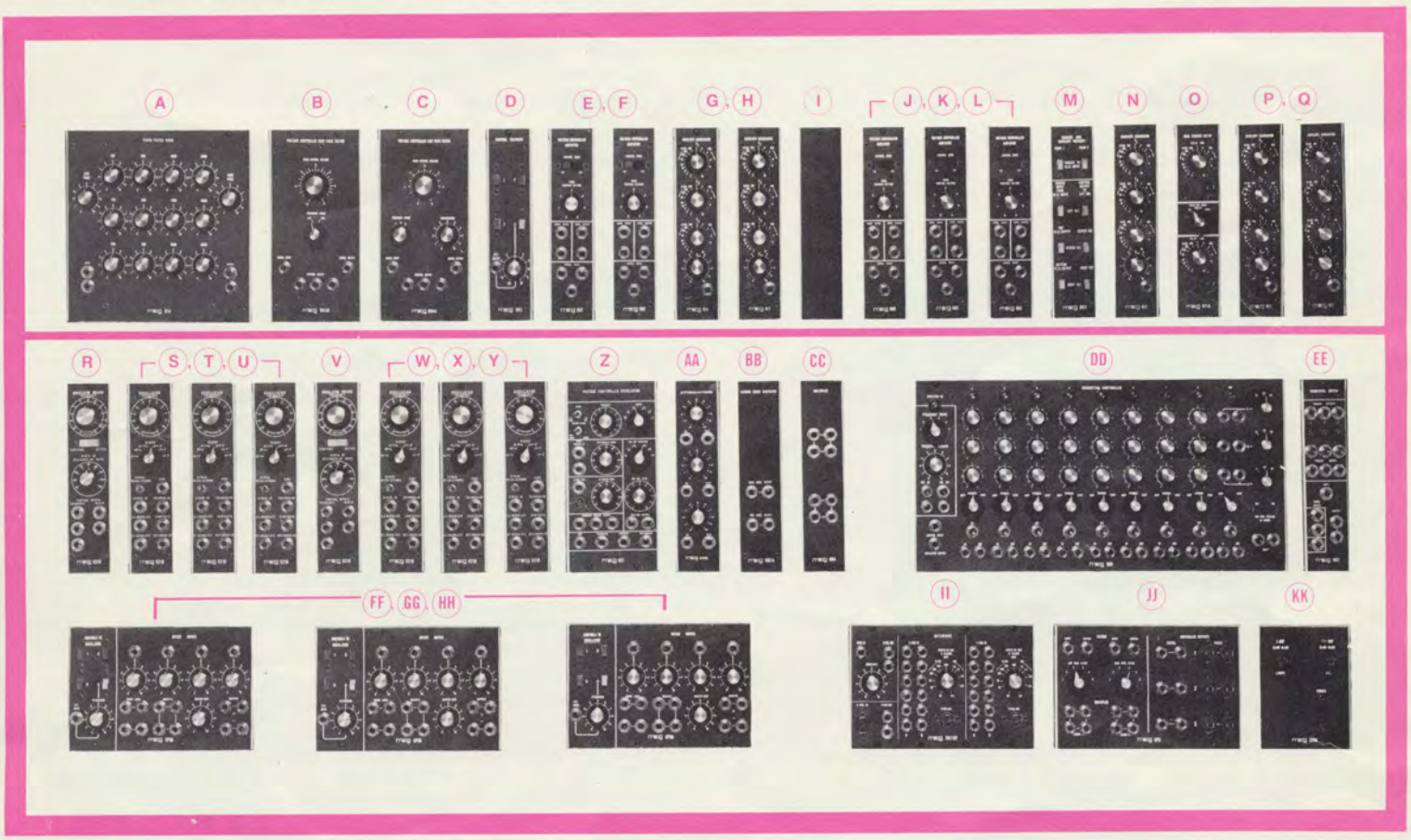
Signal Routing panels include a Trigger and Envelope Voltage panel (993), a Control Voltage panel (992), and portions of the three Console panel #3 modules. The 993 (See Fig. 7) panel provides switch connection of two trigger signals to any or all envelope generators to the right of its location, and connection of those envelope generator outputs to associated amplifier control inputs. The 992 (See Fig. 10) panel provides switch connection of up to four control voltages to the 904A Lowpass Filter to its left. Similar switches located on the Console panel #3 module perform the same function for the oscillator banks directly above, for frequency modulation.

Fig. 10

The main lower console houses a 930 power supply, which can be quickly adjusted to a variety of AC supply voltages, for operation in most countries. The rear panel provides convenient interconnections for all standard Moog accessories and other studio equipment.

The Synthesizer 55 will:

serve as the principal instrument in the most sophisticated composition studio. It is completely compatible with standard professional audio equipment, and can provide processing for traditional instruments, voices, and "natural" sounds. Its modular construction provides a convenient and logical structure ideal for demonstration and teaching of electronic sound production. The Synthesizer 55 is a total system with extremely varied capabilities for the production of highly complex sound structures, yet can be easily expanded by the addition of other cabinets of 900 series modules. The system is also available less the sequencer complement (Model 55A) to accommodate today's budget. Either system provides a powerful instrument for the production of electronic music — the sound of today and the future!



Instrument Complement:

- (A) 914 Fixed Filter Bank
- (B) 904B Voltage Controlled Highpass Filter
- (C) 904A Voltage Controlled Lowpass Filter
- (D) 992 Control Voltages panel
- (E), (F) 902 Voltage Controlled Amplifiers
- (G), (H) 911 Envelope Generators
- (I) Blank panel
- (J), (K), (L) 902 Voltage Controlled Amplifiers
- (M) 993 Trigger and Envelope Voltages panel
- (N) 911 Envelope Generator
- (O) 911A Dual Trigger Delay
- (P), (Q) 911 Envelope Generators
- (R) 921A Oscillator Driver
- (S), (T), (U) 921B Voltage Controlled Oscillators
- (V) 921A Oscillator Driver
- (W), (X), (Y) 921B Voltage Controlled Oscillators
- (Z) 921 Voltage Controlled Oscillator
- (AA) 995 Attenuator panel
- (BB) 903A Random Noise Generator
- (CC) 994 Dual Multiples panel
- (DD) 960 Sequential Controller
- (EE) 962 Sequential Switch
- (FF), (GG), (HH) Console panel #3
- (II) 961 Interface
- (JJ) Console panel #2
- (KK) Console panel #8

General Specifications:

Patchcord Complement:

14 one-foot Audio cords
8 two-foot Audio cords
6 three-foot Audio cords
6 four-foot Audio cords
4 five-foot Audio cords
2 one-foot Switch Trigger cords
3 three-foot Switch Trigger cords

Power Requirements

85-130 volt AC, or 171-260 volt AC, 50-60 hz, 350 watts

A standard 3-wire AC power cable is included

Dimensions & Shipping Weight:

Modular instruments are housed in two walnut console cabinets

Main Console Cabinet measures 48½" wide, 15½" high, 14" deep

Upper Console Cabinet measures 48½" wide, 10" high, 8½" deep

Keyboard Controller measures 43" long, 4" high, 9½" deep

Shipping Weight: 190 pounds

Optional Equipment:

Additional 951 or 952 Keyboard Controller

1120 Foot pedal controller

1150 Ribbon Controller

Additional Console Sequencer Complement A or B

Touch sensitive Percussion Controller

Additional Console with your choice of modular instruments

Individual Module Features:

921 Voltage Controlled Oscillator

- Frequency range from .01 to 40,000 hz.
- State-of-the-art stability and tracking
- Precise octave switching, fine and coarse tuning control
- Sine, Sawtooth, Triangle, Rectangular waveforms available simultaneously
- 6 switch-selectable auxiliary waveforms, with + and − outputs, level control
- 3 frequency control input jacks—exponential response
- Rectangular waveform width modulation by manual and voltage control

921A Oscillator Driver

- Master controls and control inputs for associated 921Bs
- Fine and coarse tuning control, switch-selectable
- 3 frequency control input jacks—exponential response
- Rectangular waveform width control, from 5% to 95%, for associated 921Bs
- 2 rectangular waveform width control input jacks

921B Voltage Controlled Oscillator

- Frequency range from 1 to 40,000 hz.
- State-of-the-art stability and tracking
- Sine, Sawtooth, Triangle, Rectangular waveforms available simultaneously
- AC and DC coupled frequency control input jacks—linear response
- Phase-lock synchronization control input, with locking strength switch-selectable

902 Voltage Controlled Amplifier

- Extremely wide (80 db) dynamic range
- Switch-selectable linear or exponential control response
- Complementary-paired sets of inputs and outputs
- 3 control input jacks

903A Random Noise Generator

- White (equal energy per unit bandwidth) and Pink (equal energy per octave) noise outputs

904A Voltage Controlled Lowpass Filter

- Manual and voltage control of cutoff frequency, from 60 to 20,000 hz.
- Variable regeneration, from "O" to oscillation
- 3 control input jacks—exponential response

904B Voltage Controlled Highpass Filter

- Manual and voltage control of cutoff frequency, from 60 to 20,000 hz.
- 3 control input jacks—exponential response

911 Envelope Generator

- Separate control of four parameters of the output voltage contour: initial rise time, initial decay time, sustain level, and final decay time
- Activate by switch trigger

911A Dual Trigger Delay

- Delay periods from 2 milliseconds to 10 seconds
- Delay periods can run concurrently or in sequence, instantly selectable by switch

914 Fixed Filter Bank

- Separate amplitude control of 14 bandwidths in the audio range
- ½ octave bandwidth divisions in the critical 125 to 5600 hz. range

960 Sequential Controller

- Three independent programmable voltage sequences, with switch selection of range
- Voltage controlled internal clock oscillator, with manual and voltage control of start and stop functions
- Switch selection at all sequence steps of normal, skip, or stop functions, during performance
- Voltage trigger inputs and outputs for each sequence step
- Indicator lights for operational status and sequence position

961 Interface

- Voltage trigger production at a variable threshold level of an audio signal input
- Dual conversion of Switch Triggers to Voltage Triggers
- Dual conversion of Voltage Triggers to Switch Triggers, with variable switch-on time

962 Sequential Switch

- Sequential selection of up to three input signals
- Sequence stepping by external voltage trigger
- Voltage trigger inputs and outputs for each sequence step

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SYNTHESIZERS

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