

# SIGNAL PROCESSORS

## meag Vocoder

### OWNERS MANUAL



Model MBVO

160 Broadway St.  
Asheville, North Carolina 28801



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## **INTRODUCTION**

CONGRATULATIONS ON YOUR OWNERSHIP OF THE MOOG 16-CHANNEL VOCODER, ONE OF THE MOST EXCITING AND VERSATILE INSTRUMENTS USED IN ELECTRONIC MUSIC TODAY!

THE CORRECT USE OF THE MOOG VOCODER WILL REQUIRE AN UNDERSTANDING OF ITS FUNCTIONS. PRIOR TO OPERATION IT IS ADVISABLE TO READ THIS INSTRUCTION MANUAL.

## **UNPACKING**

When unpacking the Vocoder, notice that it is tightly sandwiched between two foam protective baffles. Open the lid to the carton. Remove the top piece of foam and lift the Vocoder out. Do not destroy the carton or the foam padding, as this may be used for shipping or transporting the instrument in the future. Patch cords supplied with the Vocoder include:

- 1 AC power cord and inline power supply
- 14 short patch cords
- 2 longer patch cords

## **FREE STANDING OR RACK MOUNTED**

The Vocoder may be placed on a table or stand, or may be set on top of a Polymoog or other flat-topped keyboard instrument. It is also possible to "rack-mount" the Vocoder by removing the six Phillip head screws and reversing the side panels (front-to-back).



*VOCODER WITH SIDE  
PANELS ON FOR FREE STANDING USE*



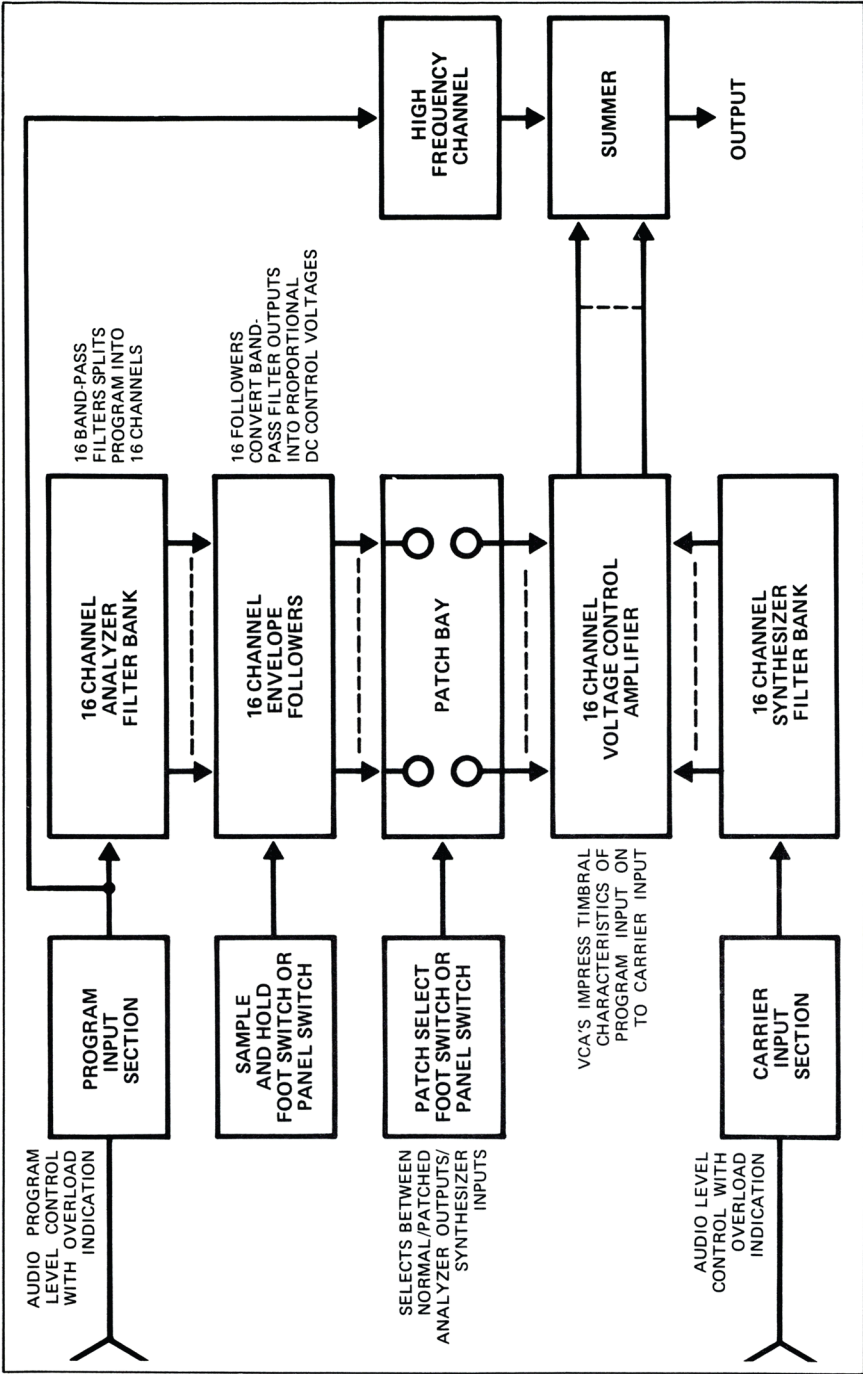
*VOCODER WITH SIDE  
PANELS REVERSED FOR RACK-MOUNTING*

## DESCRIPTION

The Moog Vocoder has two inputs (PROGRAM and CARRIER) and one output. The function of a Vocoder is to continuously analyze the tone-color characteristics of the PROGRAM input and impose those characteristics upon the CARRIER signal. The resultant signal appears at the output.

These functions are accomplished by first breaking down the PROGRAM into sixteen frequency bands in the analyzer section of the Vocoder. These 16 bands (or channels) are then either internally or externally patched to the synthesizer section where, through voltage-controlled amplification and filtering, they shape the articulations of the carrier signal. See the accompanying block diagram of the Vocoder functions.





SIMPLIFIED BLOCK DIAGRAM

# SPECIFICATIONS

## Program Input

Nominal level  
Line: 0dBm (0.7 volts)  
Mic: 40dBm (0.007 volts)

## Input Impedance

Line: 20K ohms  
Mic: 30K ohms

## Carrier Input

Nominal level: 0dBm (0.7 volts)  
Input impedance: 100K ohms

## Output

Level: +10dBm (2.2 volts)  
Output impedance: <1 ohm

## Effective Signal/Noise Ratio

60dB

## Frequency Range

Overall: 50 - 15,000 Hz  
Vocoded: 50 - 5,080 Hz  
Gated or bypassed: 5,080 - 15,000 Hz

## INITIAL SETUP (See Accompanying Diagram, Pages 6 and 7)

The word Vocoder comes from the use of the human voice as an articulator or program input and since this is the most common way that the Vocoder is used, proceed with the following setup.

- Connect the AC power line and external power supply.
- Connect a good quality microphone to the PROGRAM INPUT. Set the Program LEVEL control at "5" and MIC/LINE switch to MIC.
- Connect the output of your synthesizer or keyboard instrument to the CARRIER LINE INPUT. Set the Carrier LEVEL control at "5".
- Connect the VOCODER OUTPUT to your amplifier.

**NOTE:** Do not use any patch cords at this time between the analyzer outputs and synthesizer inputs.

- Set controls as follows:

SAMPLE/HOLD . . . . .	OUT	MODE . .	HISS & BUZZ
EXTERNAL PATCH . .	OUT	STATUS .	IN
SWITCHED/DIRECT . .	SWITCHED	POWER . .	ON
BALANCE . . . . .	0		

## OPERATION

- Set your synthesizer to produce a sustained tone. (On a Micromoog or Multi-moog, turn the **LOUDNESS BYPASS** switch ON, or use the shorting plug in the **EXTERNAL S—TRIG** of a Mini-moog). Start with a rich waveform such as a sawtooth or narrow pulse wave.

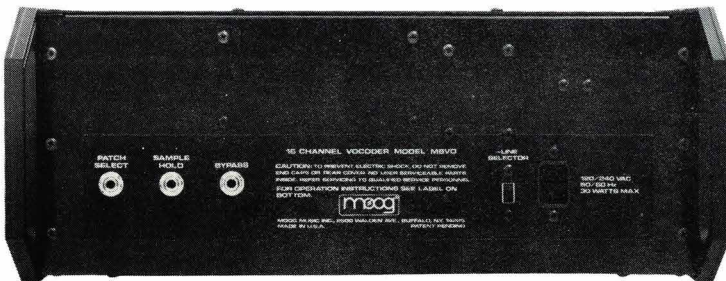
**NOTE:** You will not hear the synthesizer until you use your voice to articulate the Vocoder.

- As you speak into the microphone, the synthesizer will “sing” with the articulation of your voice. By playing the keyboard of your synthesizer, you will be able to change tones and by combining this with vocal articulating, create many unusual vocal effects.
- As you develop the technique of speaking and playing simultaneously, you will be able to explore the greater potential of your Vocoder. Set up richer synthesizer voices, add octave doublings, add vibrato or other modulation effects, experiment with pitch bend, etc. The possibilities are almost endless.

**NOTES:** If you hear no sound at this time, verify initial setup procedure. Also check that your synthesizer and amplifier are functioning properly.

If you hear excessive noise and/or distortion, it will be necessary to adjust the input **LEVELS** on the Vocoder. When doing this, bear in mind that high levels will insure greater signal-to-noise and are desirable.

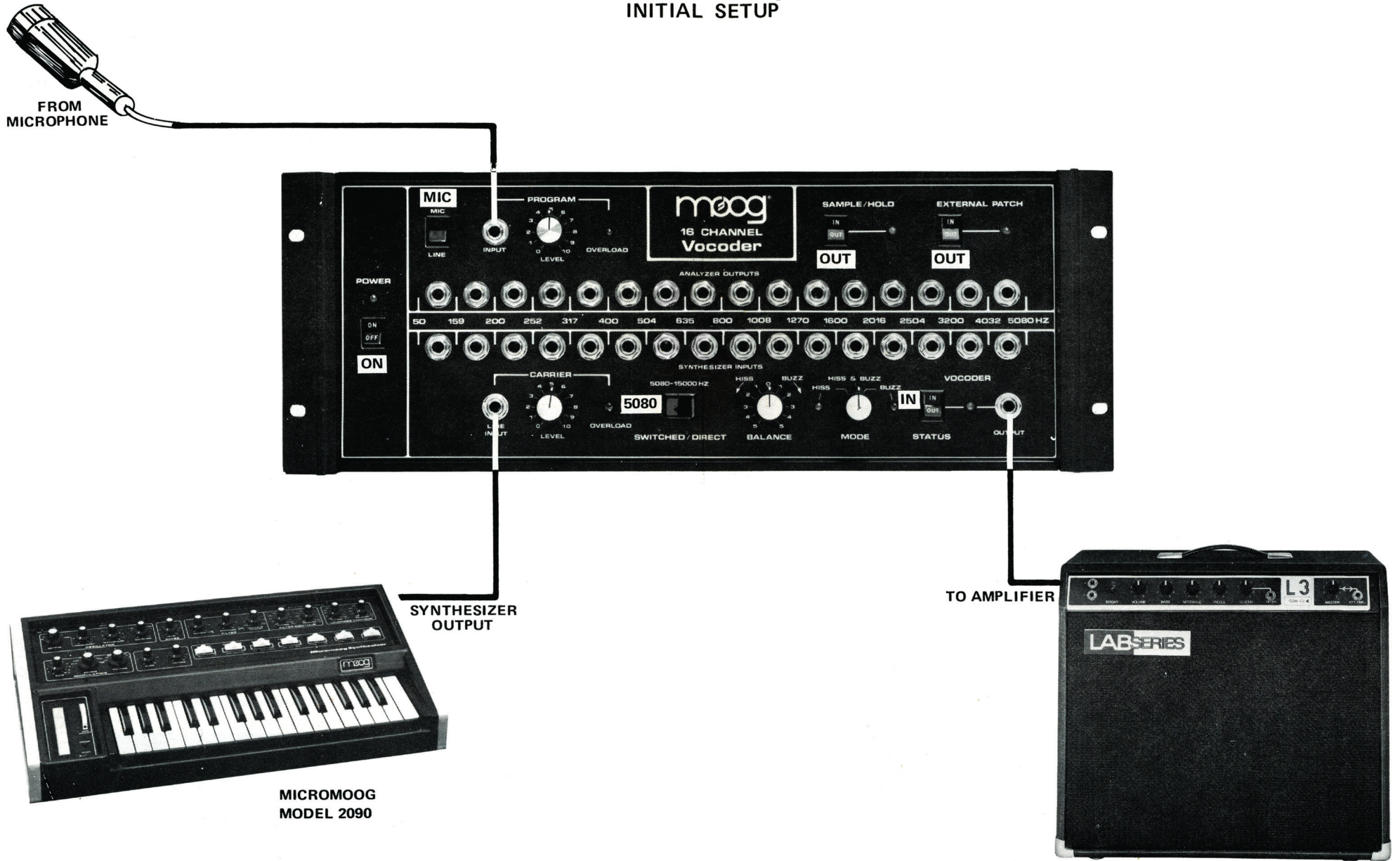
- Set both the **PROGRAM** and **CARRIER** inputs as high as possible by raising the **LEVEL** until the **OVERLOAD** indicators light up, and then reducing the level until the lights just extinguish. To reduce feedback possibilities, turn down the final input to your amplifier.
- This procedure is very critical in using a Vocoder, and since it depends upon the quality and characteristics of your microphone, synthesizer and amplifier, operation will require some experimentation on your part.



VOCODER REAR VIEW



# INITIAL SETUP



THE MOOG VOCODER SET FOR  
NORMAL VOICE ARTICULATION OF A SYNTHESIZER TONE

## SPECIAL FUNCTIONS

### Sample/Hold

When you articulate a vowel sound and press the SAMPLE/HOLD switch to IN position, the tonal characteristics of the vowel that you have spoken will be held until the switch is returned to the OUT position. This function is particularly useful in creating sustained vocal phrases without pausing for breath.

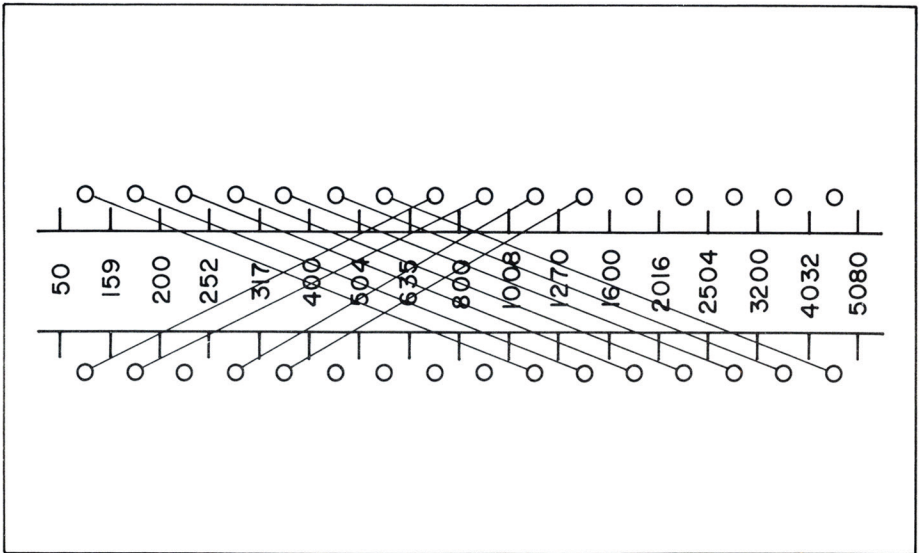
### External Patch

When this switch is in OUT position, the Vocoder internally applies the 16 fre-

quency channels of the analyzer section to the 16 articulator channels of the synthesizer section. When placing the switch to IN position, you may use the patch cords included with your instrument to create any number of unusual "cross patches".

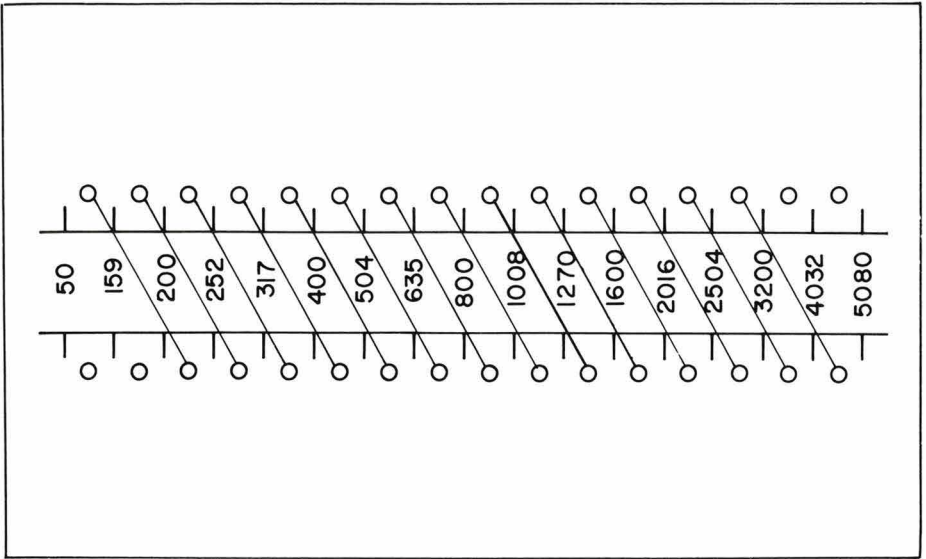
The function of this cross patching is to allow you to select any frequency range of the PROGRAM and impose those characteristics upon any frequency range of the CARRIER.

Many unusual effects can be created by cross patching. The following are two examples.



*PATCHING FOR A "SPACE ROBOT" EFFECT*





*PATCHING FOR A "CHIPMONK" EFFECT*

**Switched/Direct**

When in the DIRECT mode, a high frequency channel above 5080Hz is allowed to appear at the Vocoder output. This addition of high frequencies occurring along with the frequencies in the normal Vocoder range (50-5080Hz) gives a greater degree of intelligibility to vocal articulations.

**Balance**

The Vocoder is internally balanced between high frequency HISS and low frequency BUZZ sounds when this control is set at "0" position. You may change this balance to suit your individual taste or the needs of a specific sound by setting the BALANCE control toward the HISS position (more high frequencies) or the BUZZ position (more low frequencies).

**Mode**

This switch allows you to select both HISS & BUZZ (normal use for voice articulations) or either HISS (only high frequency "s" or "t" sounds) or BUZZ (vowel sounds).

## **Status**

The Vocoder will be entirely bypassed with this switch in the OUT position enabling the player to use the microphone for normal PA purposes.

## **Foot Switch Operation**

The SAMPLE/HOLD, EXTERNAL PATCH and STATUS may be remotely controlled for live performance by using any standard foot switch.

**NOTE:** The foot switch should be one that is “normally open – press to close”.

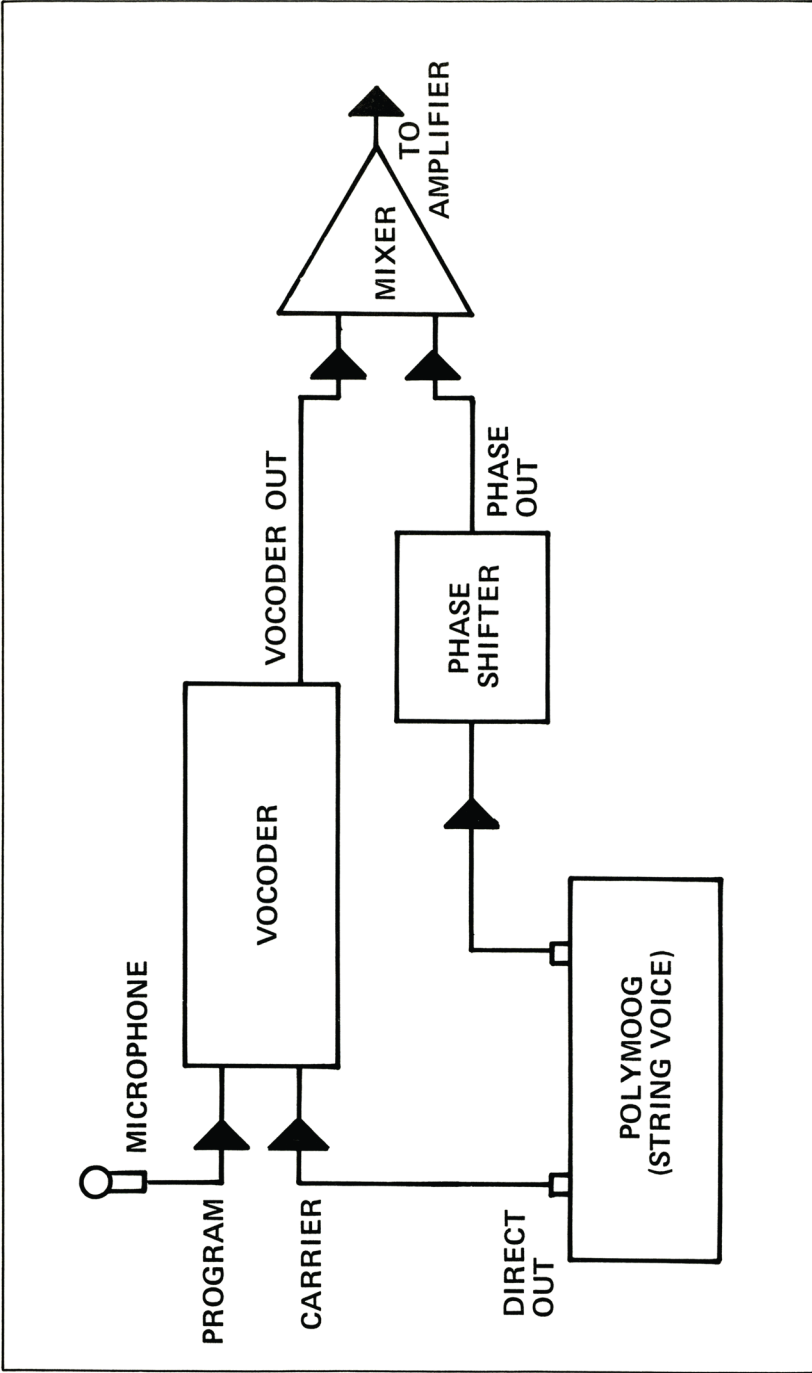
## **POLYPHONIC CHORAL EFFECTS**

If you are fortunate enough to own a Polymoog or other polyphonic keyboard, startling choral effects can be obtained by using this instrument as a CARRIER input with your Vocoder.

The most effective voices to choose on your keyboard are those with sustaining quality such as the Polymoog’s STRING or BRASS voices.

Connect the DIRECT output of the Polymoog into the CARRIER input of the Vocoder. Play a chord and articulate a full chorus by speaking into the microphone!

A beautiful “accompanied chorus” effect can be obtained by using two outputs from your Polymoog or polyphonic keyboard; one into the Vocoder CARRIER and the other directly out to the amplifier or processed through a phase-shifter or similar device as shown.



AN "ACCOMPANIED POLYPHONIC CHORUS"  
USING THE MOOG VOCODER, POLYMOOG AND PHASE SHIFTER

## **ADDITIONAL VOCODER EFFECTS**

The Vocoder offers an almost limitless number of effects by using a variety of signal sources as either PROGRAMS or CARRIERS. A few of these are quite simple to achieve:

- **Vocally Articulated Guitar or Bass.**

This is created by simply plugging the guitar or bass outputs into the CARRIER and proceeding as before.

- **Instrumentally Articulated Synthesizers.**

These effects are quite unusual. They are created by plugging a synthesizer into the CARRIER as in the basic setup, and plugging an amplified instrument (for example an amplified violin) into the PROGRAM. The result will be the synthesizer sounding with the articulation of the PROGRAM instrument.

- **Vocally Articulated Recorded Sound.**

Prerecorded sounds may be vocally articulated by plugging the tape recorder's line output into the CARRIER input of the Vocoder. In this manner, many unusual recorded sound effects may be made to SPEAK with the microphone as a PROGRAM in the normal manner.

## **CLOSING THOUGHTS**

You are the owner of an unusually powerful musical device. Explore its potential carefully and apply it creatively. We at Moog Music Inc. wish you every success with your new Moog Vocoder.

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**Vocoder**

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