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2600 Patch Book

The ARP 2600 Patch Book

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Welcome

Welcome to the ARP 2600 Patch Book. These instrumental timbres, sound effects, natural sounds and rhythms are the result of over three years of experimentation by many people, both amateur and professional, who are deeply involved with electronic music synthesis. A large number of these patches have already been used in commercial recording; you might already have heard them on the radio, TV, movie soundtracks and record albums. We'd like to share them with you.

You'll progress more rapidly and derive more satisfaction from this book if you take these thoughts into account:

* A patch chart is only a *guide*, not a precise configuration of sliders. Be flexible - the patch charts are.

* Every individual synthesizer has its own slight idiosyncracies. Slider positions on your 2600 might vary slightly from the norm set by the patch charts, so if you don't get exactly the sound you want, make minor corrections in control settings. Follow your ear.

* And every set of eardrums also has its idiosyncracies. If you like your flutes mellower, your monsters creepier, or your drums kickier, experiment a little.

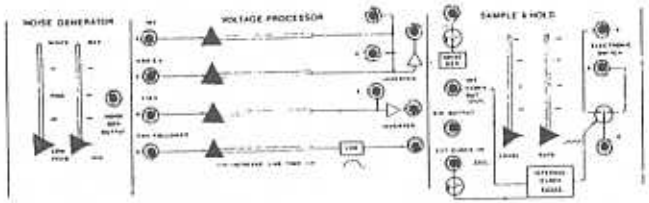
* To get full enjoyment from synthesizing these sounds, blow them through a good speaker system. The speakers on the front of the 2600 are there for reference; you should be playing through an amp and speaker system with a full-range response.

* We don't have to tell you that it's fun to experiment with your own ideas; that's expected of electronic musicians. Many of these patches can be set up simultaneously: try the String Sweetener with the Autopan, for example. You will undoubtedly come up with some great patches of your own and will want to write them down. Blank 2600 Patch Pads are available from the factory at $1.00 each.

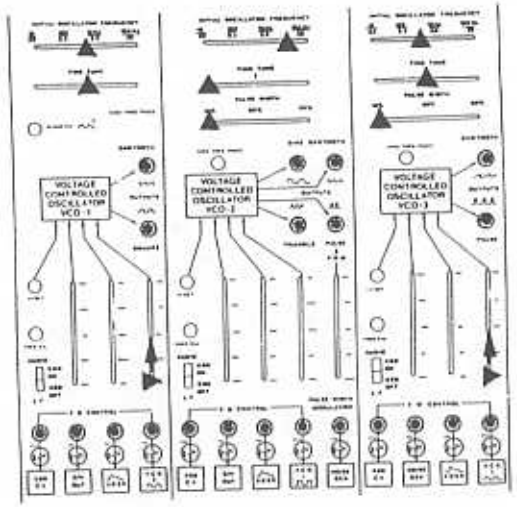
ARP would like to thank these people for getting it together in this 2600 Patch Book: Dave Fredericks, Roger Dumas, David Friend, Bruce McLendon, Phil Dodds, Alan R. Pearlman, Tom Piggott, Mike Brigida, Rick Parent, Bernie Klocko, Dan Hakala, John Shykun, Bill Wentz, Edgar Winter, Margaret Shepherd, and a couple of anonymous folks who sent in some dynamite patches.

Heed These Hints:

1. Be certain that all sliders and switches not indicated on the patches are in the *left* or *down* positions.



2. *Arrows* indicate the positions to which sliders should be moved *after tuning* or *during performance.*



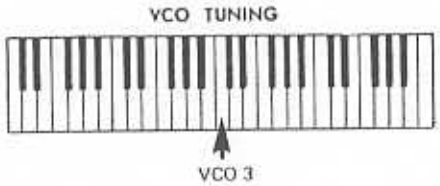
3. Shut the speakers off while you're setting the patch up. It's easy to get distracted by unripe sounds.

4. Pay special attention to the information located in the corners on most of the patches. There you will discover how many patchcords and dummy plugs are needed, how the portamento and tuning knobs are to be used, and where to play on the keyboard.

5. Set aside the number of patchcords you'll need for the patch before you plug anything in. Otherwise, the patch may be missing a patchcord and you won't notice it right away.

6. *Phrasing* is most important on the instrumental patches. If you can play the keyboard with the idea that you are pausing to take breaths on a flute or trumpet, or bowing back and forth on a violin, you'll have more success synthesizing those instruments.

7. VCO Pitch Tuning: The keyboard diagrams over each patch indicate the pitch tunings for the VCOs and occasionally the VCF. For instance, this diagram means "Play Key C3 & tune VCO 3 to middle C." (Of course, if you don't have a tuning source such as a piano or a pitchpipe, you can tune the oscillators approximately.)



8. Several patches will ask you to precisely tune two or three oscillators to unison or octave intervals. Tune one oscillator to the frequency range indicated on the patch chart and compare the other oscillators to it individually. When two oscillators are close to a harmonic interval, (in this case, a unison, octave, fifth or a fourth), you will hear 'beats.' Beats sound like a combination of tremelo and phaseshifting: the frequencies of the two oscillators are so close that they tend to cancel each other out periodically. This can more easily be heard if you run the oscillators through the Ring Mod.

   Play a note and fine-tune the oscillator you are comparing to the basic pitch until the beats slow down to less than one every three seconds. This is easiest at unison, harder at an octave, and requires practice for perfect fourths and fifths. The best way to check for a precise tuning is to play higher notes than the one used for tuning. The beats will be faster at higher frequencies.

Interval Tuning Example: Patch No. 35, Marimba Chords & Lead

1. Raise VCO 3 into VCF. Play Key C1 and tune VCO 3 to a low, recognizable pitch.

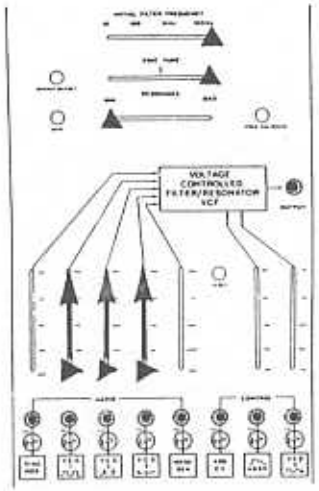
2. Play Key G3, still listening to VCO 3. This is the pitch to which you will tune VCO 2.

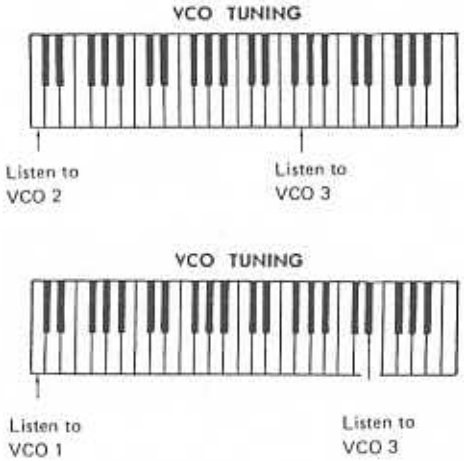
3. Close VCO 3 at the VCF and raise VCO 2 Play C1 and tune VCO 2 to the pitch you heard at step 2.

4. To check for proper tuning, go back and forth: Play G3—listen to VCO 3. Play C1—listen to VCO 2.

5. Try this procedure in tuning VCO 1 at three octaves and a minor third above VCO 3 (Key Eflat4).

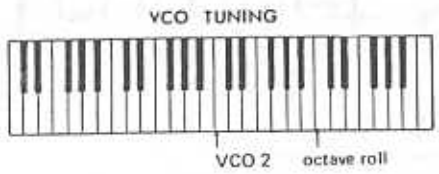
6. Raise all three VCOs into VCF and play the bottom octave.

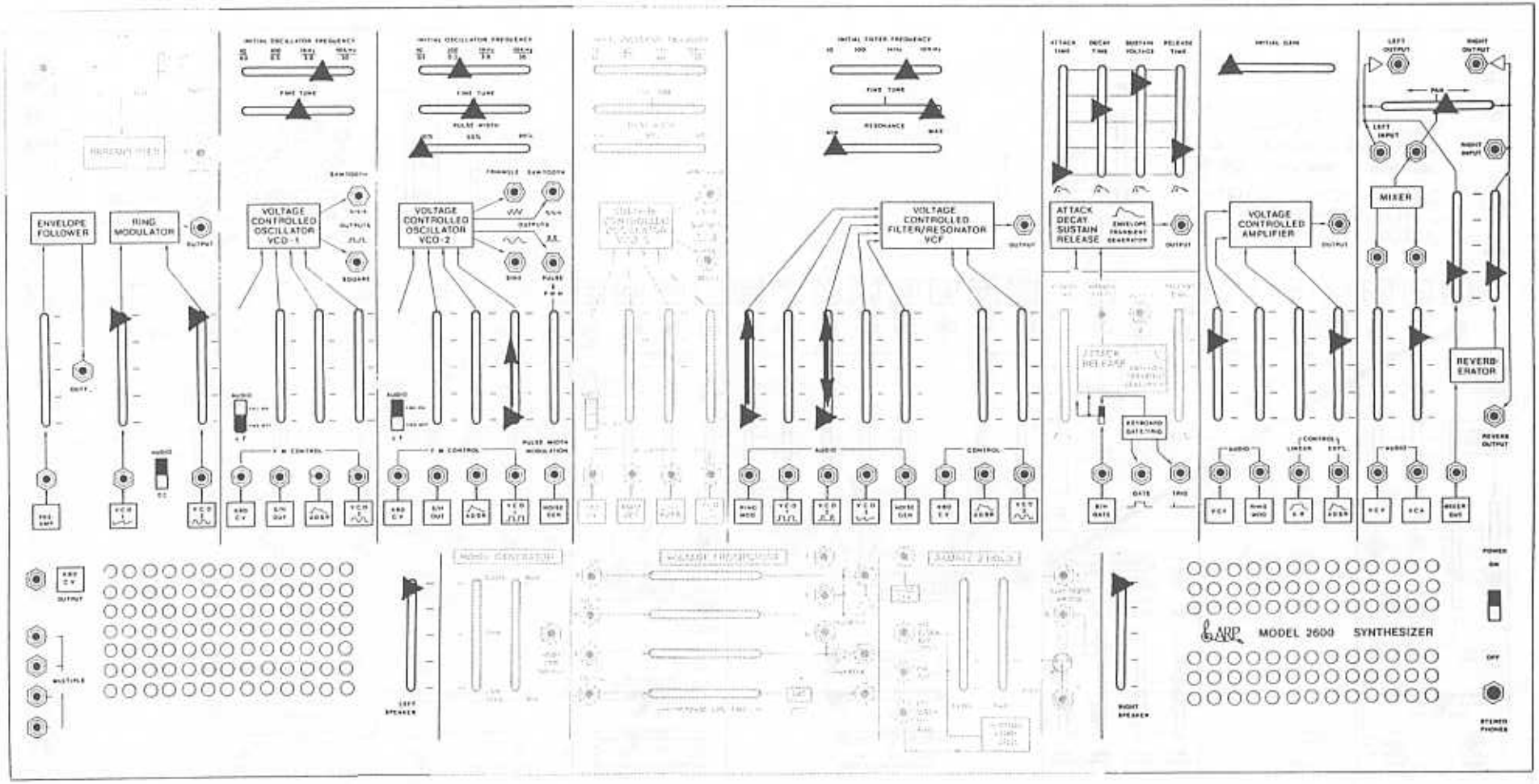




Don't be discouraged if the sound you want doesn't automatically appear like a candy bar out of a vending machine. Chances are good that you've forgotten to switch on the S/H Gate, the Oscillator Frequency Switches, or the power. Another possibility might be that one of the patchcords isn't plugged in fully. With practice, you'll be able to troubleshoot any problem encountered with any patch. They all work when set up properly.

Basic Instruments





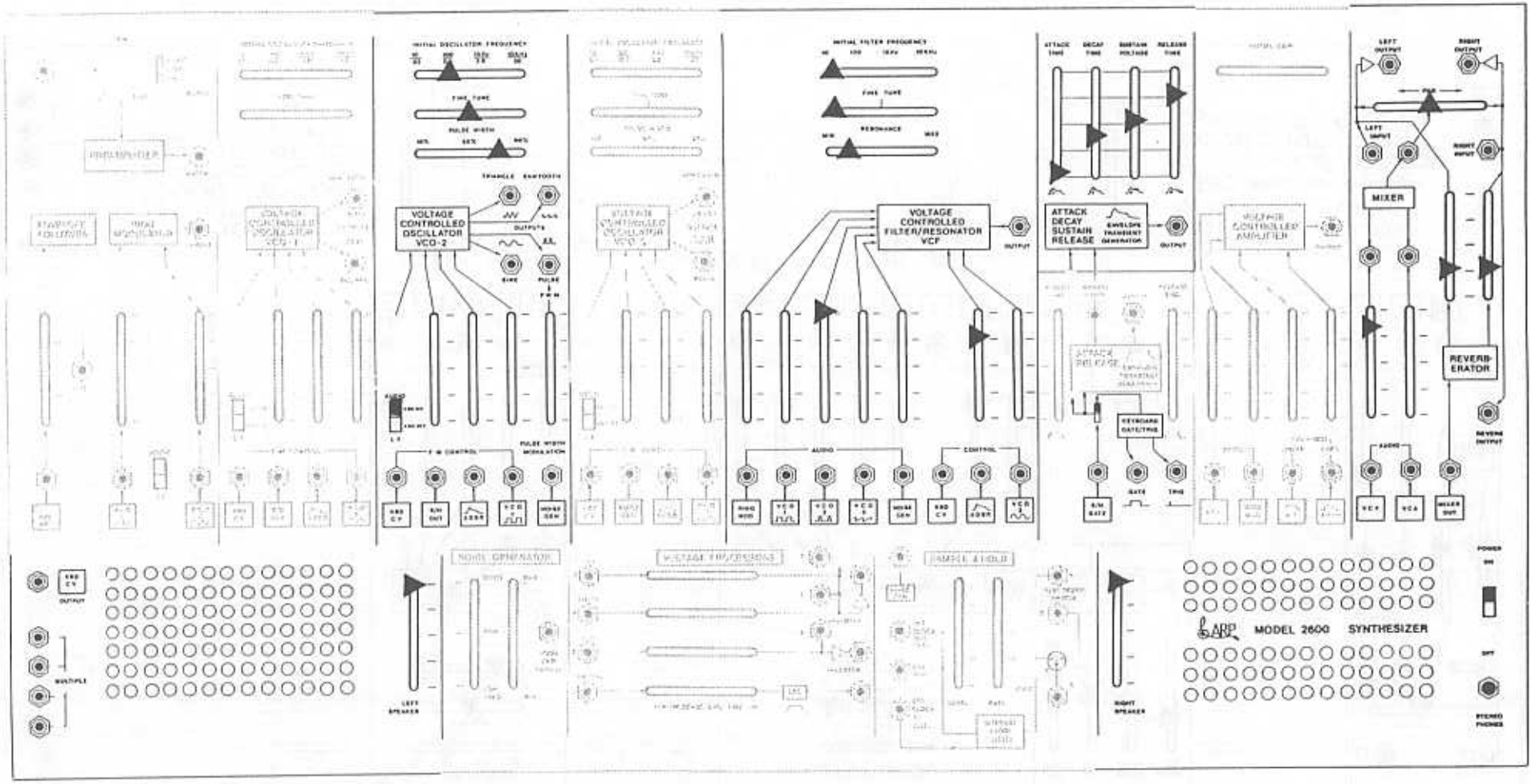
1. Raise VCO 2 into VCF and tune to middle C.
2. Close VCO 2 at VCF and raise Ring Mod slider into VCF.
3. Adjust VCO 1 frequency for speed of roll.
4. Raise VCO 1 into VCO 2. Tune for octave roll.

Marimba Roll

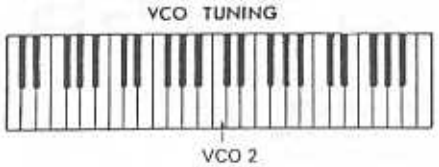
KEYBOARD RANGE: BOTTOM 2 OCTAVES

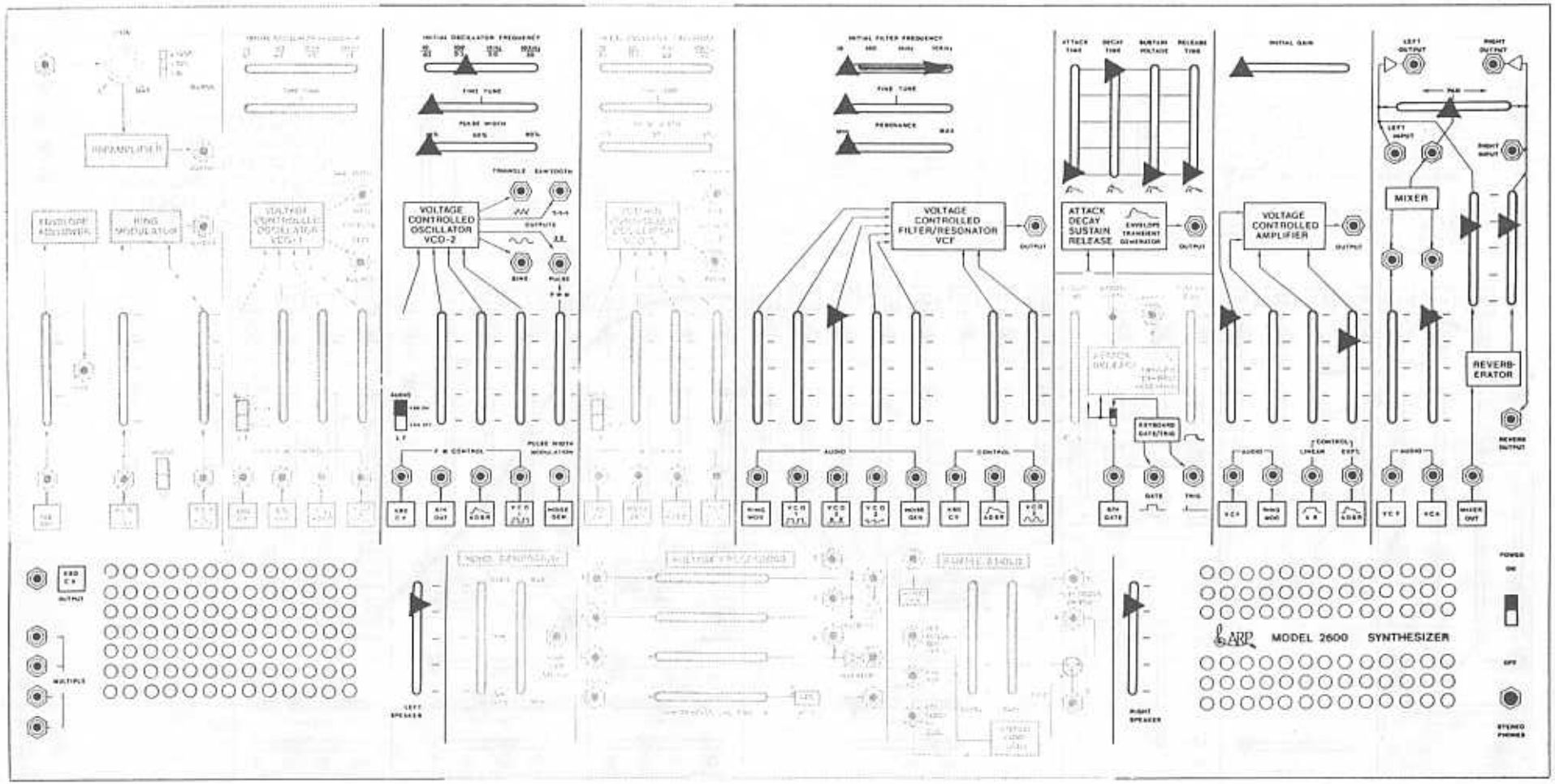
VCO TUNING

VCO 2



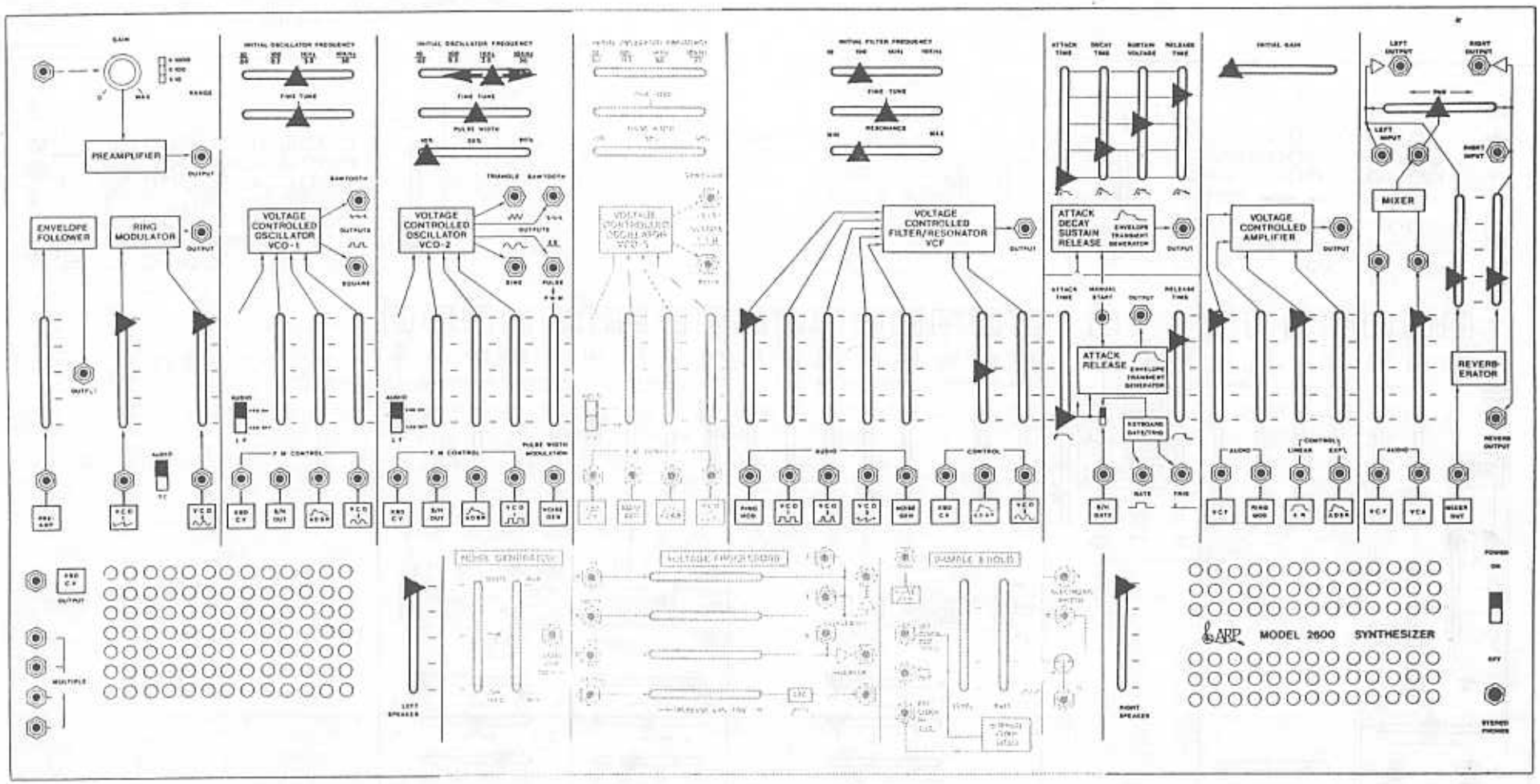
Trucker Bass





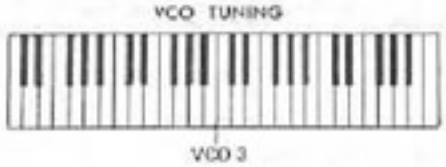
1. Adjust VCF — for brightness.
2. Tune VCO 2 to middle C.

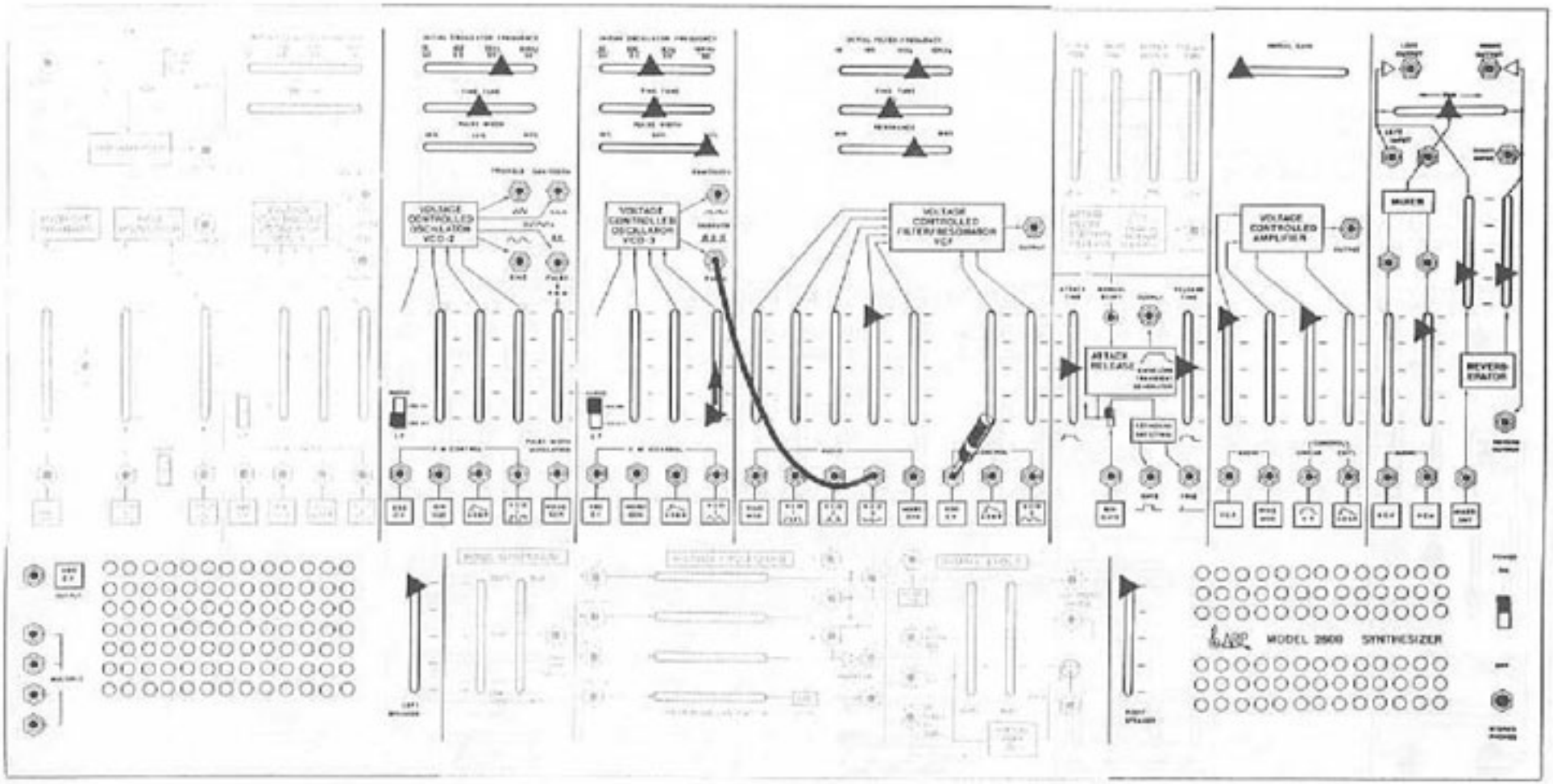
Wonder Clavinet



Adjust VCO 2 frequency for different bell effects.

Tubular Chimes

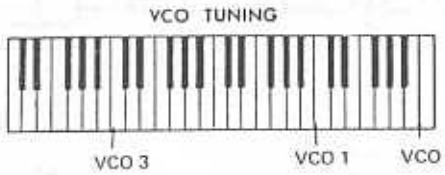


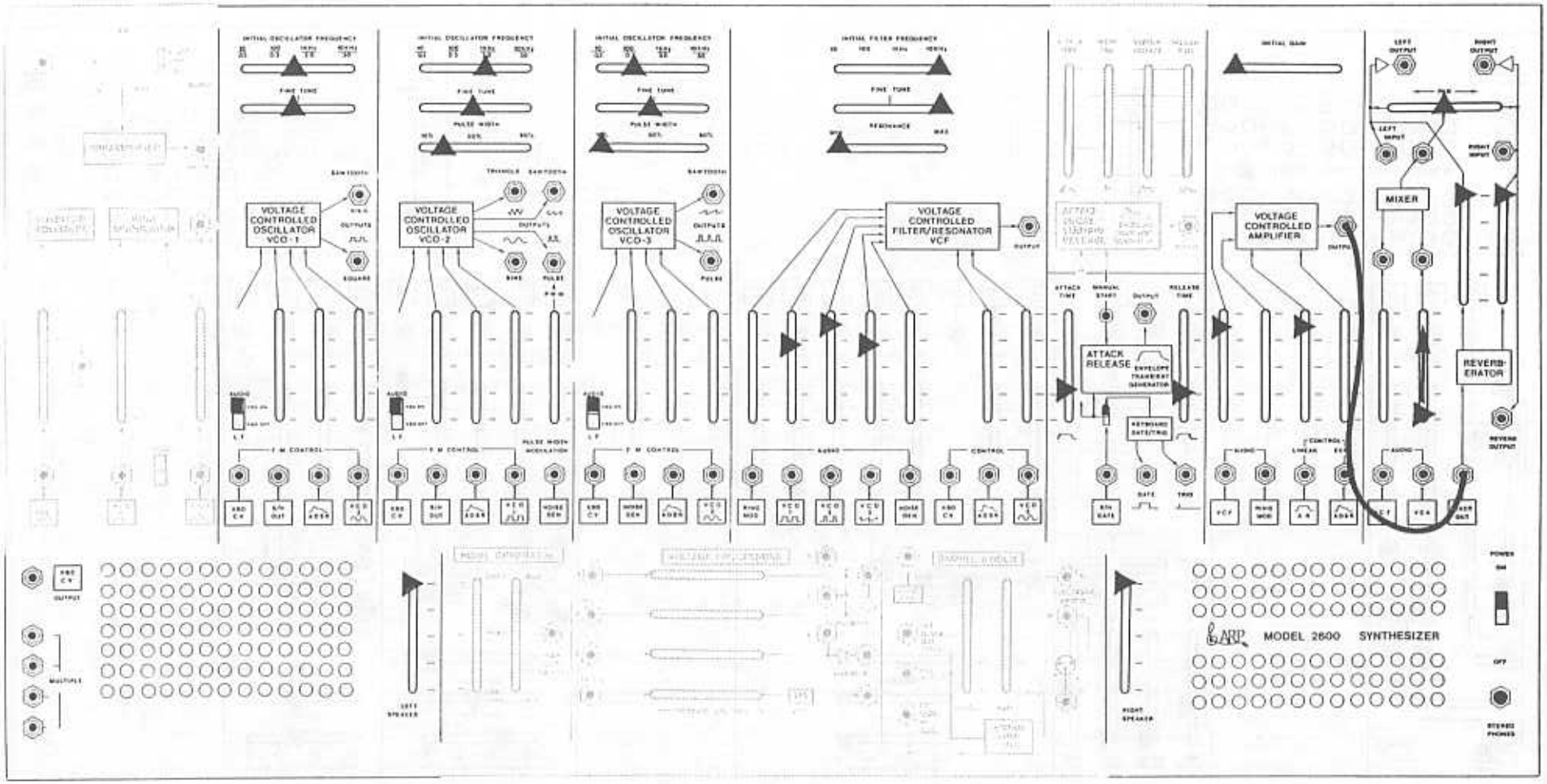


1. Tune VCO 3 to middle C.
2. Raise VCO 2 ↑∿ into VCO 3 for vibrato.
3. Adjust VCO 2 frequency for vibrato speed.

1 PATCHCORD
1 DUMMY PLUG

English Horn/Oboe





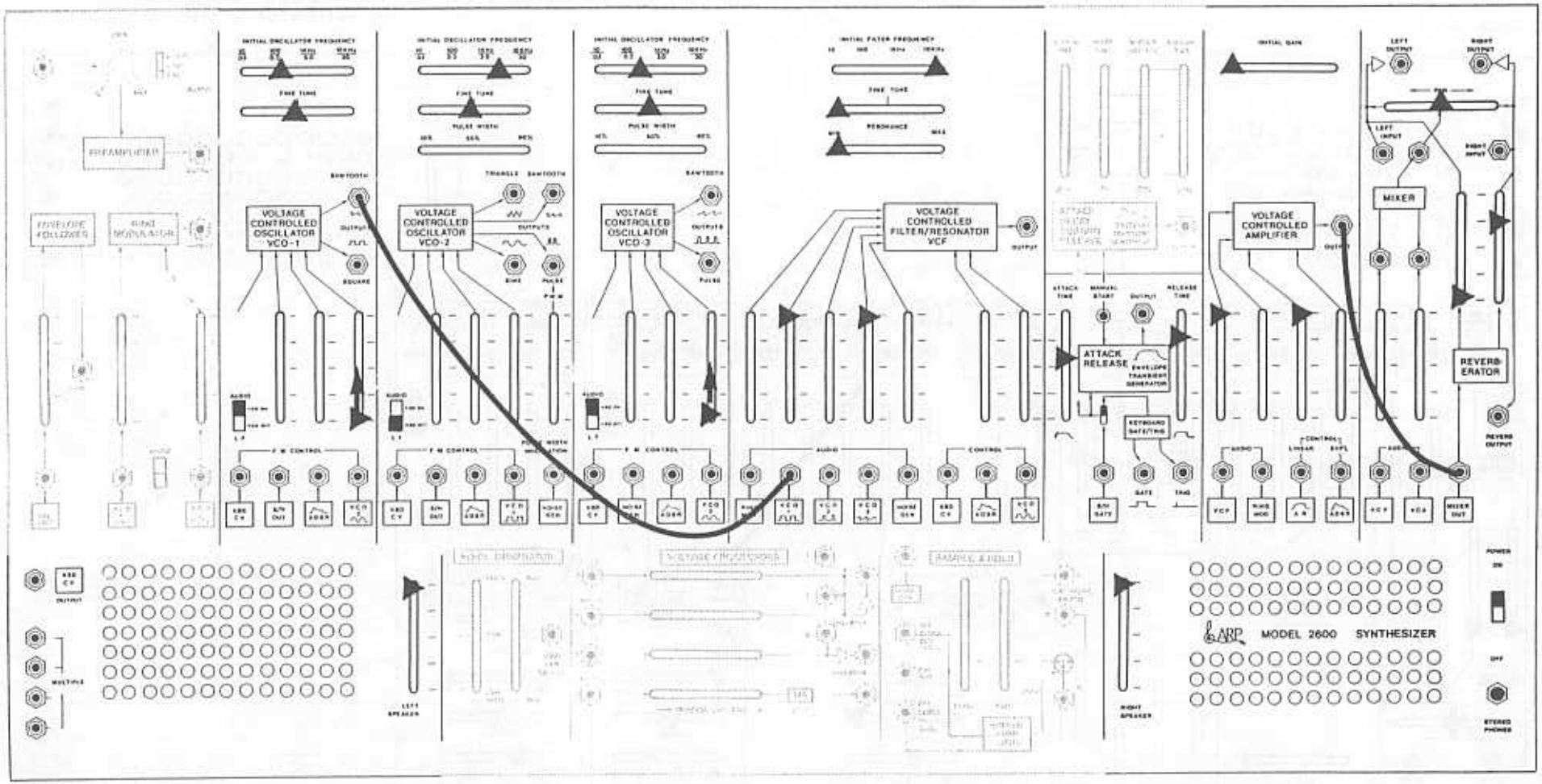
1. Tune: VCO 1 to one octave above middle C.
   VCO 2 to two octaves above middle C.
   VCO 3 to one octave below middle C.
2. Raise VCA | into Mixer for brilliance.

1 PATCHCORD

Monster Organ

VCO TUNING

VCO 1+3

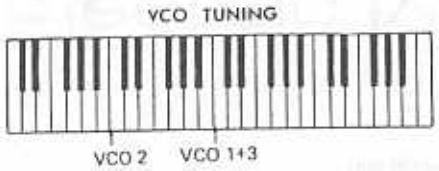


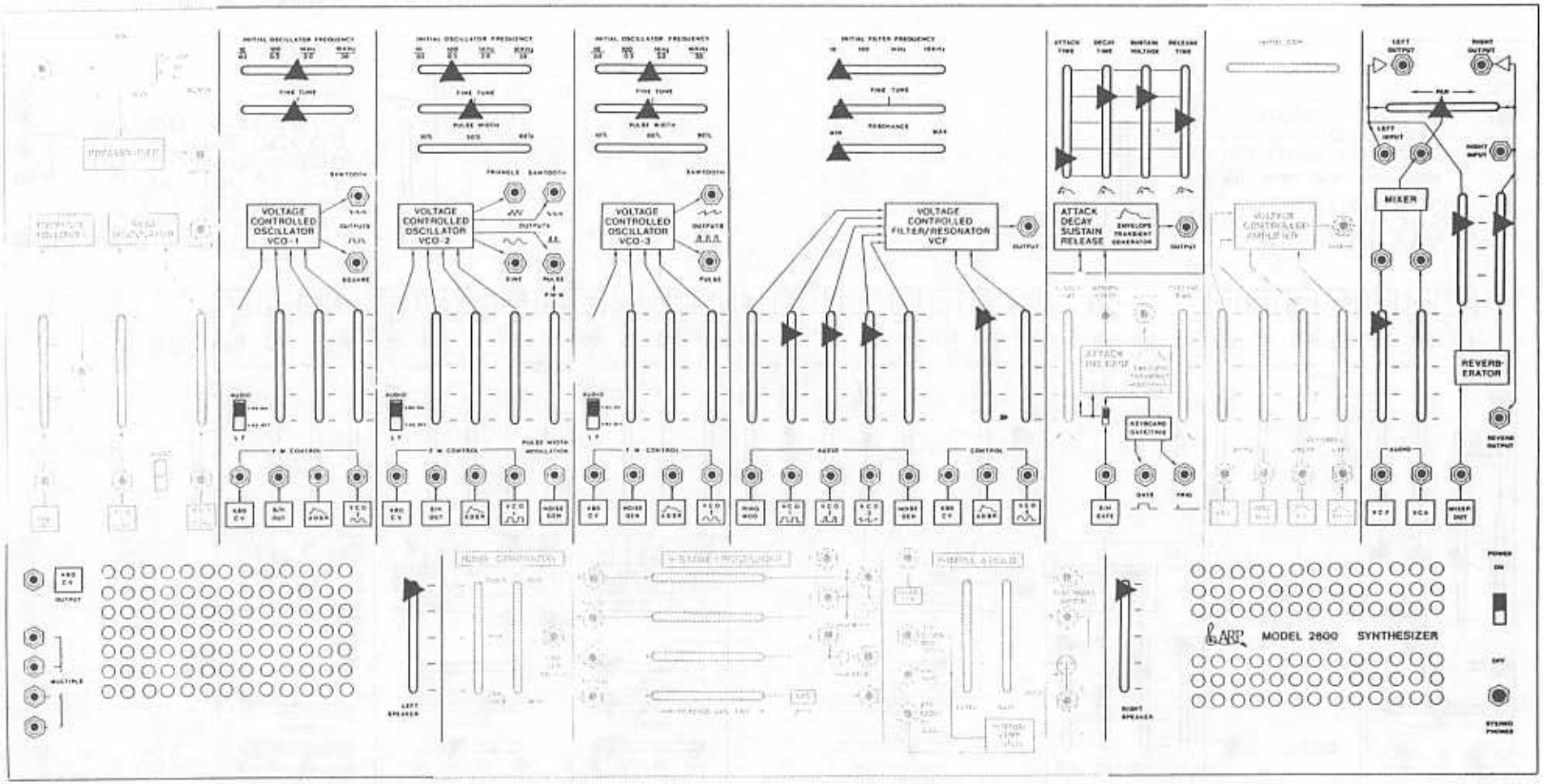
Portamento

1. Tune VCO 1 and 3 to one octave below middle C
2. Listening to each oscillator individually, raise VCO 2 into each for vibrato and adjust VCO 2 frequency for speed.

2 PATCHCORDS

Cello Section

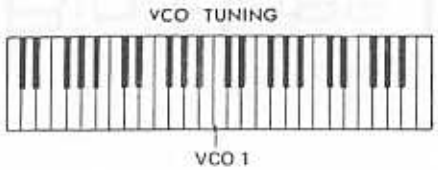


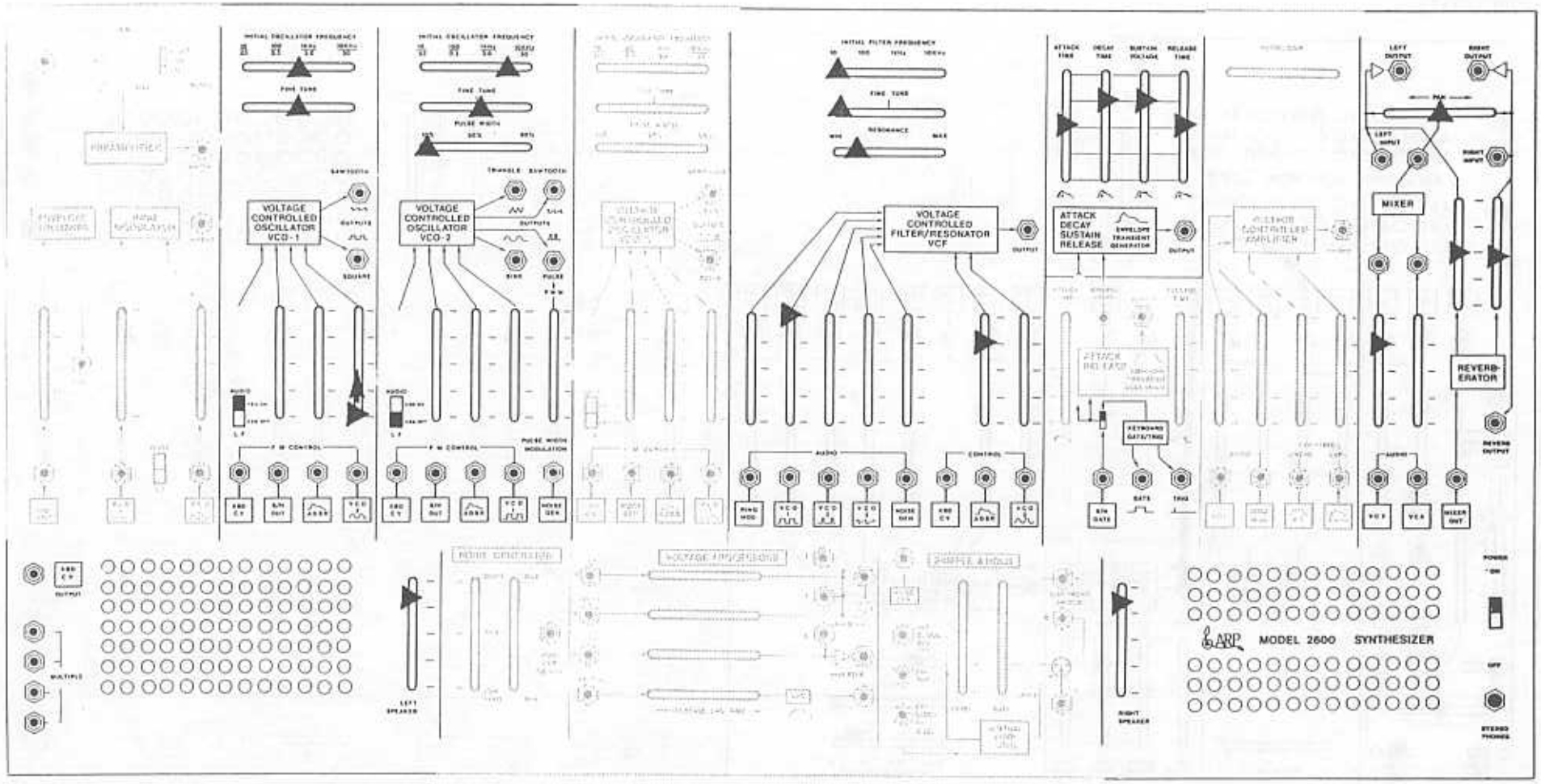


Portamento

Tune: VCO 1 to middle C.
VCO 2 to one octave below middle C.
VCO 3 to middle C.

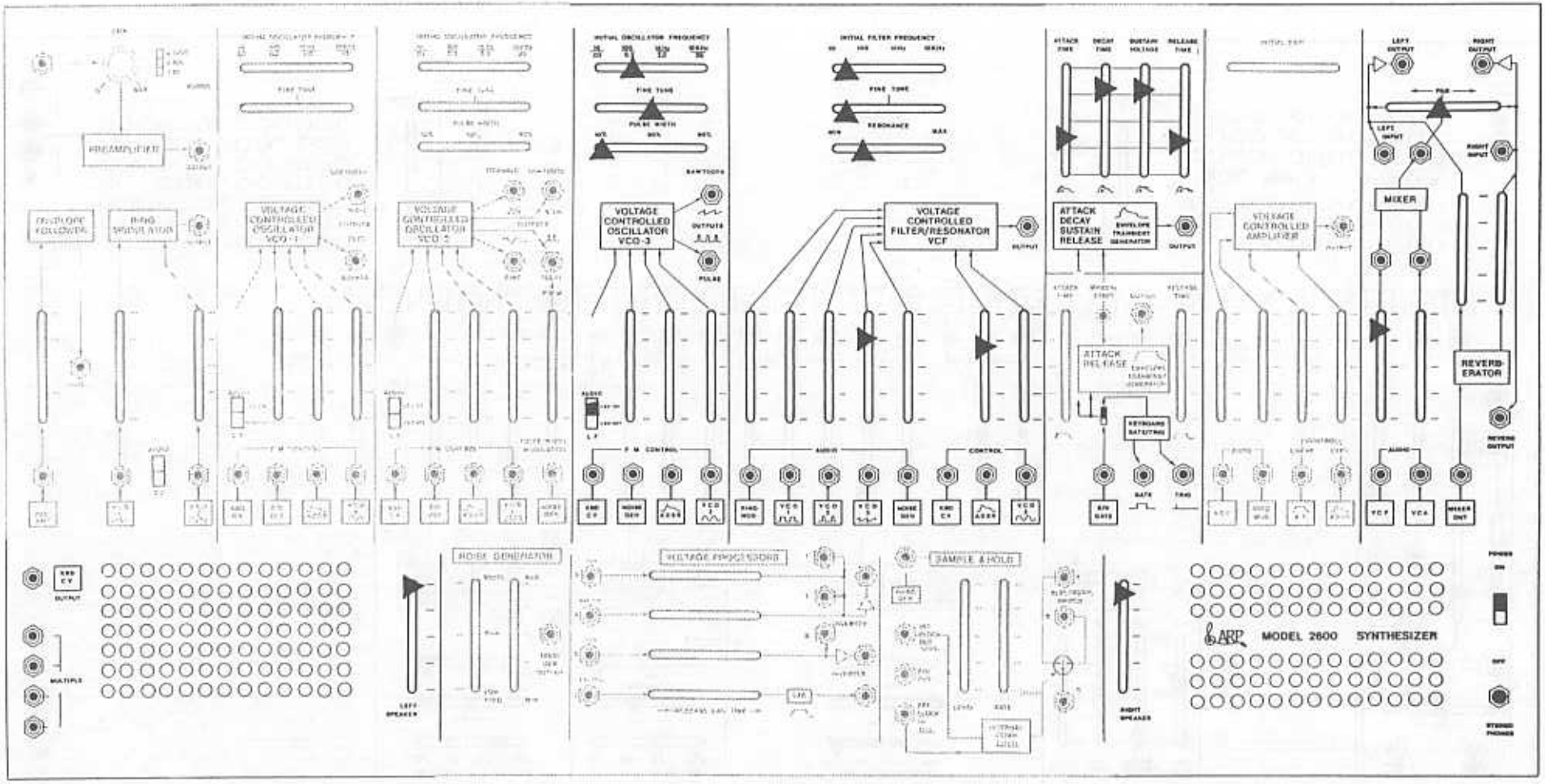
Classic ARP 2600 Patch





1. Tune VCO 1 to middle C.
2. Raise VCO 2 | into VCO 1 for vibrato.
3. Adjust VCO 2 frequency for vibrato speed.

Licorice Schtück



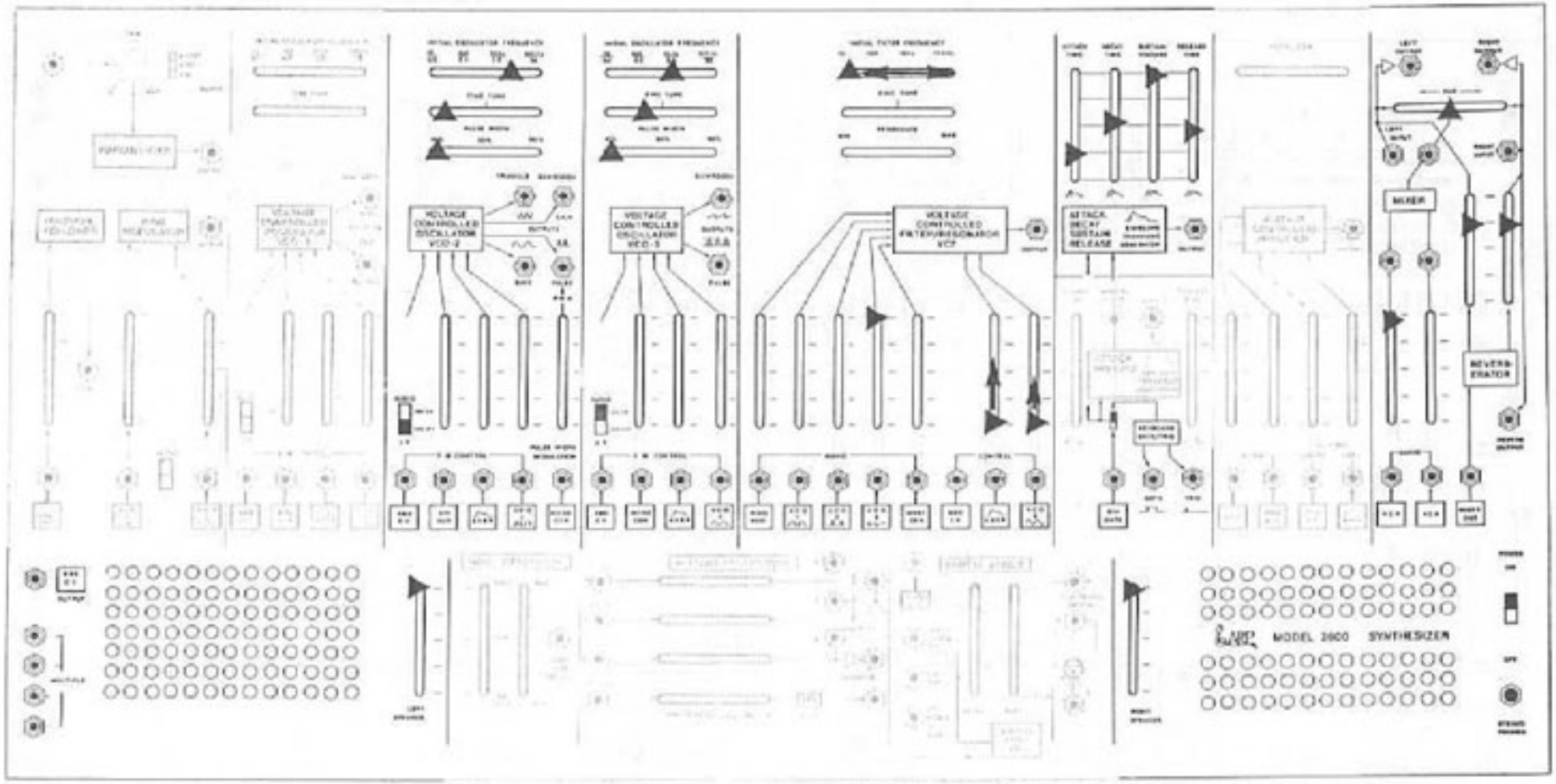
Portamento

Tune VCO 3 to one octave below middle C.
Switch Portamento on for trombone slides.

Trombone / Tuba

KEYBOARD RANGE: TOP 2 OCTAVES

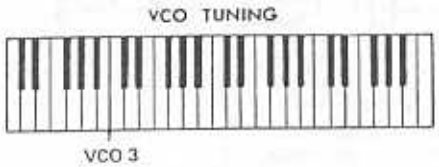
VCO TUNING

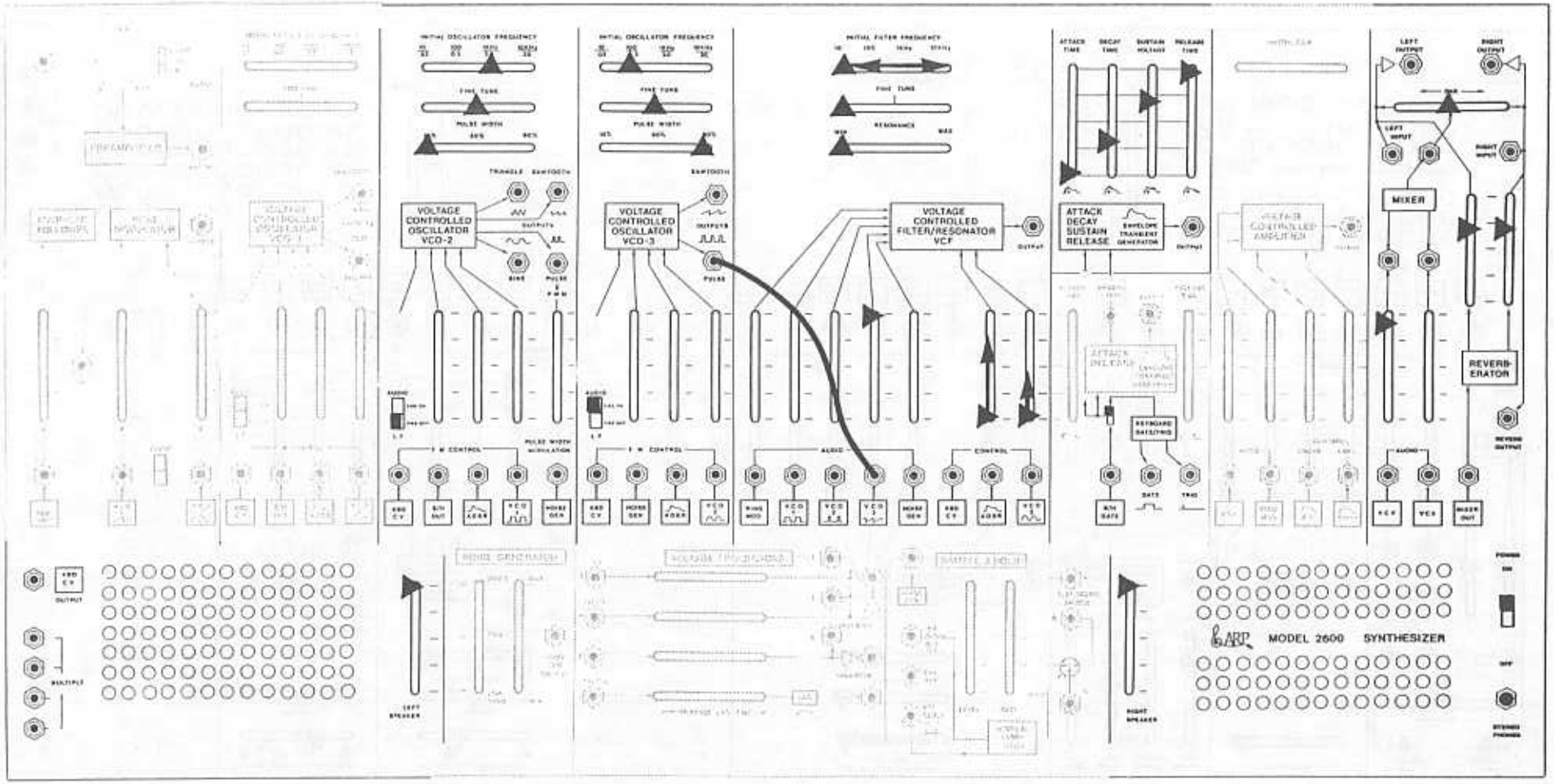


1. Open VCF — and tune VCO 3 to one octave above middle C.
2. Close VCF — and raise ADSR ↑ into VCF for brightness.
3. Raise VCO 2 ↑ into VCF for tremelo.
4. Adjust VCO 2 frequency for tremelo speed.

1 PATCHCORD

Flute



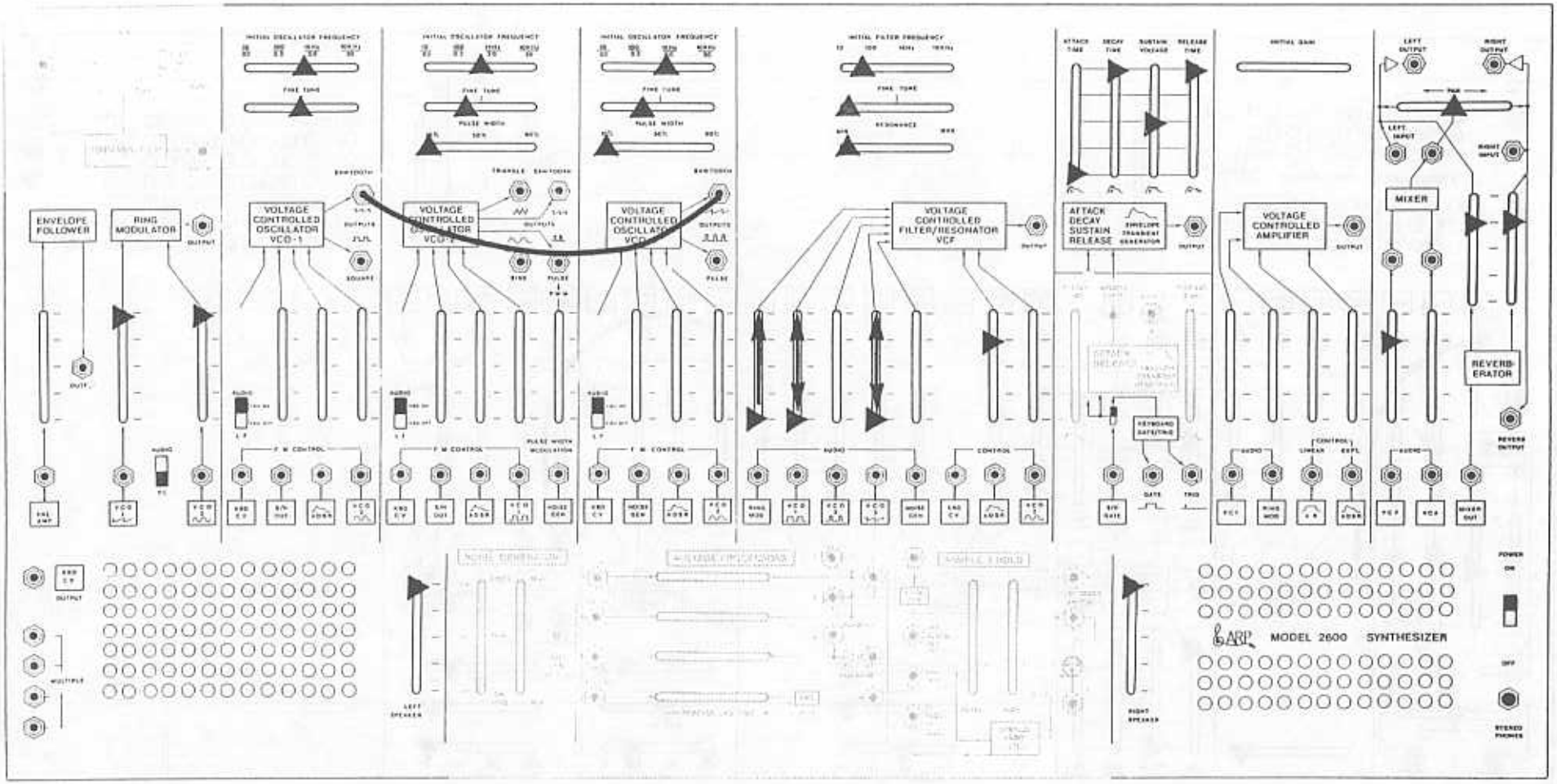


1 PATCHCORD

1. Open VCF — and tune VCO 3 to one octave below middle C.
2. Close VCF — and raise ADSR and VCO 2 | into VCF.
3. Adjust VCO2 frequency for tremelo speed.

Okie Guitar

Advanced Instruments

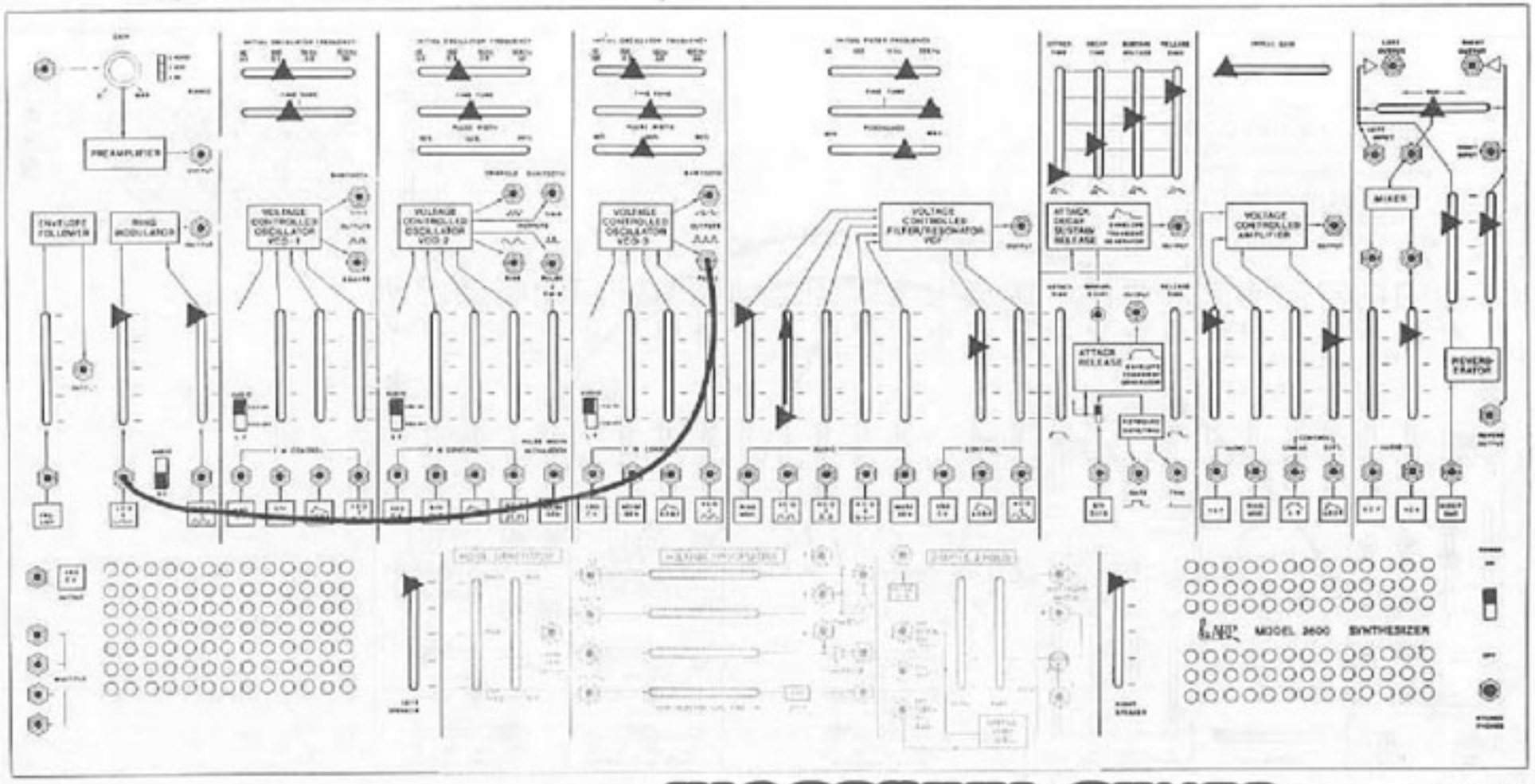


1. Raise VCO 1 and 3 | into VCF.
2. Tune VCO 1 and 3 to middle C.
3. Detune VCO 3 by a few beats.
4. Close VCO 1 and 3 | and raise Ring Mod | into VCF.
5. Adjust VCO 2 frequency for different effects.

1 PATCHCORD

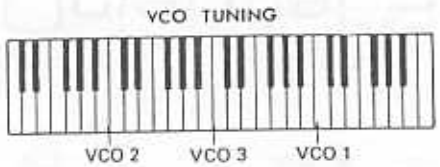
Ceremonial Gong

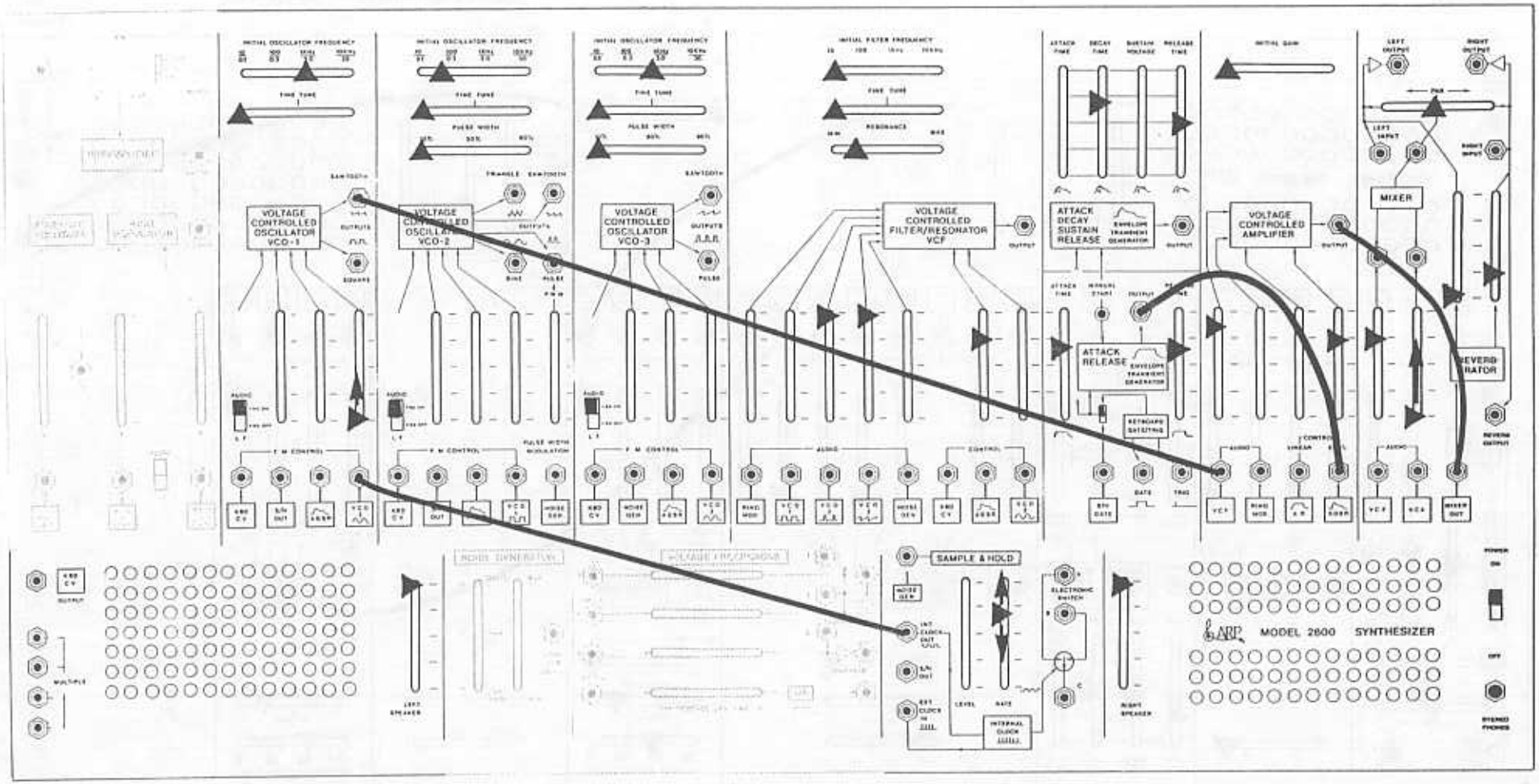
KEYBOARD RANGE: TOP 2 OCTAVES



1. Tune VCO 2 and 3 to middle C.
2. Raise VCO 1 ↑ into VCF and tune a few beats off.

1 PATCHCORD

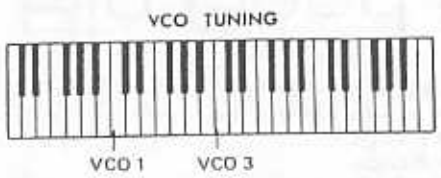


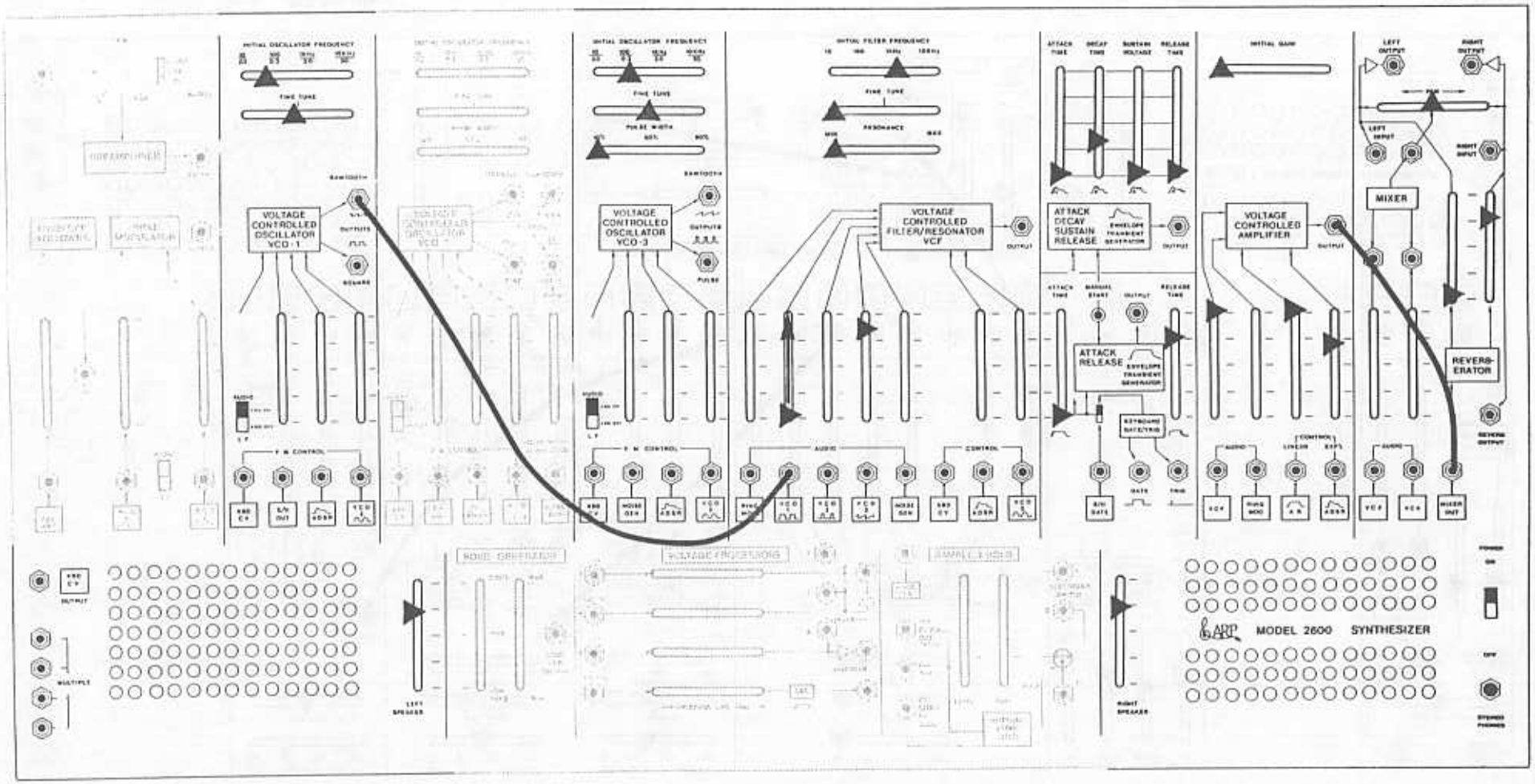


4 PATCHCORDS

1. Tune: VCO 3 to middle C.
   VCO 2 to one octave below middle C.
   VCO 1 to one octave above middle C.
2. Raise ┃ into VCO 1 and adjust S/H Rate for vibrato speed.
3. Raise VCA ┃ into Mixer for violin presence.

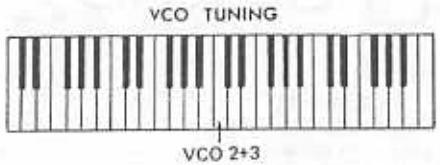
Stereo Bass & Delayed Violin

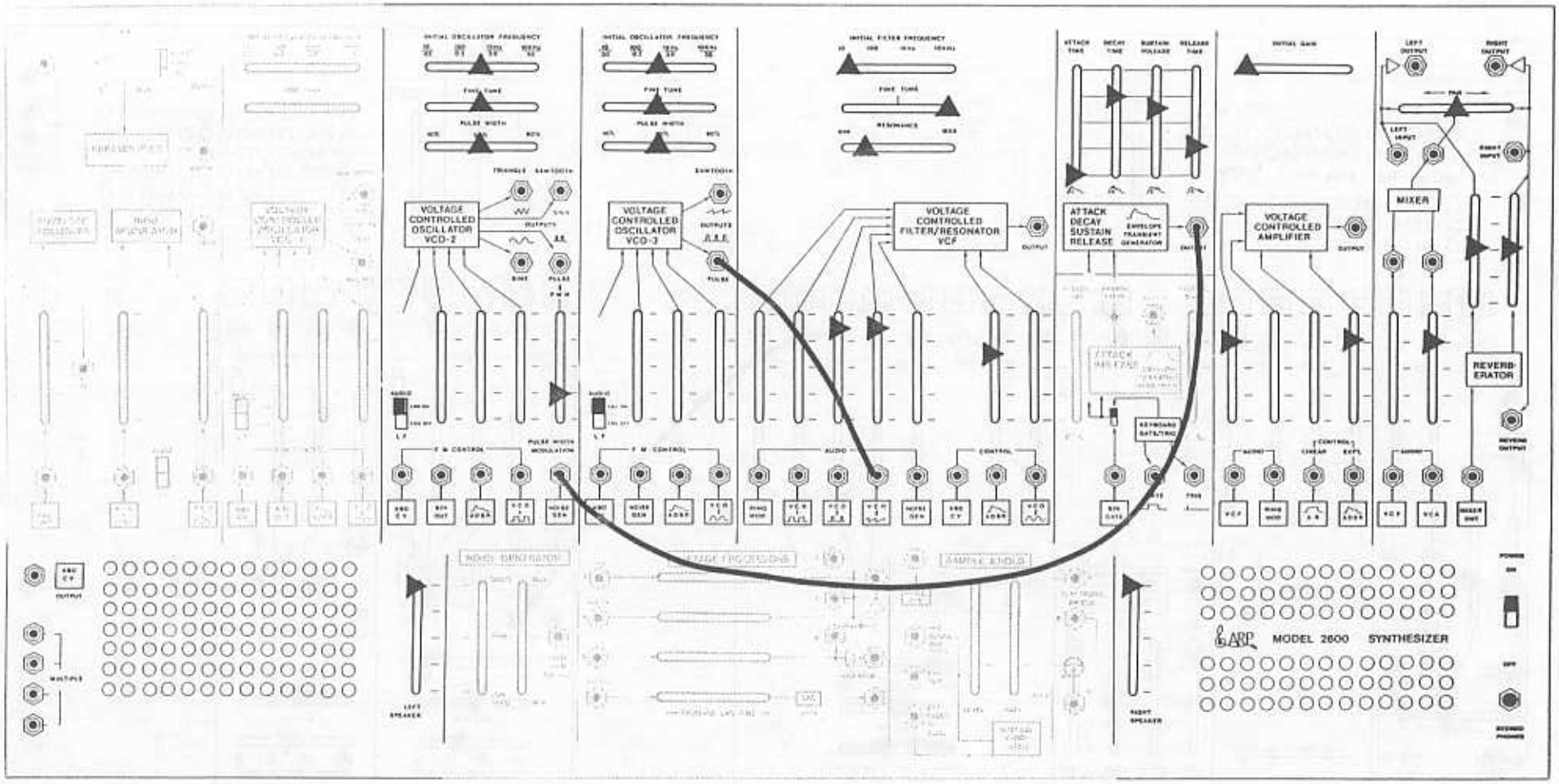




2 PATCHCORDS

1. Tune: VCO 3 to middle C.
   VCO 1 to an octave below middle C.
2. Raise VCO 1 ↑ into VCF for depth.
3. Adjust VCF frequency for brightness.

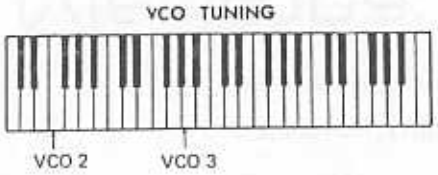


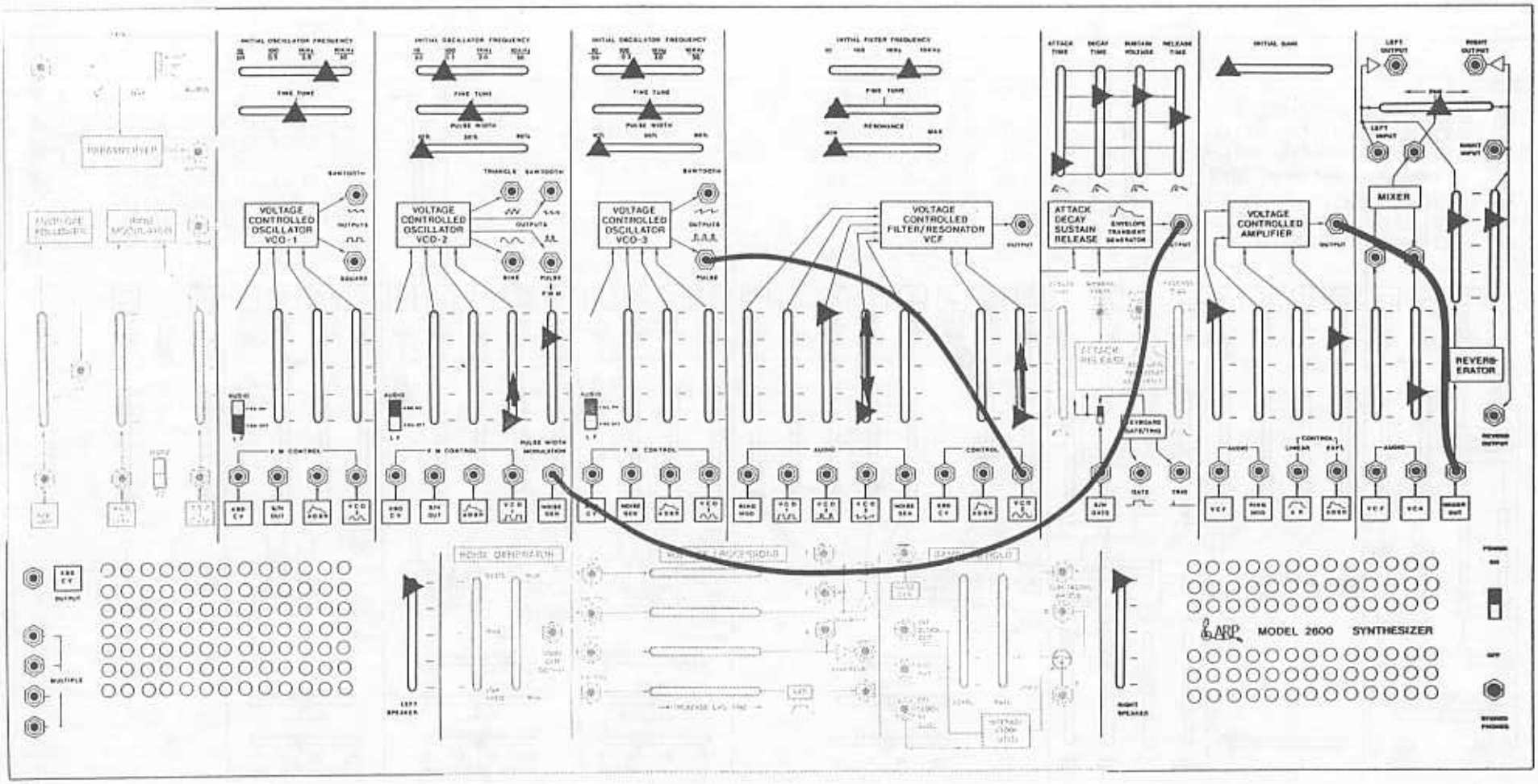


Tune VCO 2 and 3 to middle C.
Pulse Widths must be 50%.

2 PATCHCORDS

Electronic Piano





Tuning

Pitch Bender)

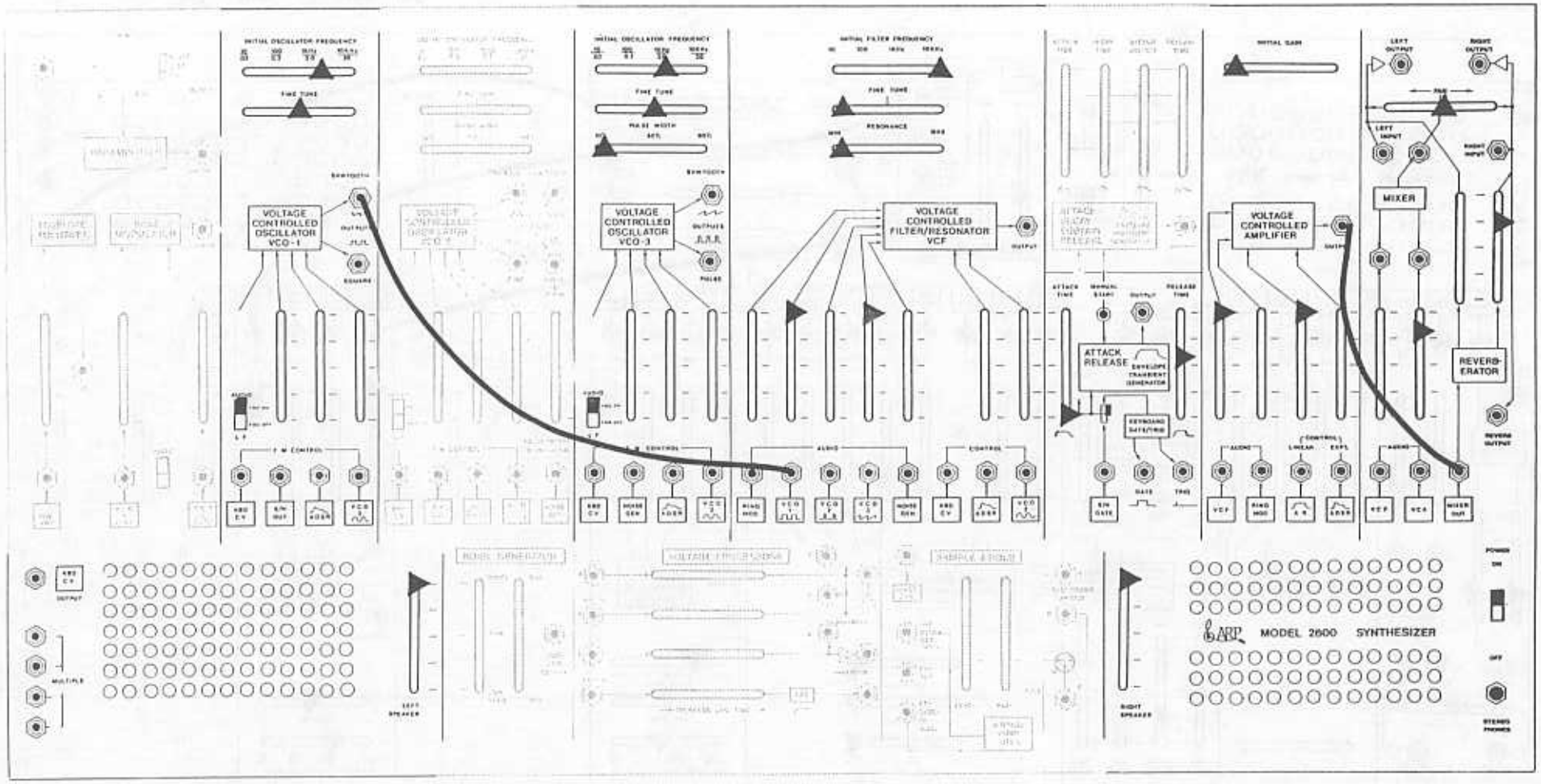
1. Tune VCO 2 as shown.
2. Raise VCO 3 ∿ | into VCF and tune VCO 3 to an octave and a major third above VCO 2. (See intro.)
3. Close VCO 3 | at VCF and raise | into VCF Control to level shown.
4. Raise VCO 1 ⎍ | into VCO 2 and adjust VCO 1 frequency for vibrato speed.
5. Bring VCO 1 ⎍ | in and out of VCO 2 for vibrato during performance.

3 PATCHCORDS

Glitter Guitar

KEYBOARD RANGE: BOTTOM 2 OCTAVES

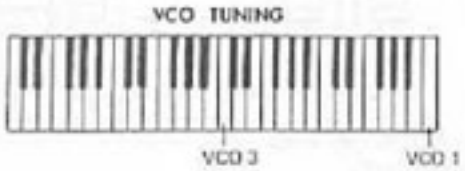
VCO TUNING

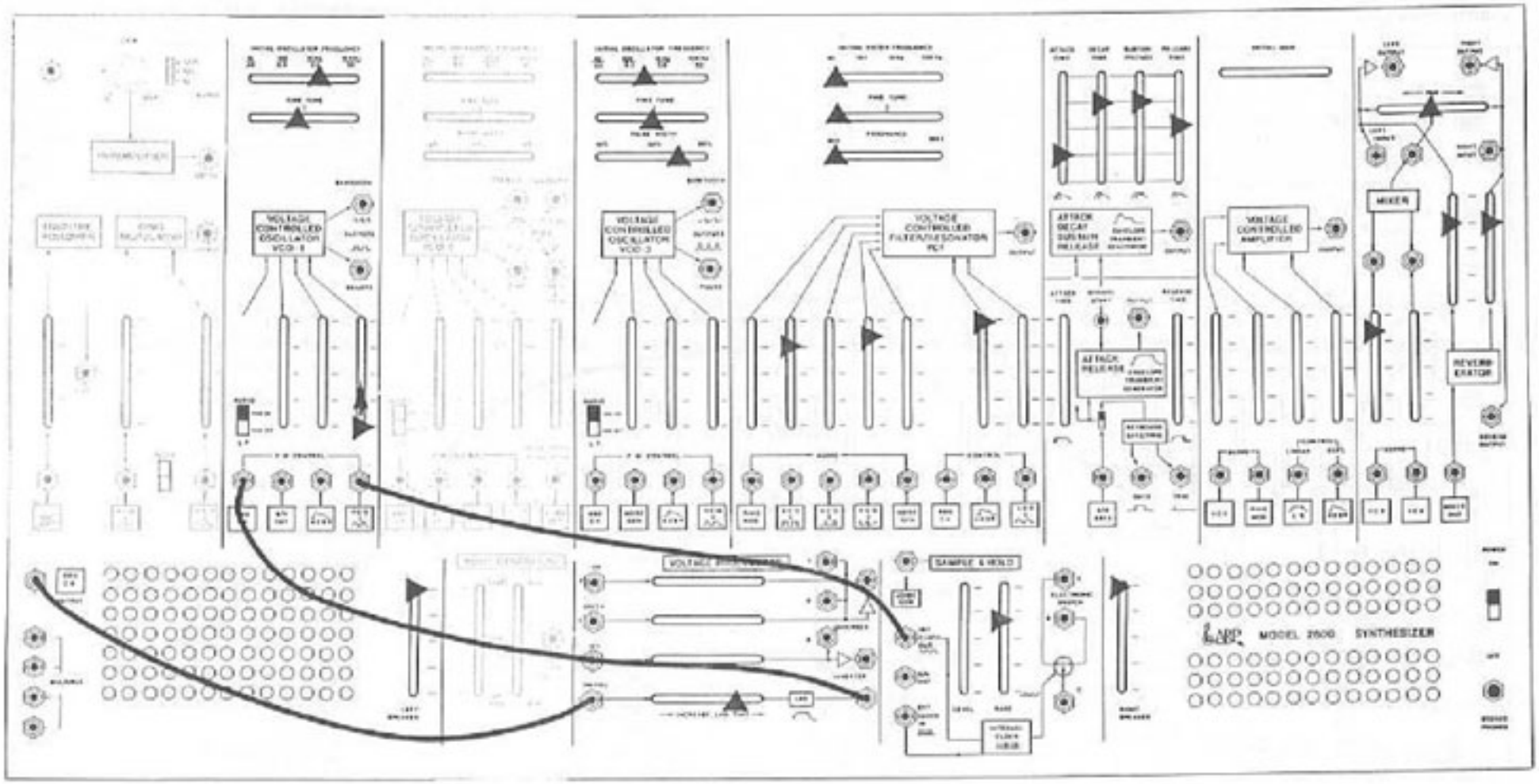


2 PATCHCORDS

1. Tune: VCO 3 as shown.
   VCO 1 to one octave and a fourth above VCO 3.
2. Play in short rapid bursts.

Handbells

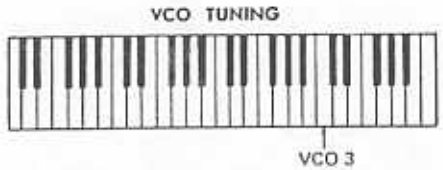


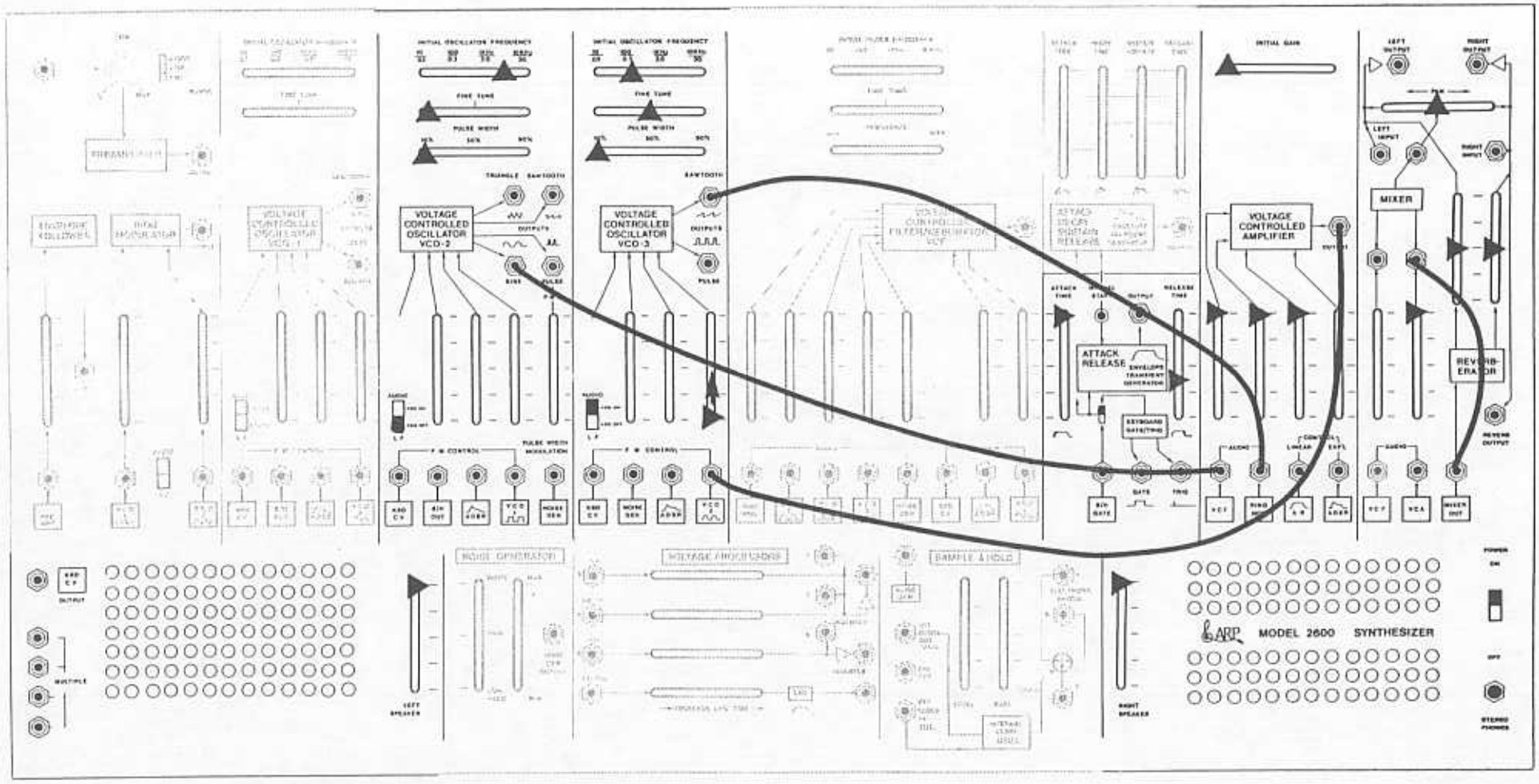


3 PATCHCORDS

1. Tune: VCO 3 to middle C.
   VCO 1 to two octaves above middle C.
2. Raise | Inso VCO 1 and adjust S/H Rate for vibrato speed.
3. Note: Whistle will have vibrato and glide; Trumpet is straight.

Pennywhistle & Trumpet





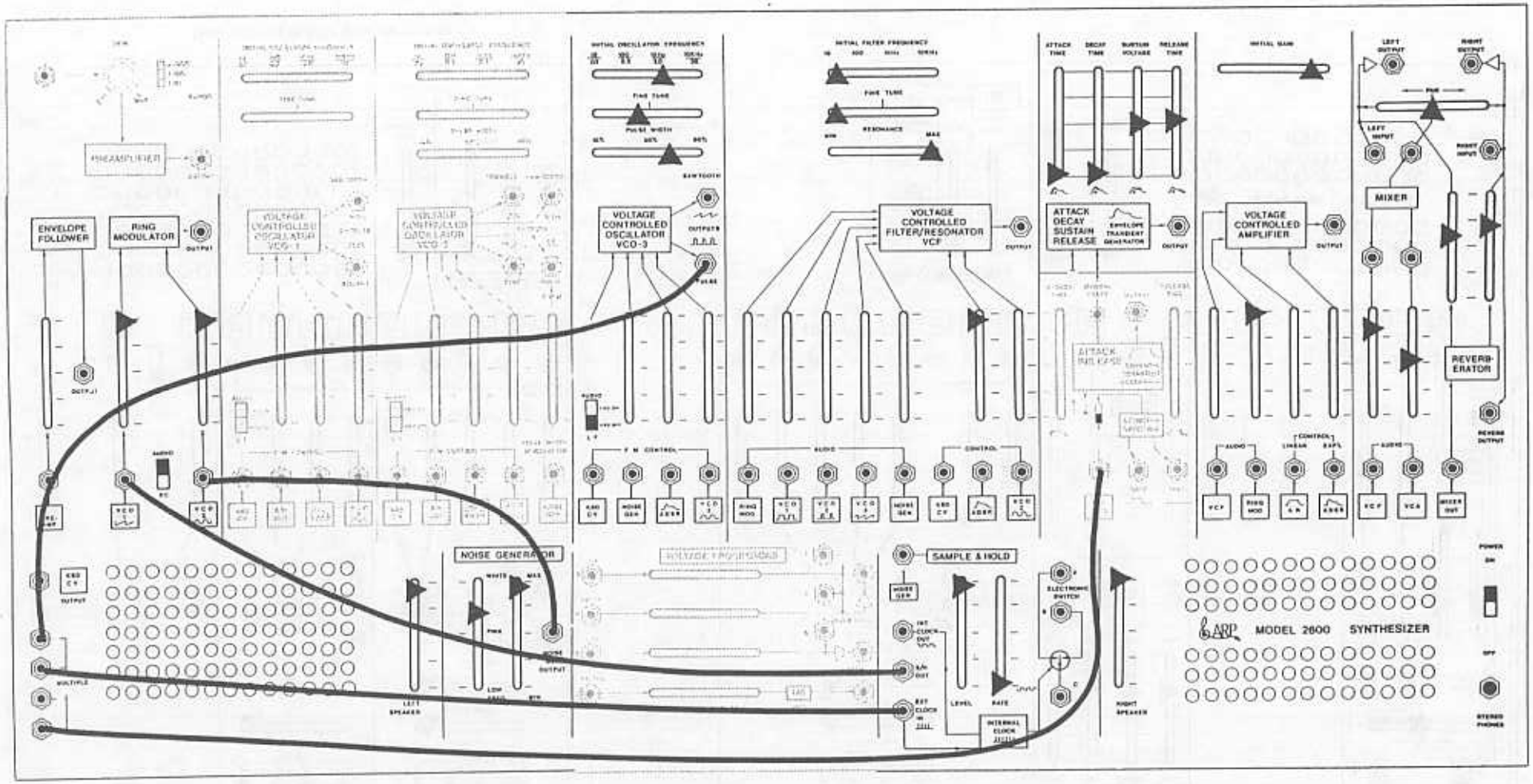
4 PATCHCORDS

1. Tune VCO 3 to an octave above middle C.
2. Raise VCO 2 ∿ ⎸ into VCO 3 and adjust VCO 2 frequency for vibrato speed.

Note: Play legato for vibrato; play staccato for no vibrato.

Violin with Delayed Vibrato

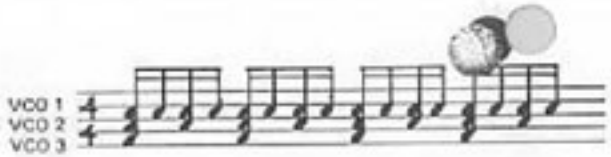
Rhythms

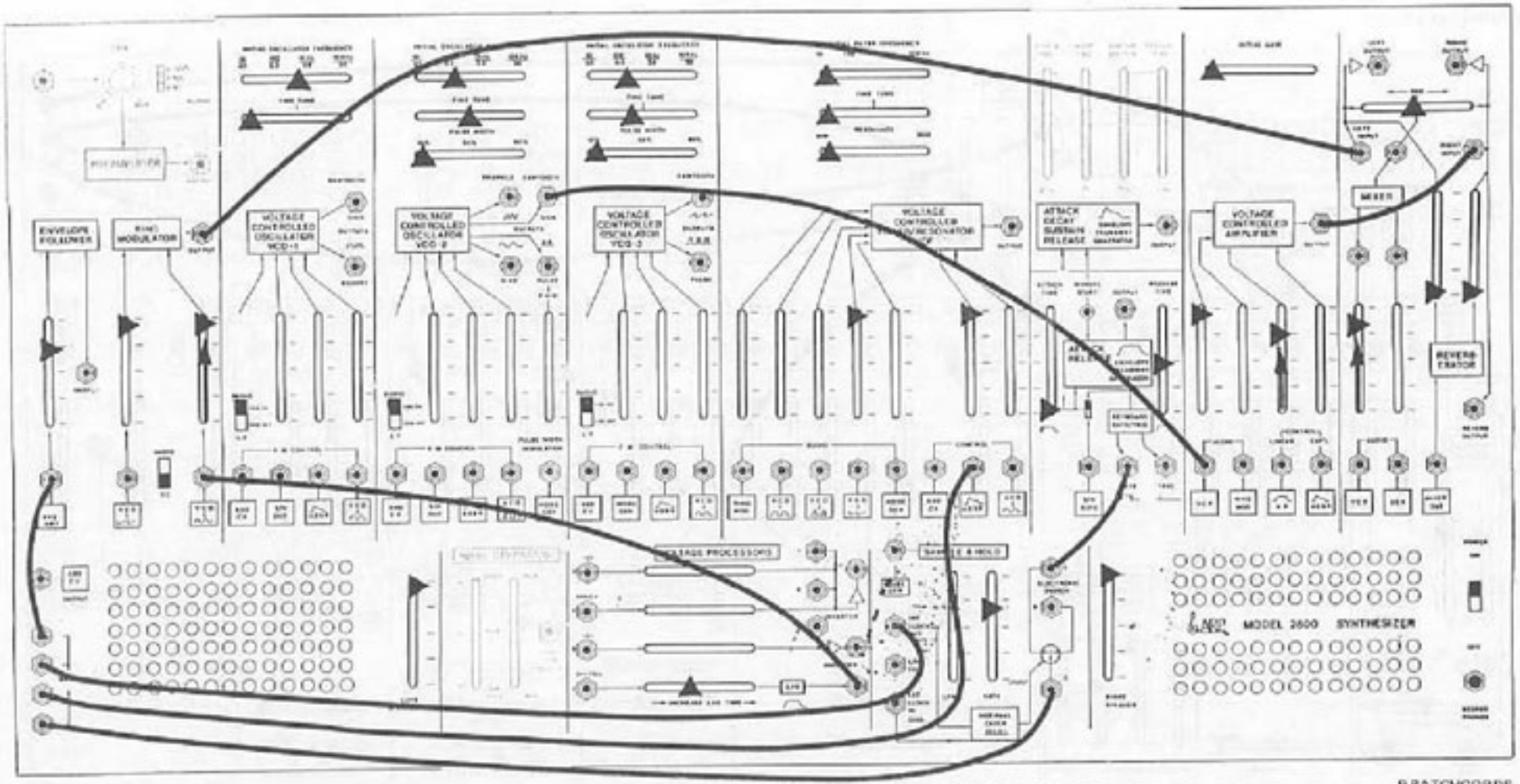


Adjust: VCO 3 frequency for tempo.
ADSR into VCF for BASS Drum timbre.

5 PATCHCORDS

Swing Traps: Hi-Hat & Bass Drum



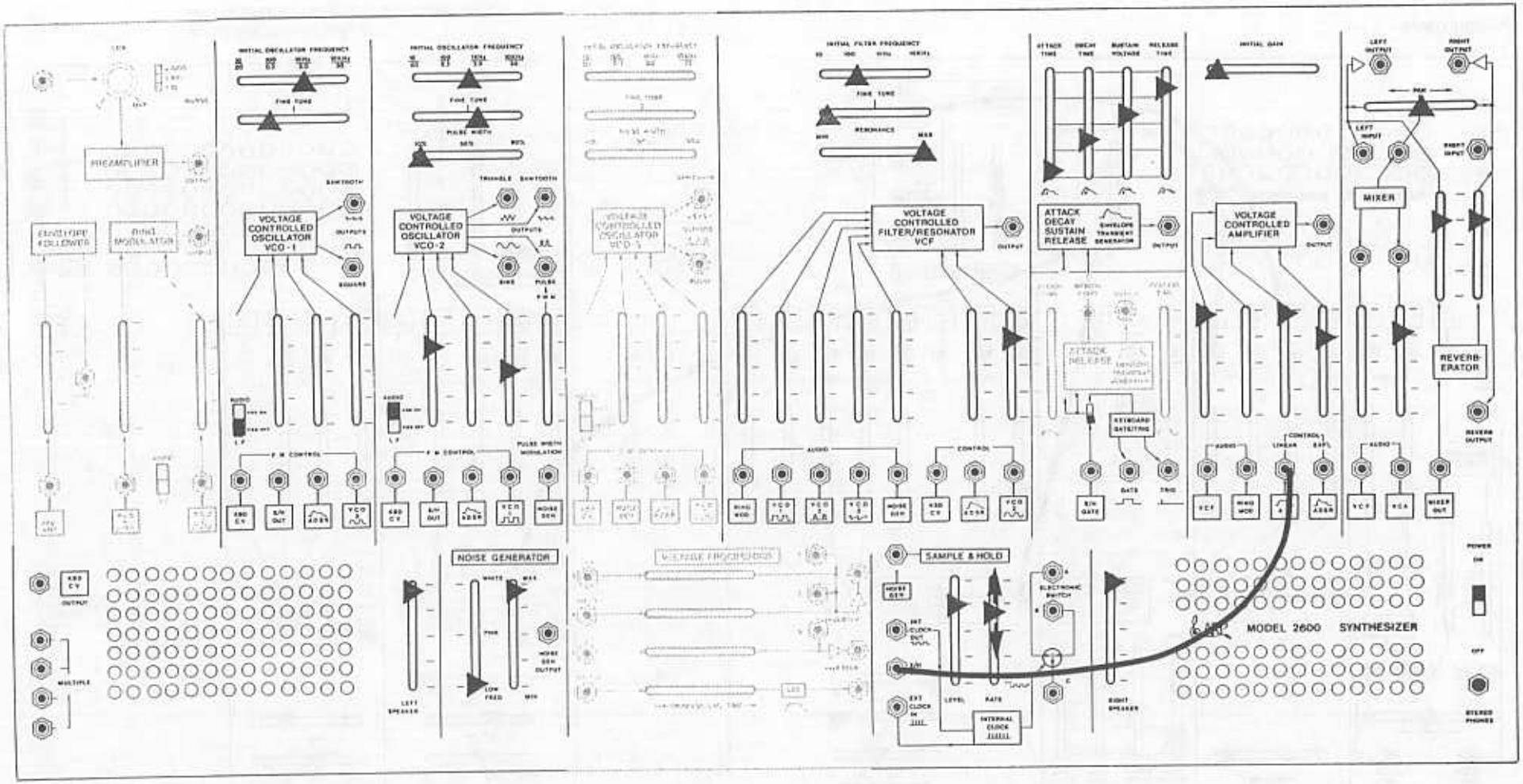


9 PATCHCORDS

Tune VCO 1, 2, and 3 as desired.

3 separate volume controls: ↑ at Ring Mod, Aft at VCA, VCF at Mixer.

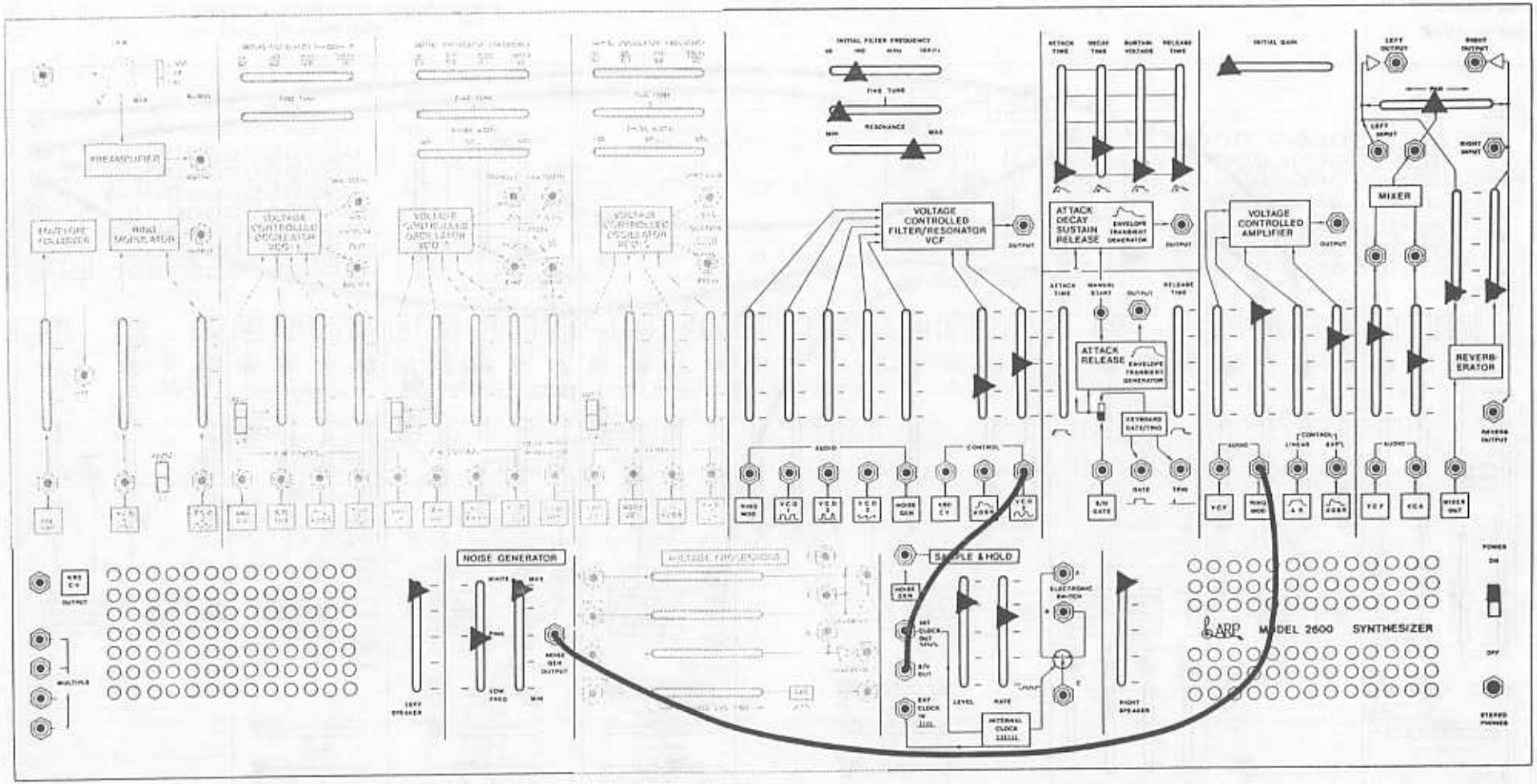
Triple Timings



Adjust S/H Rate for tempo.
Play up and down keyboard for different metallic effects.

1 PATCHCORD

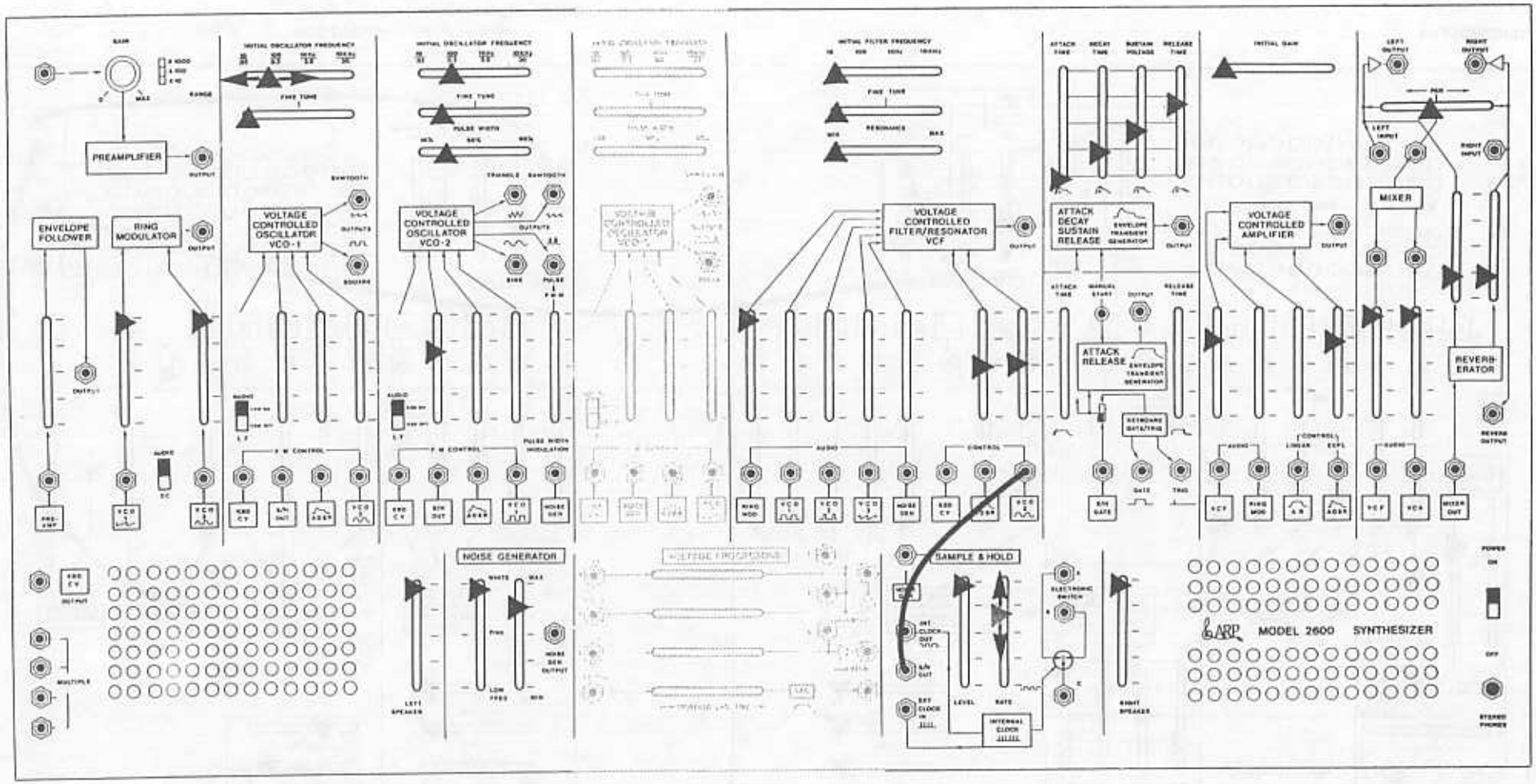
Steel Drum Corps



Adjust S/H Rate for tempo.

2 PATCHCORDS

Random ARP Drum Solo



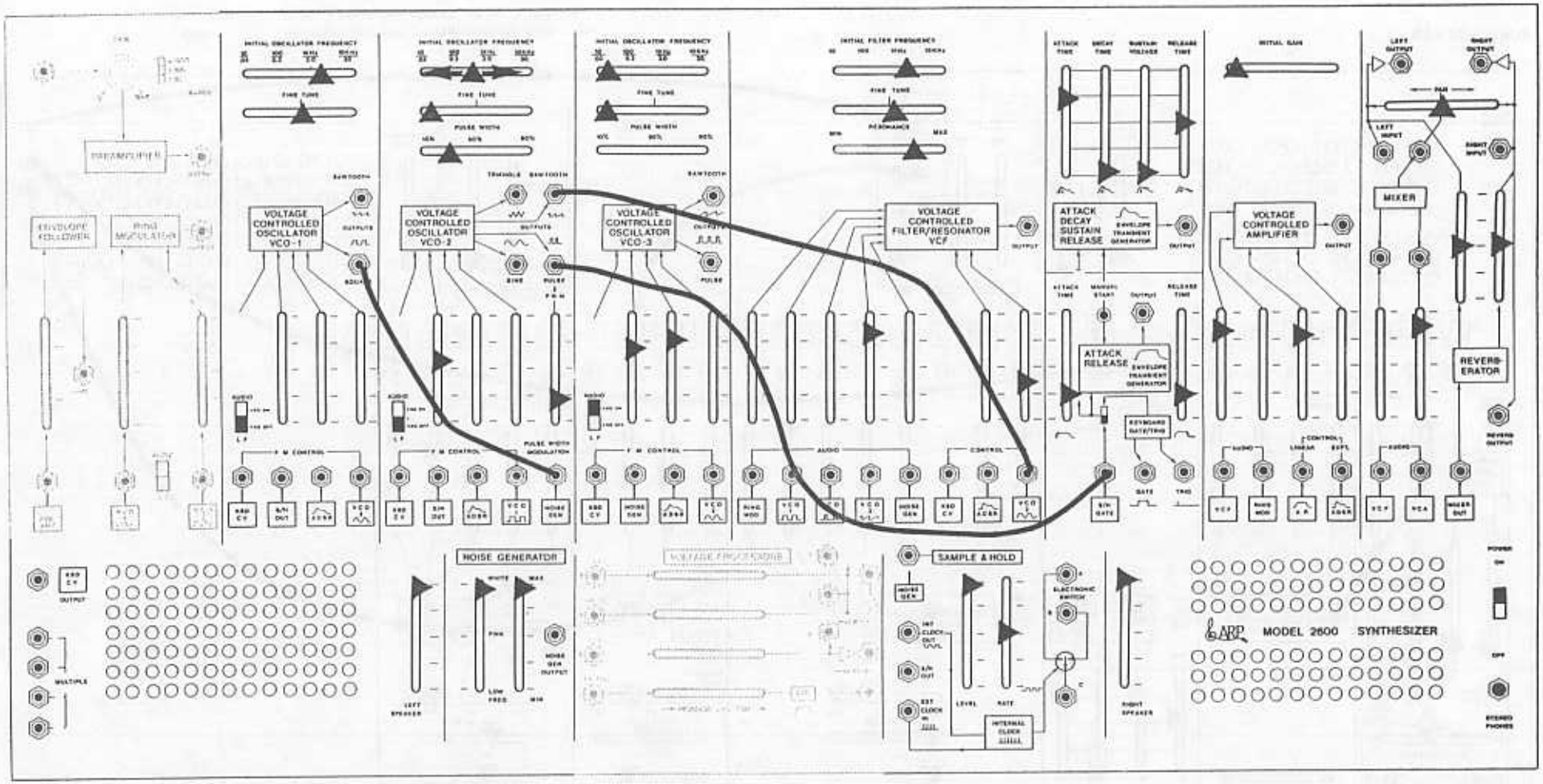
Adjust: VCO 1 frequency for pitch.
S/H Rate for tempo.

1 PATCHCORD

PLAY KEY C2

Cookin' Conga

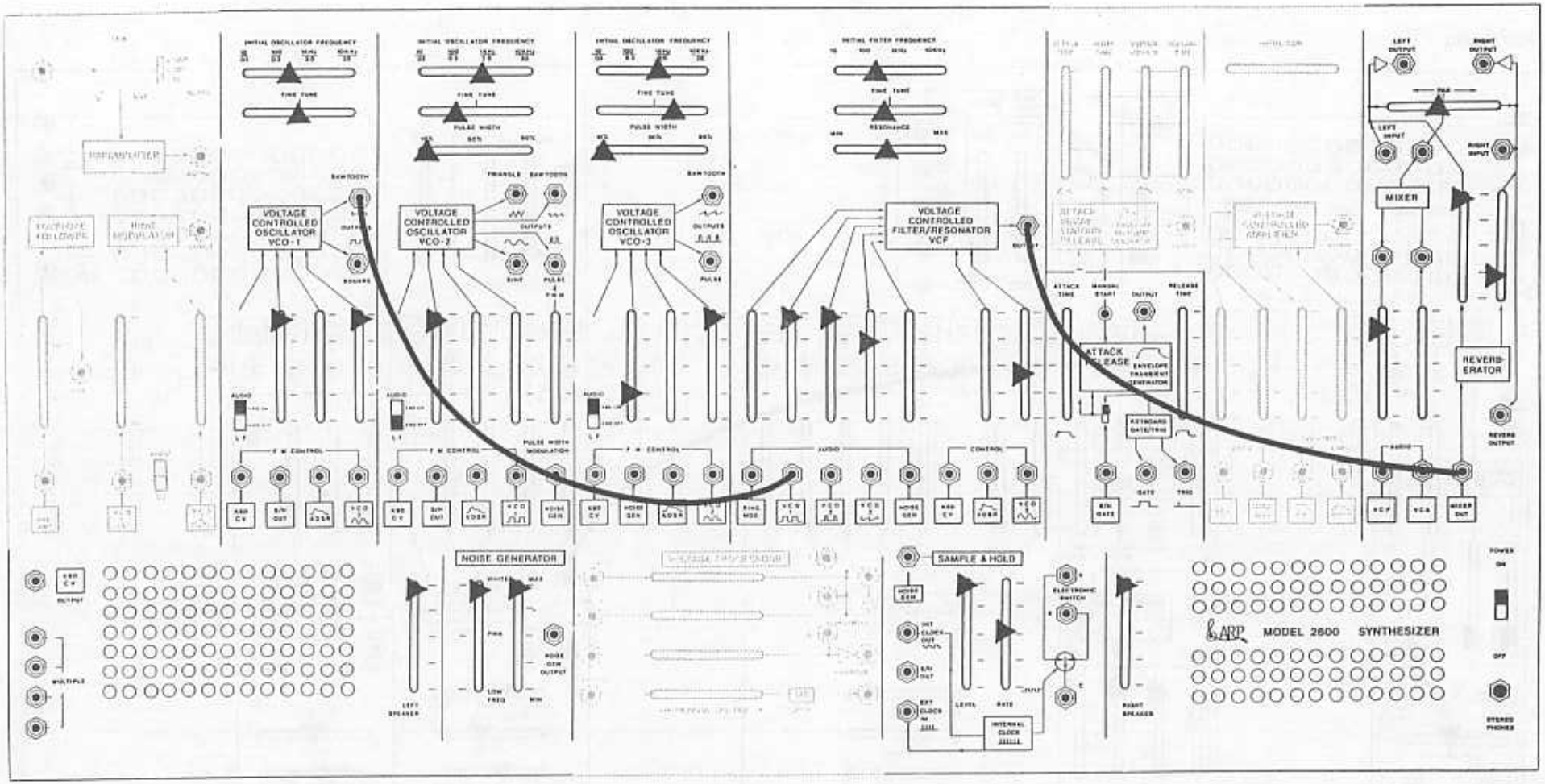
Natural Sounds



Adjust VCO 2 frequency for different croak speeds.

3 PATCHCORDS

Frog Bog

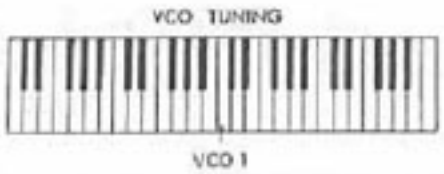


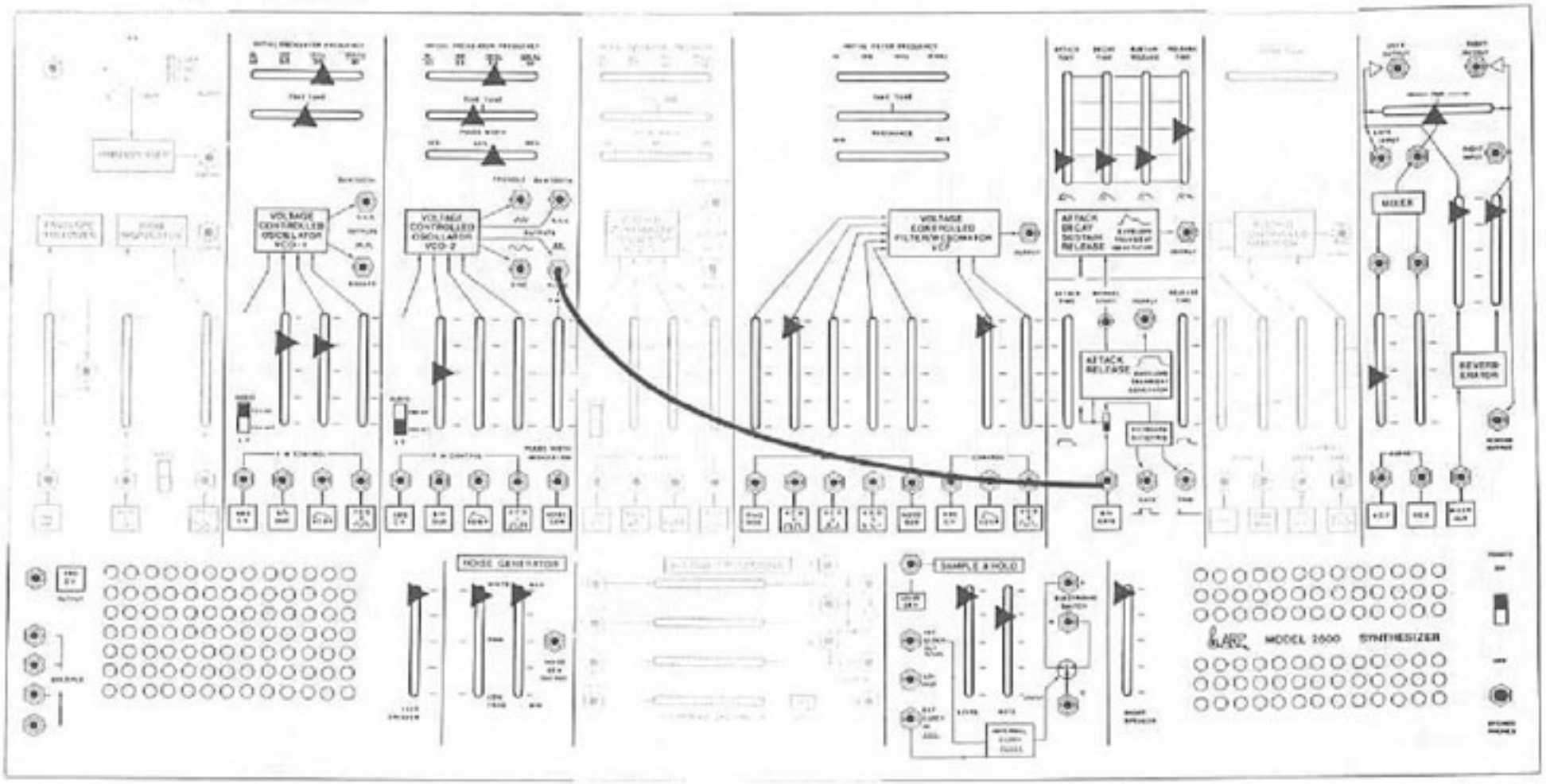
Change the 'pitch' of the patch by moving up and down the keyboard.

Fiddle with the filter settings.

2 PATCHCORDS

Primeval Forest



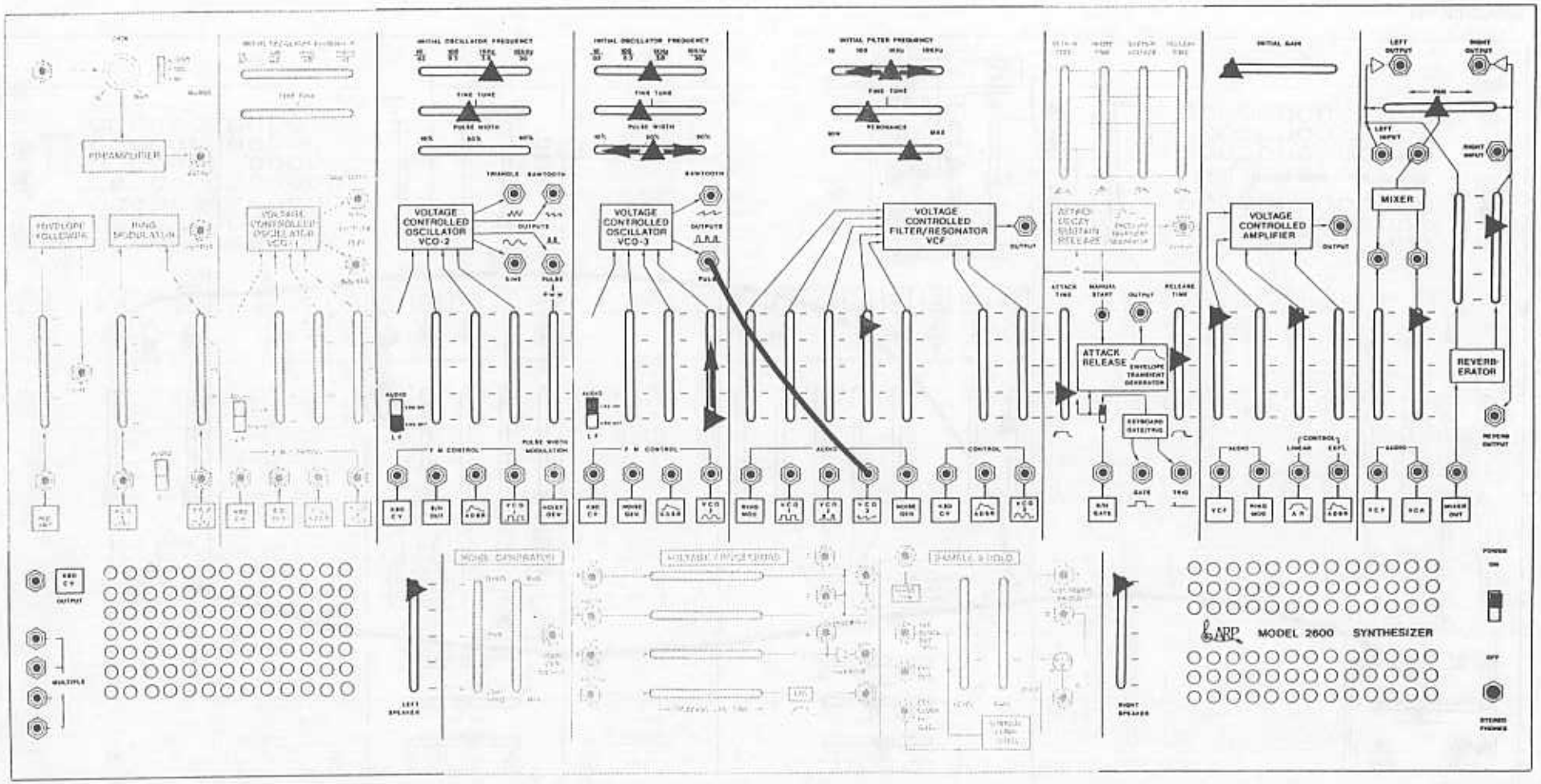


1 PATCHCORD

KEYBOARD RANGE: TOP 2 OCTAVES

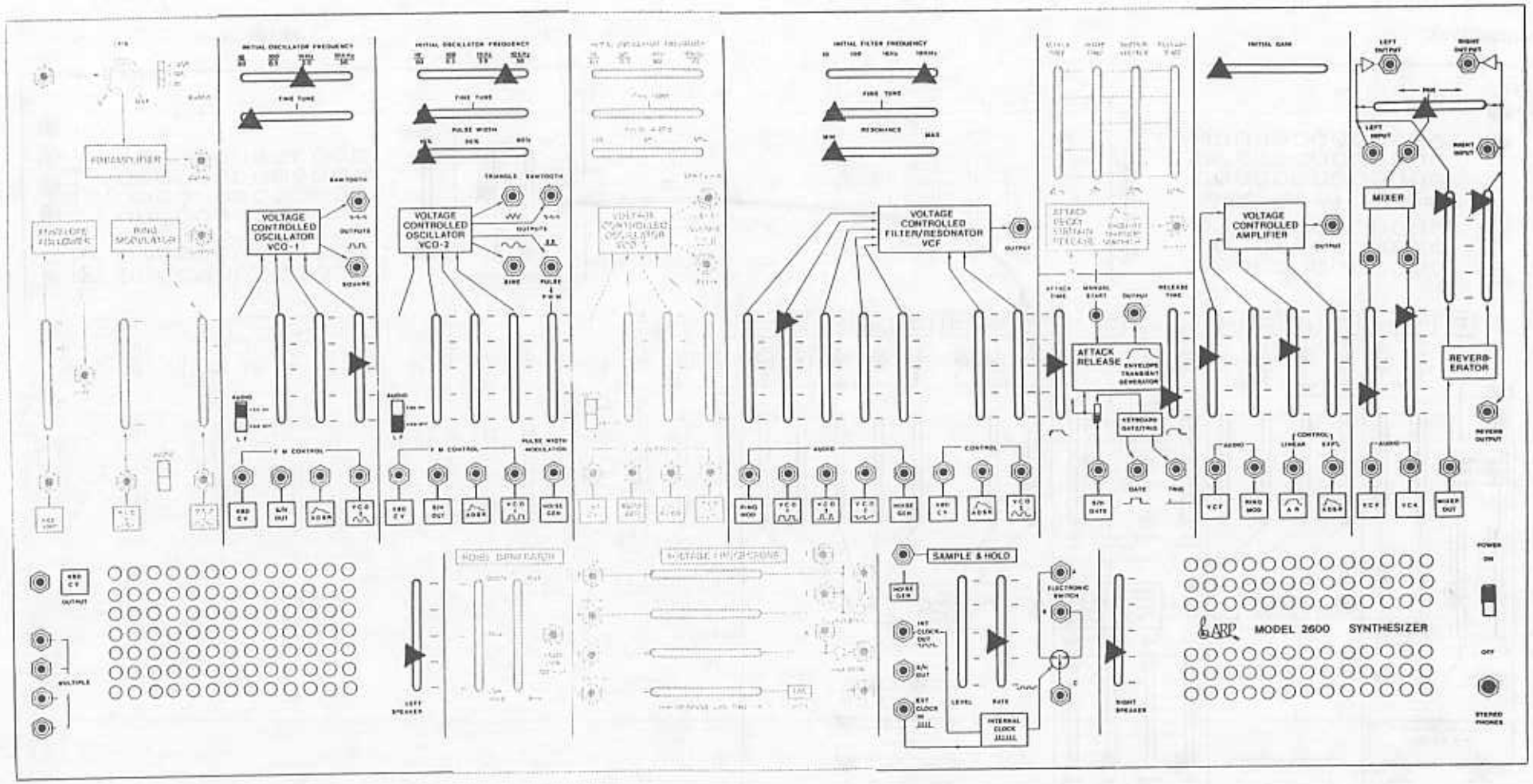
VCO TUNING

VCO 3

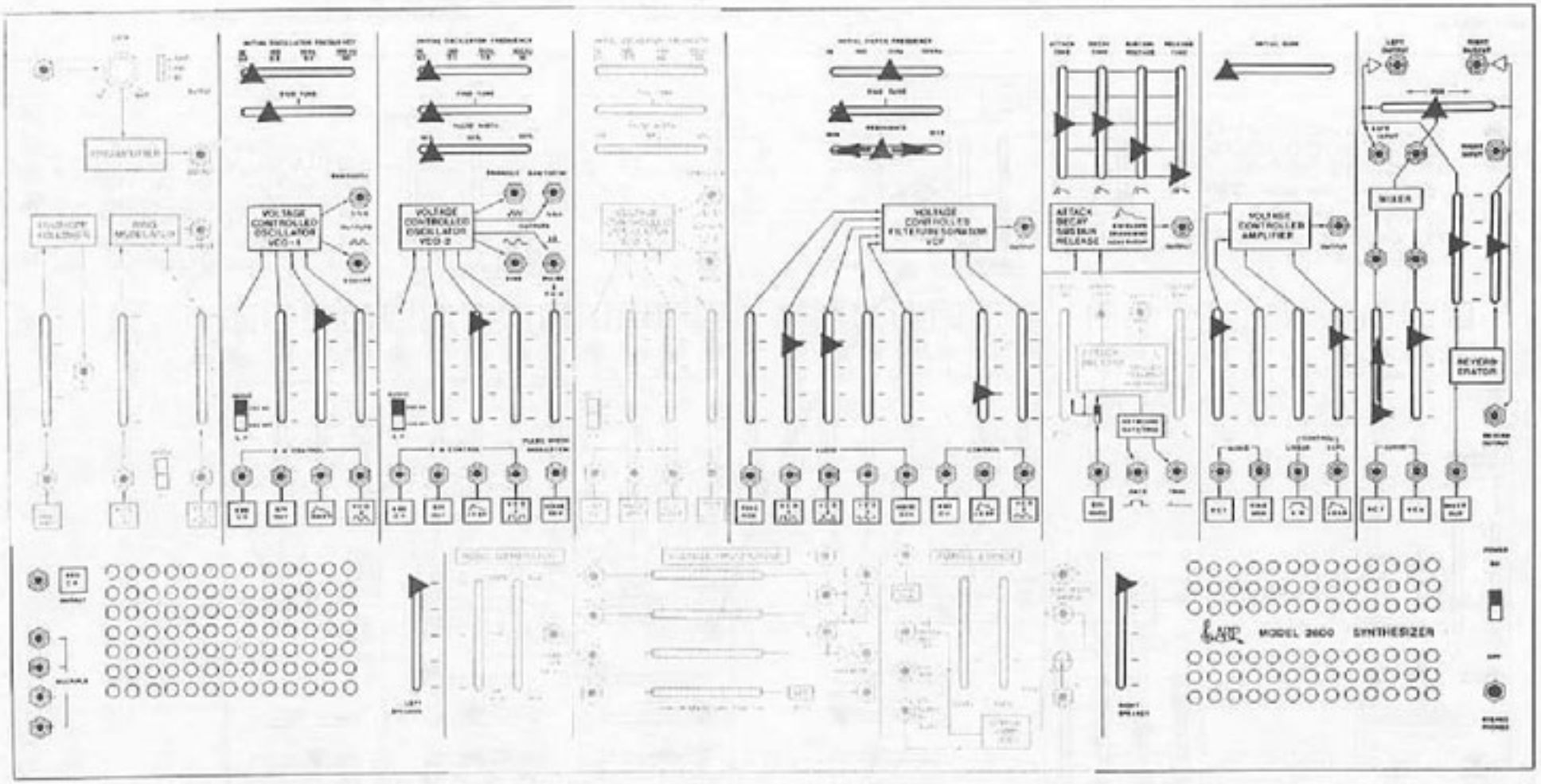


1. Tune VCO 3 to middle C.
2. Raise VCO 2 ∿ ⎍ into VCO 3 and adjust VCO 2 frequency for tremelo speed.
3. Adjust VCO 3 Pulse Width and VCF frequency for desired timbre.

1 PATCHCORD

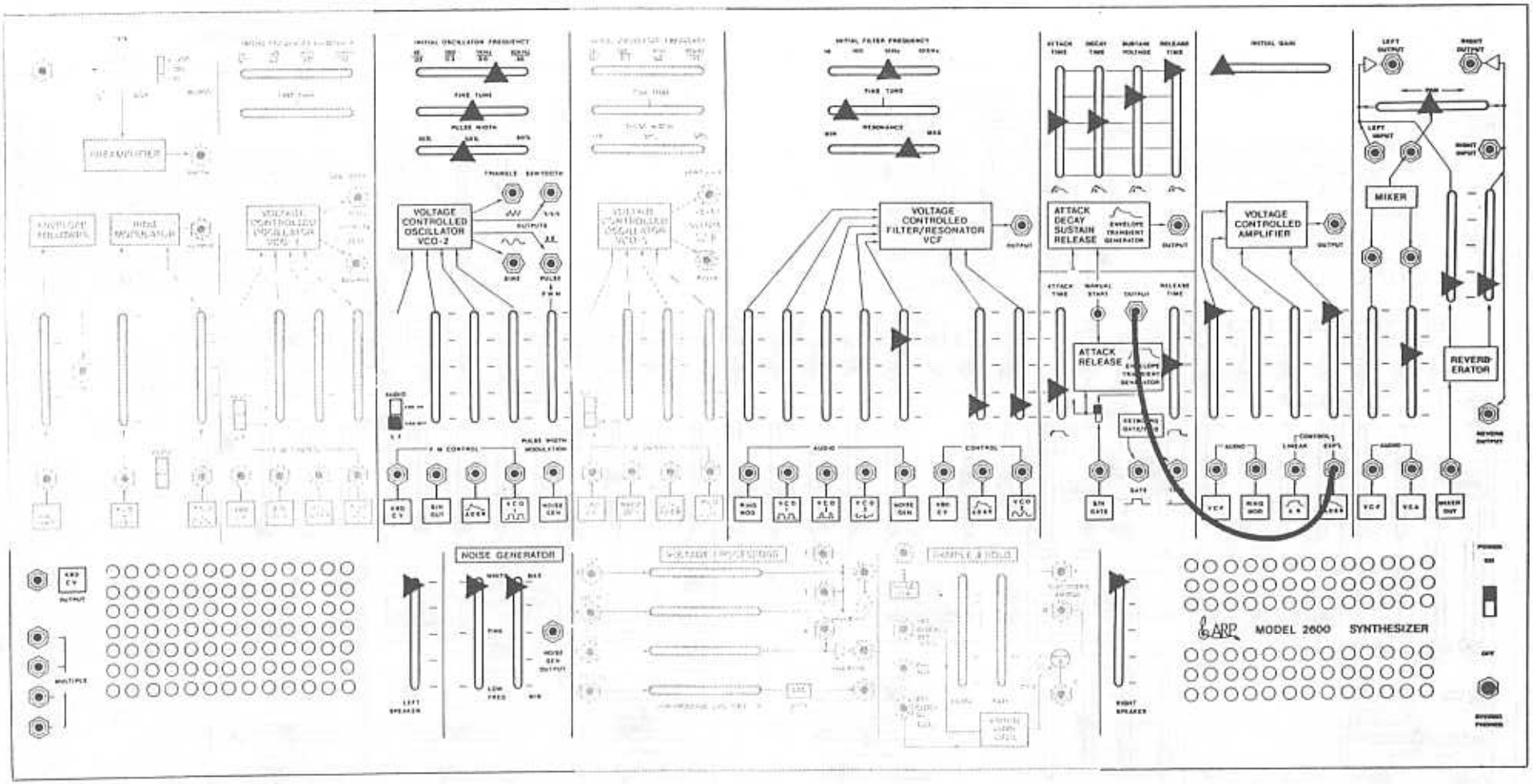

VOLTAGE CONTROLLED OSCILLATOR VCO-1
VOLTAGE CONTROLLED OSCILLATOR VCO-2
VOLTAGE CONTROLLED FILTER/RESONATOR VCF
VOLTAGE CONTROLLED AMPLIFIER
ATTACK RELEASE
MIXER
REVERB-ERATOR
SAMPLE & HOLD
ARP MODEL 2600 SYNTHESIZER

PLAY KEY C5



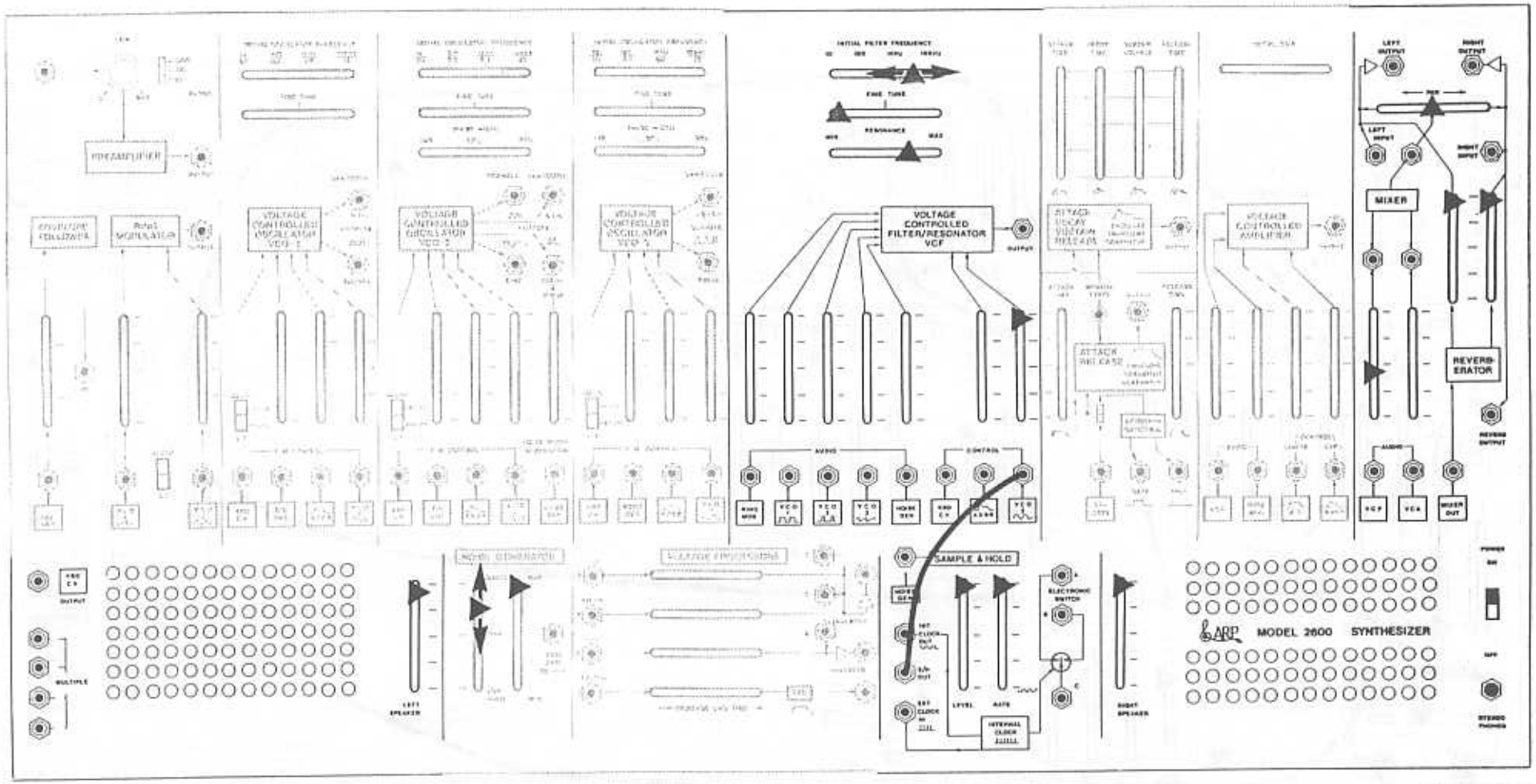
Note: Best barks can be heard around Key C2
Raise VCF into Mixer for growl.

Small Barking Mutt



1 PATCHCORD

Mother Whistler

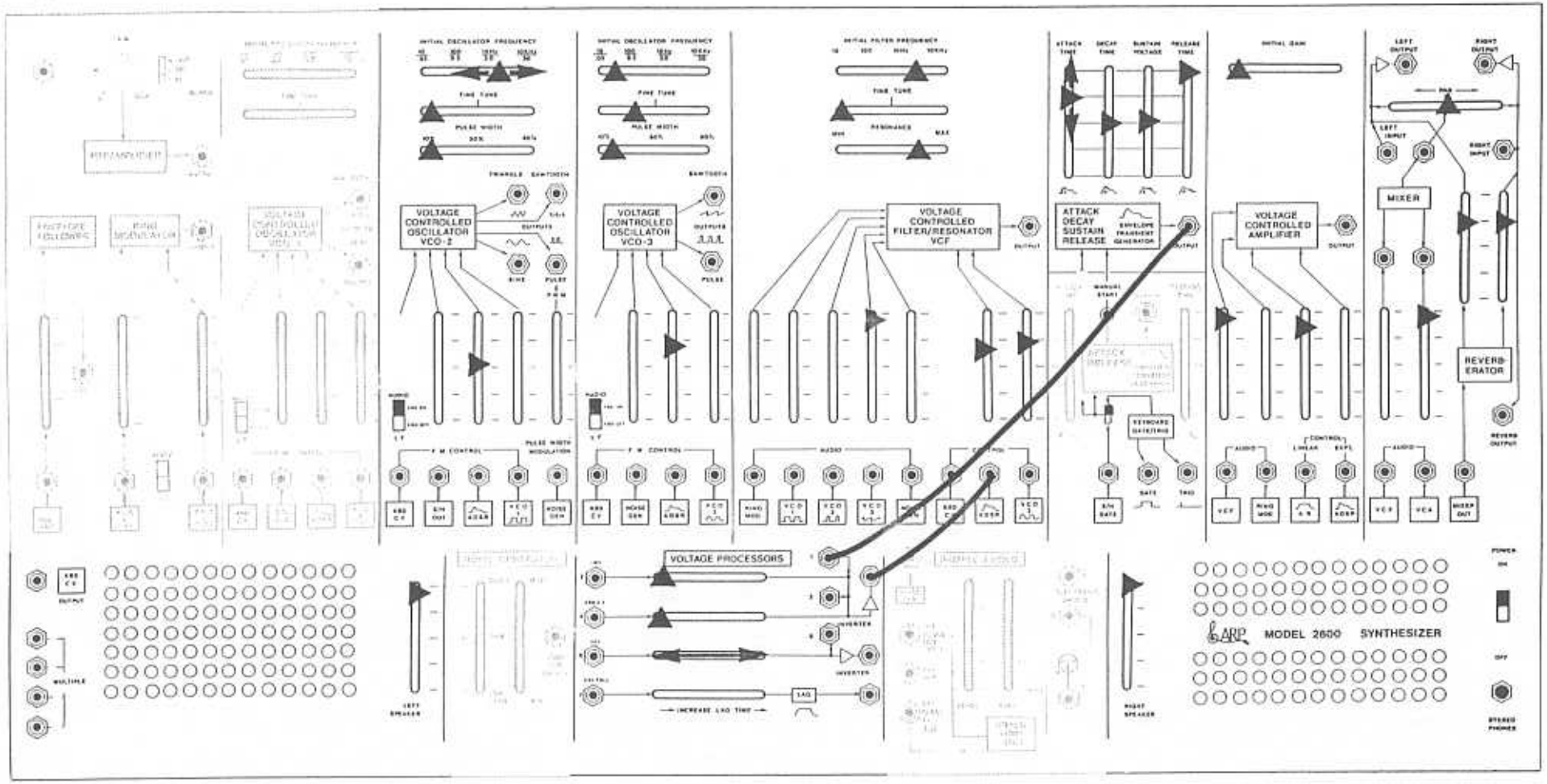


Adjust: VCF frequency and Noise color for desired effect.

1 PATCHCORD

Water Drops

KEYBOARD RANGE: BOTTOM 2 OCTAVES OR MANUAL START



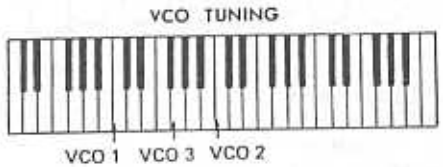
Adjust:

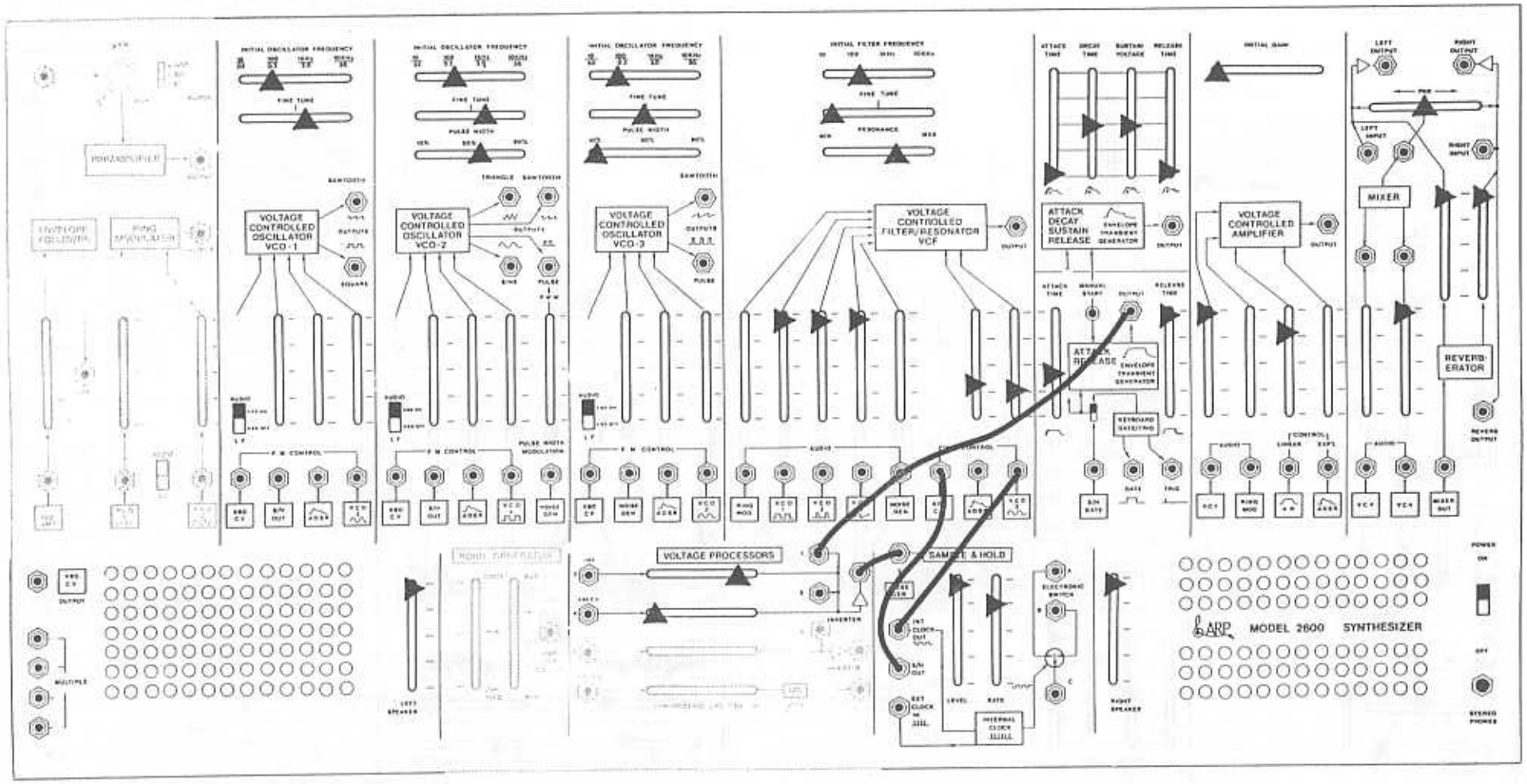
ADSR into VCF.
VCO 2 ∿| into VCF for 'voice-like' texture.
VCO 2 frequency for different vowels.
Resonance.
Attack time on ADSR.

2 PATCHCORDS

"Oh Yeah!"

Arpeggios, Chords & Sequences

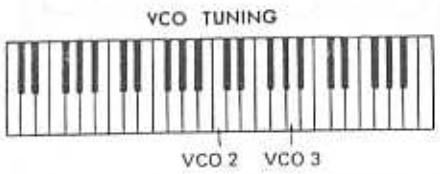


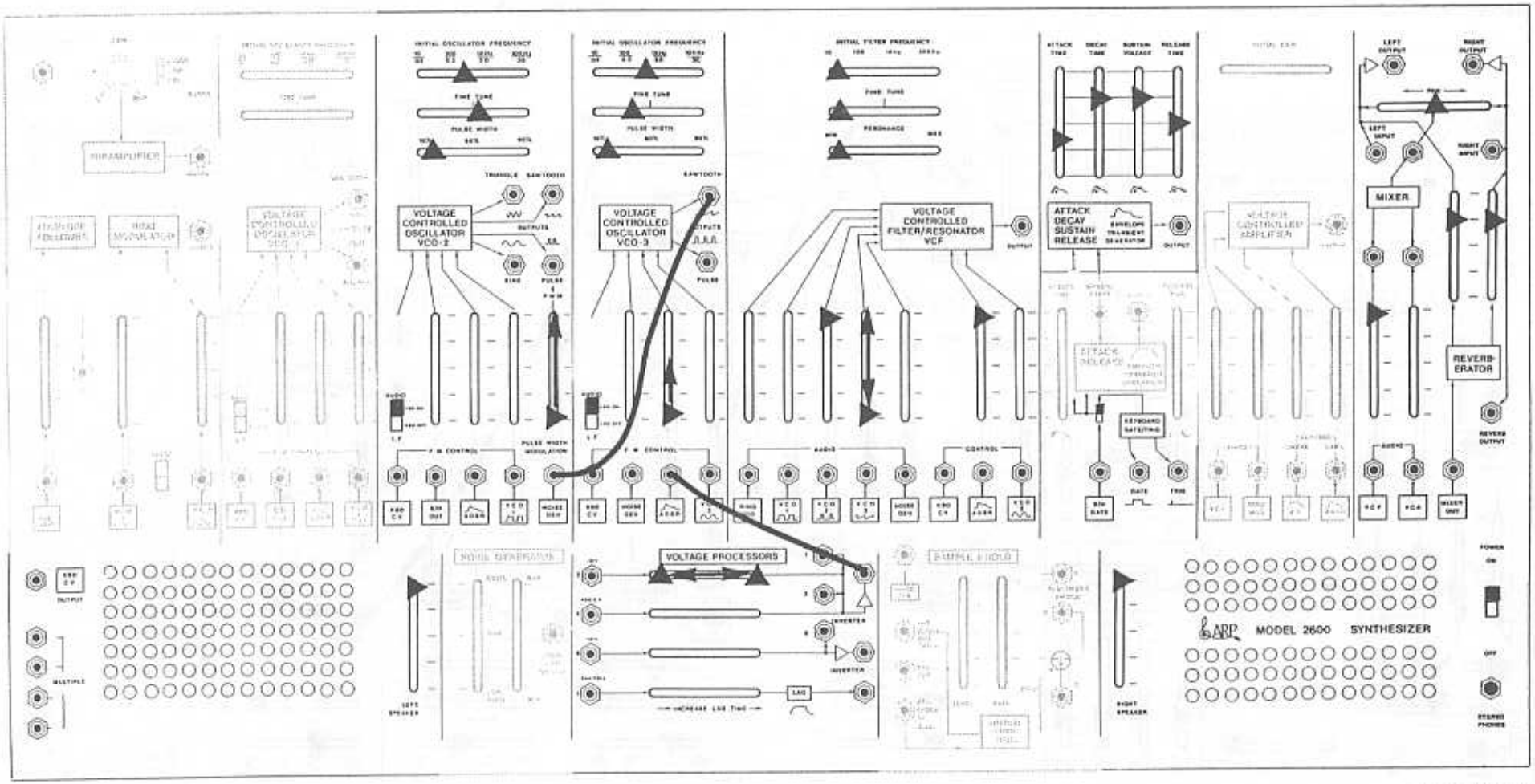


4 PATCHCORDS

Tune: VCO 1 to one octave below middle C.
VCO 2 to middle C.
VCO 3 to a fourth below middle C.

Inverted ADSR Harmonic Arpeggio





2 PATCHCORDS

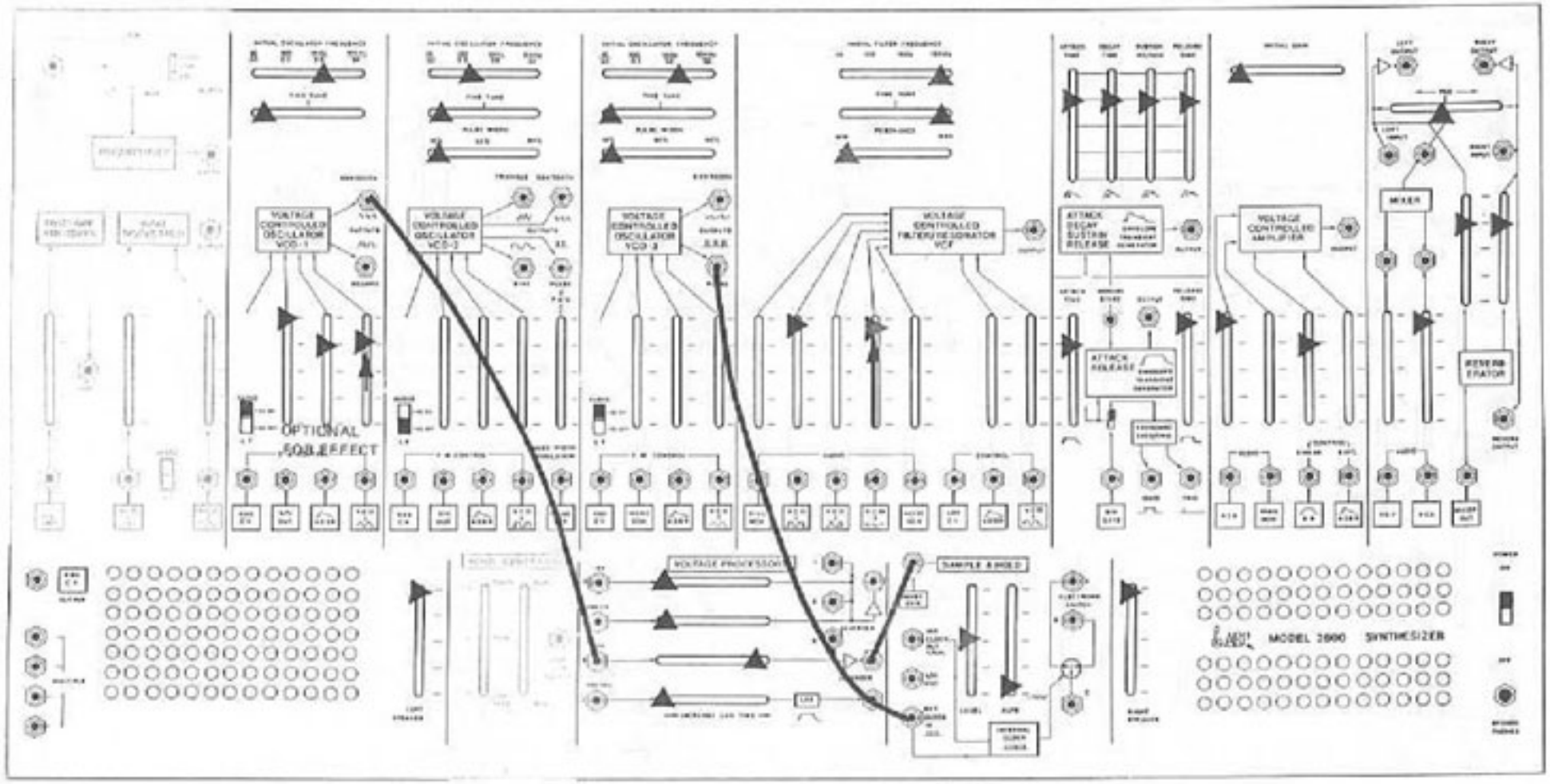
TONIC CHORD (I):

1. Tune VCO 2 to middle C.
2. Raise VCO 3 ~~| into VCF and tune to a minor 6th above VCO 2 (C-A).
3. Close VCO 3 ~~| and raise Pulse Width Mod slider fully into VCO 2.

SUBDOMINANT CHORD (IV):

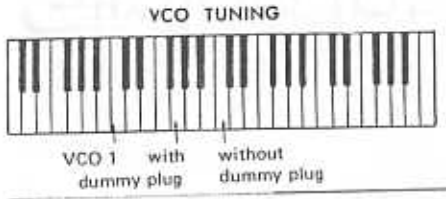
4. Move Inverter slider fully to the right.
5. Raise | into VCO 3 until a new chord is heard.
6. Moving Inverter slider back and forth produces either I or IV chord.

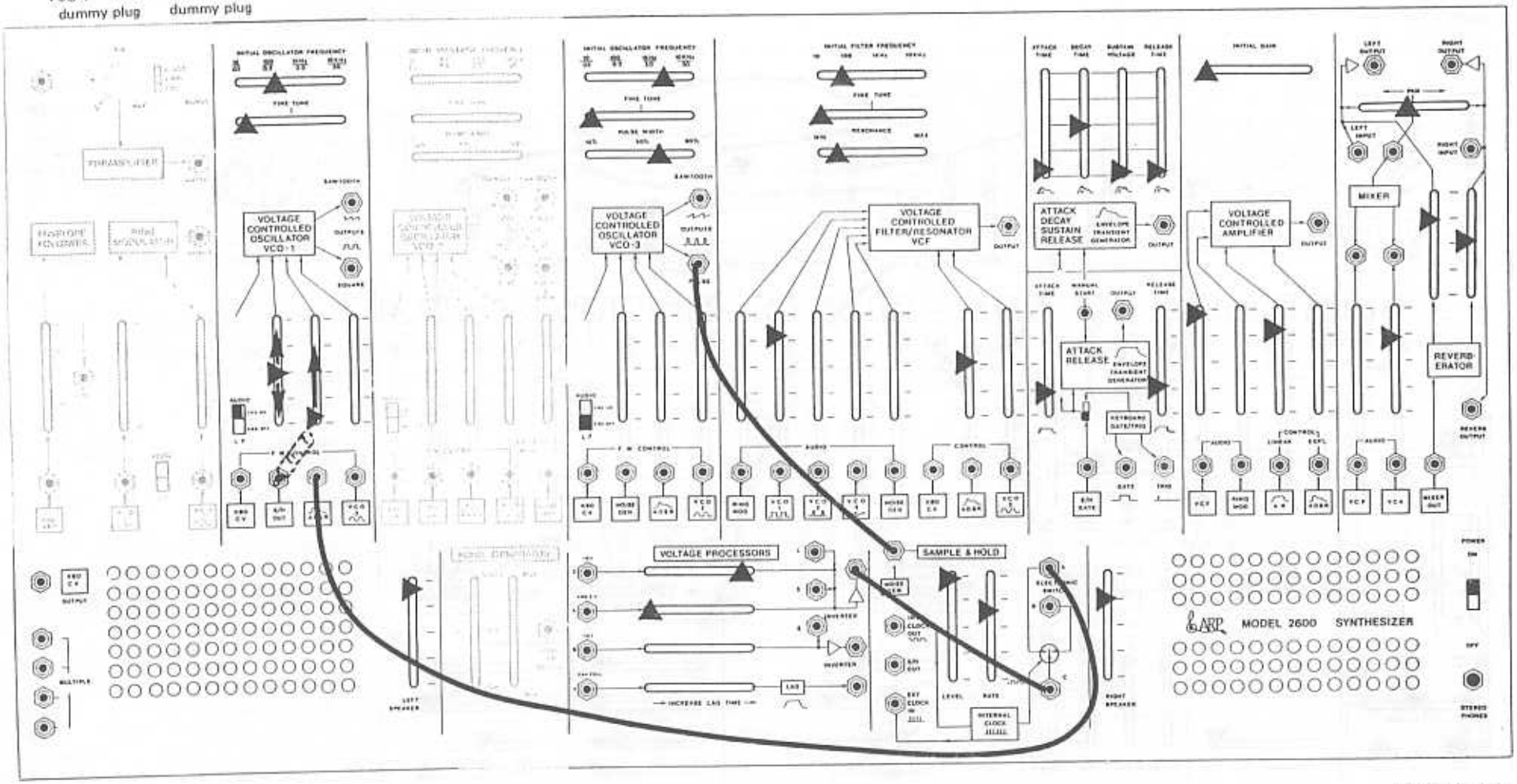
Three-note Chord from Two VCOs



Be certain that the frequency of VCO 3 is above that of VCO 1

3 PATCHCORDS





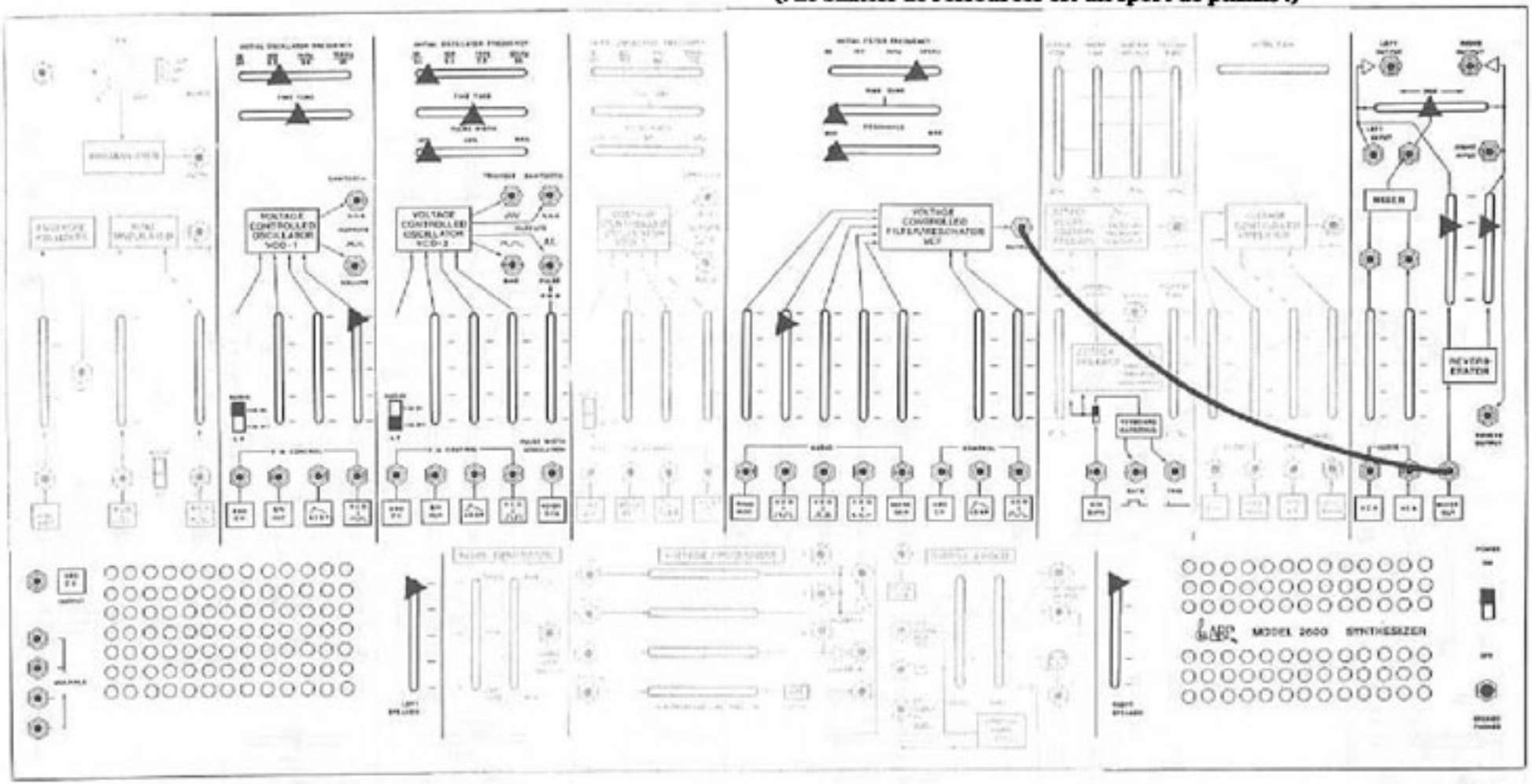
3 PATCHCORDS

Tuning:

1. Tune S/H into VCO 1 to an octave interval.
2. Insert dummy plug into S/H jack at VCO 1 and raise ⌂, tuning to a fifth.
3. Remove dummy plug.

Random Select: Four-note Tunable Arpeggio

Sound Effects

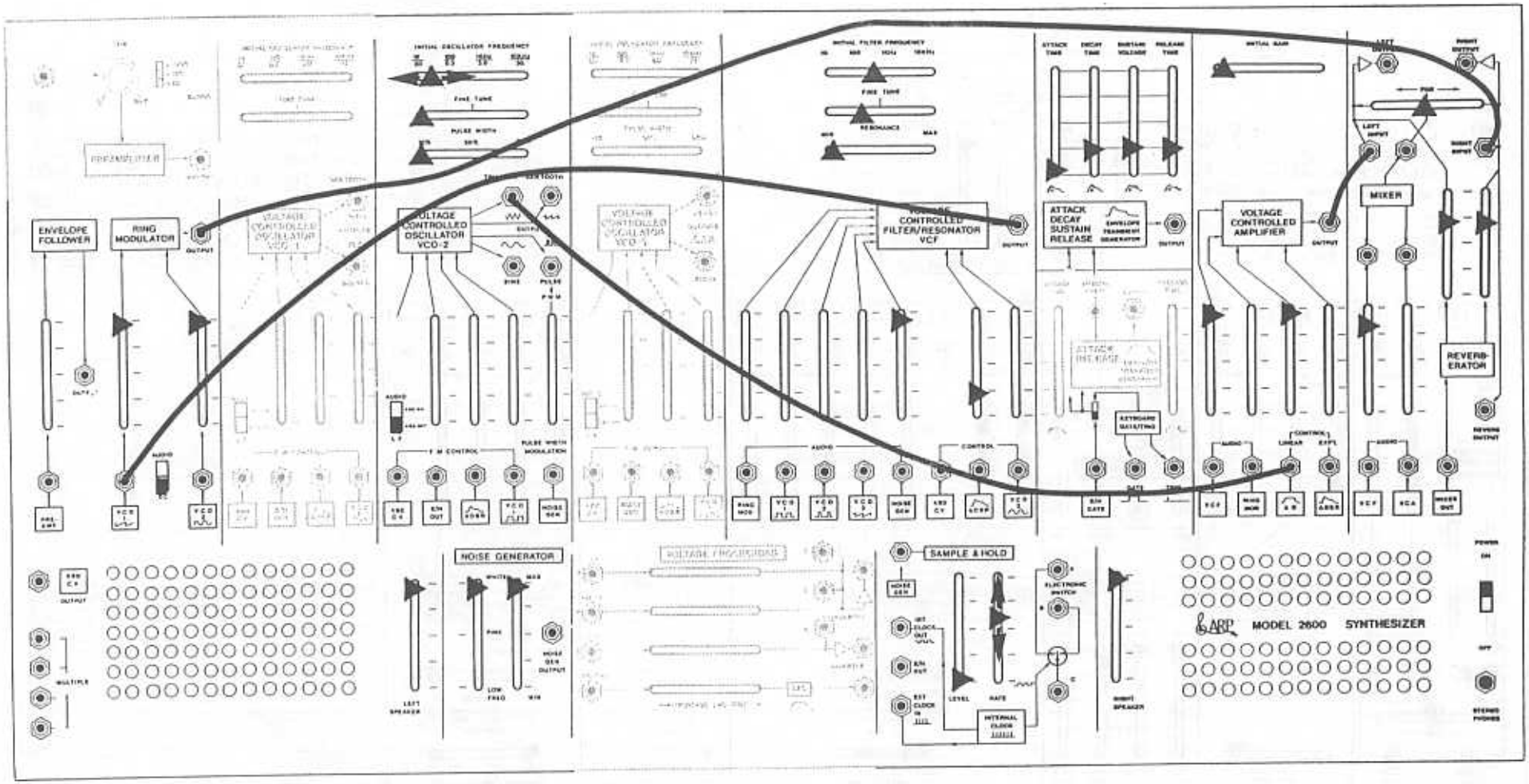


Switch VCO 2 Keyboard Switch on and off for horn blast.

1 PATCHCORD

PLAY KEY G3

Firetruck Siren with Horn Blast

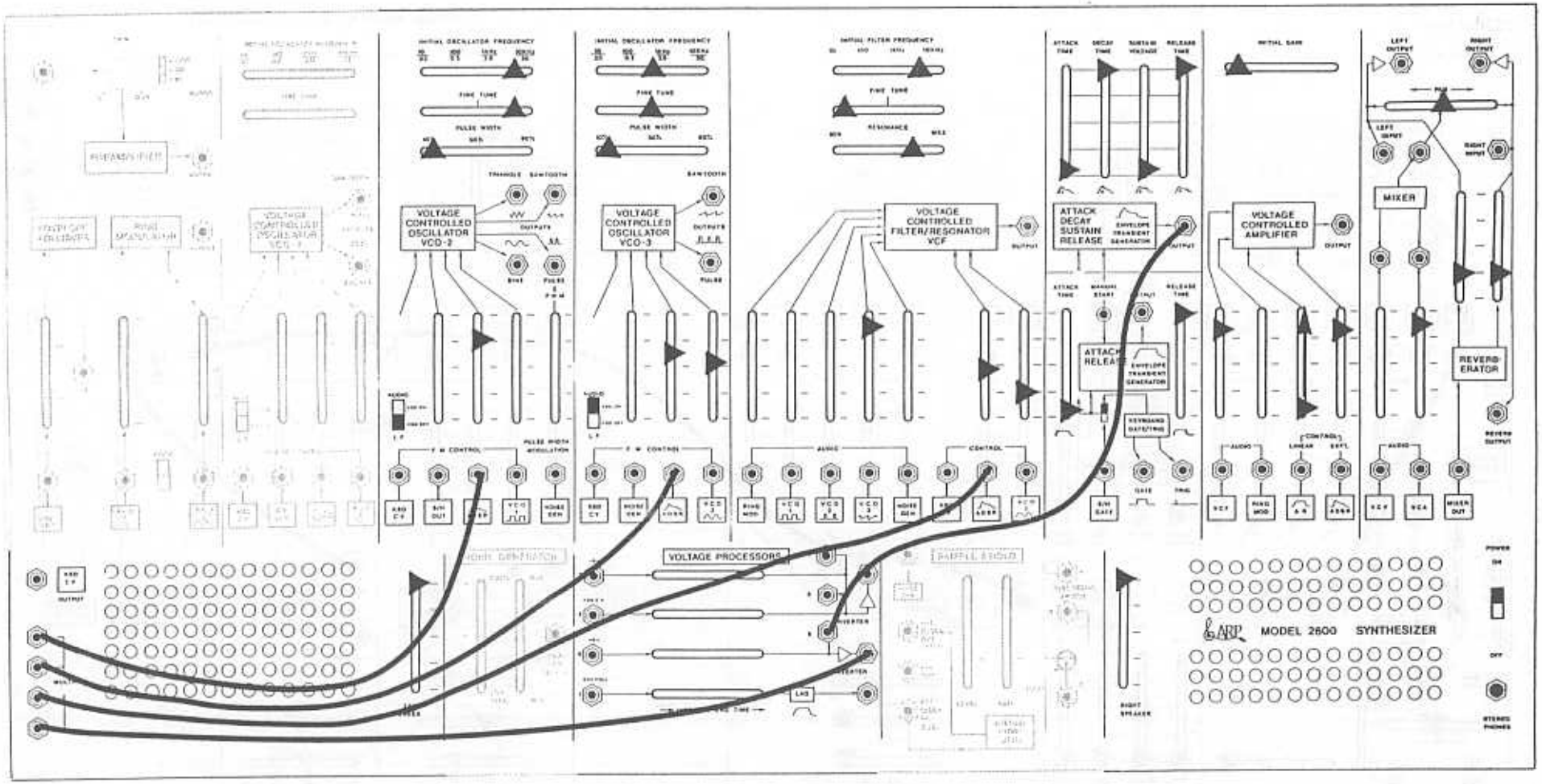


Adjust: VCO 2 frequency for pan speed.
S/H Rate for train 'chugga' speed.

4 PATCHCORDS

PLAY KEY C4

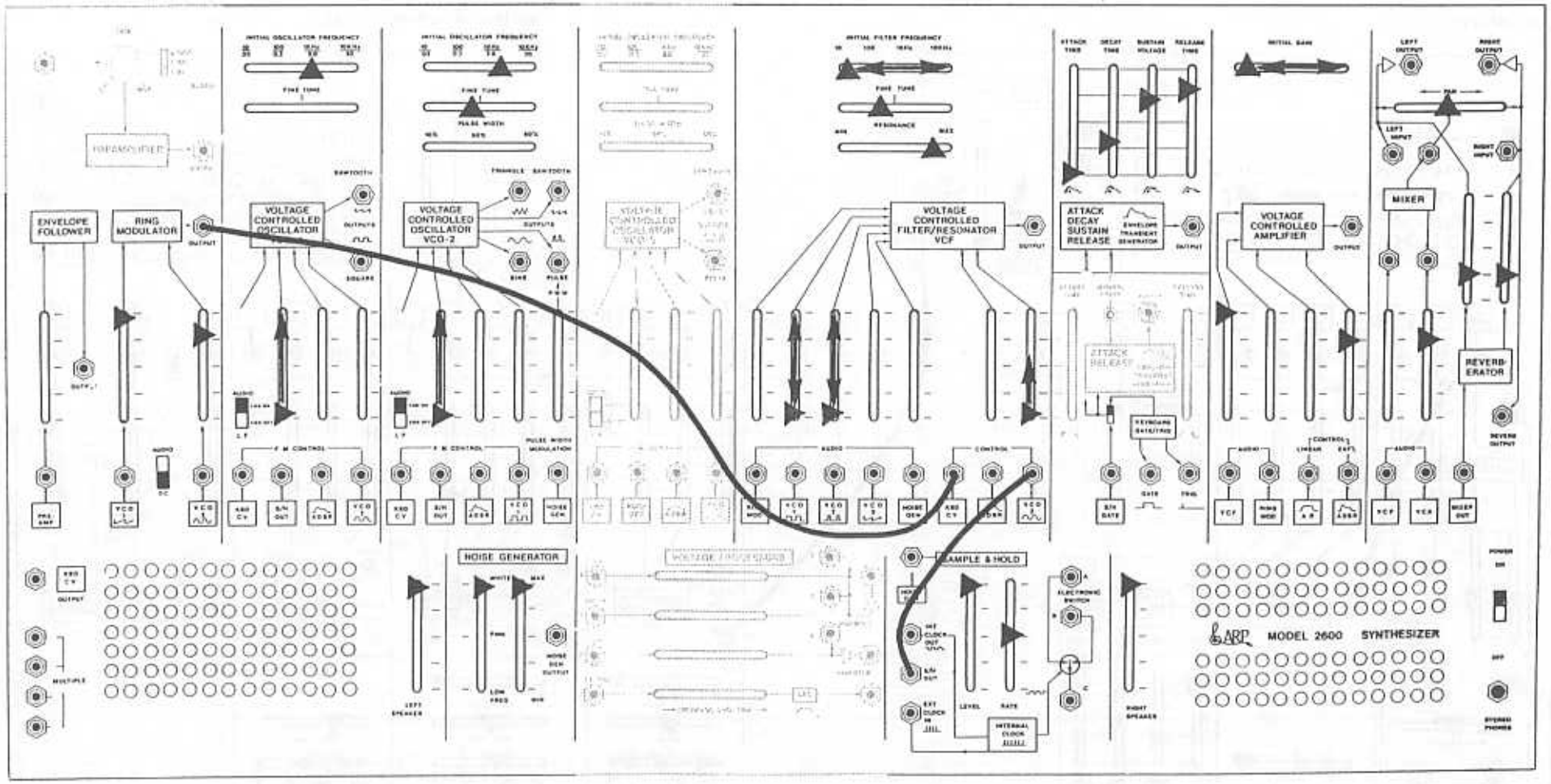
Panning Freight Train



Raise AR into VCA for longer Boing.

5 PATCHCORDS

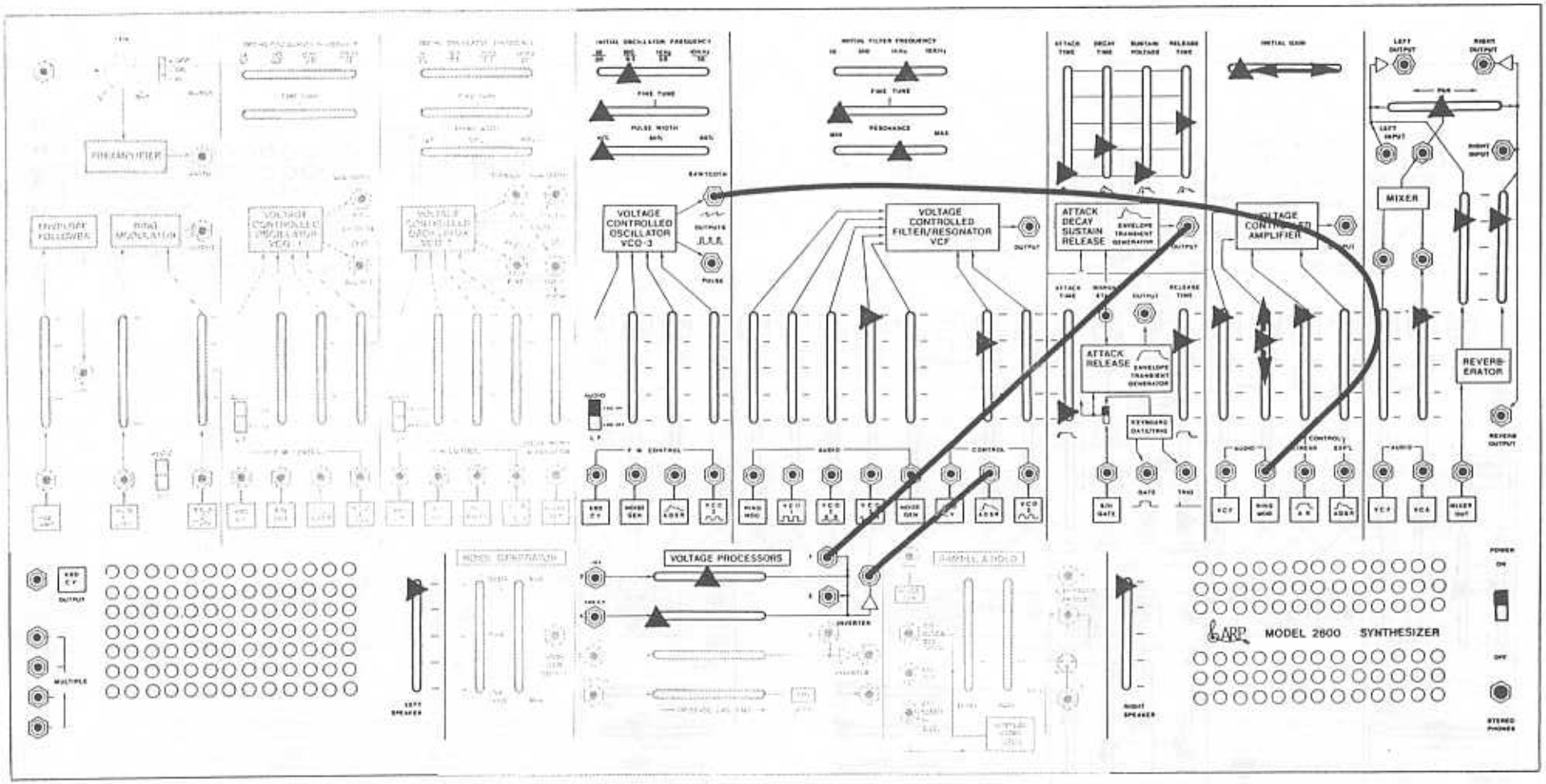
Boing!



2 PATCHCORDS

1. Open VCF and VCA —
2. Raise VCO 1 and 2 | into VCF and Tune to unison.
3. Close VCF and VCA. Close VCO 1 and 2 at VCF |
4. Raise: S/H into VCO 1 and 2 fully.
   Control slider at VCF as shown.
5. Switch to S/H GATE.

Assorted Splats & Sproings

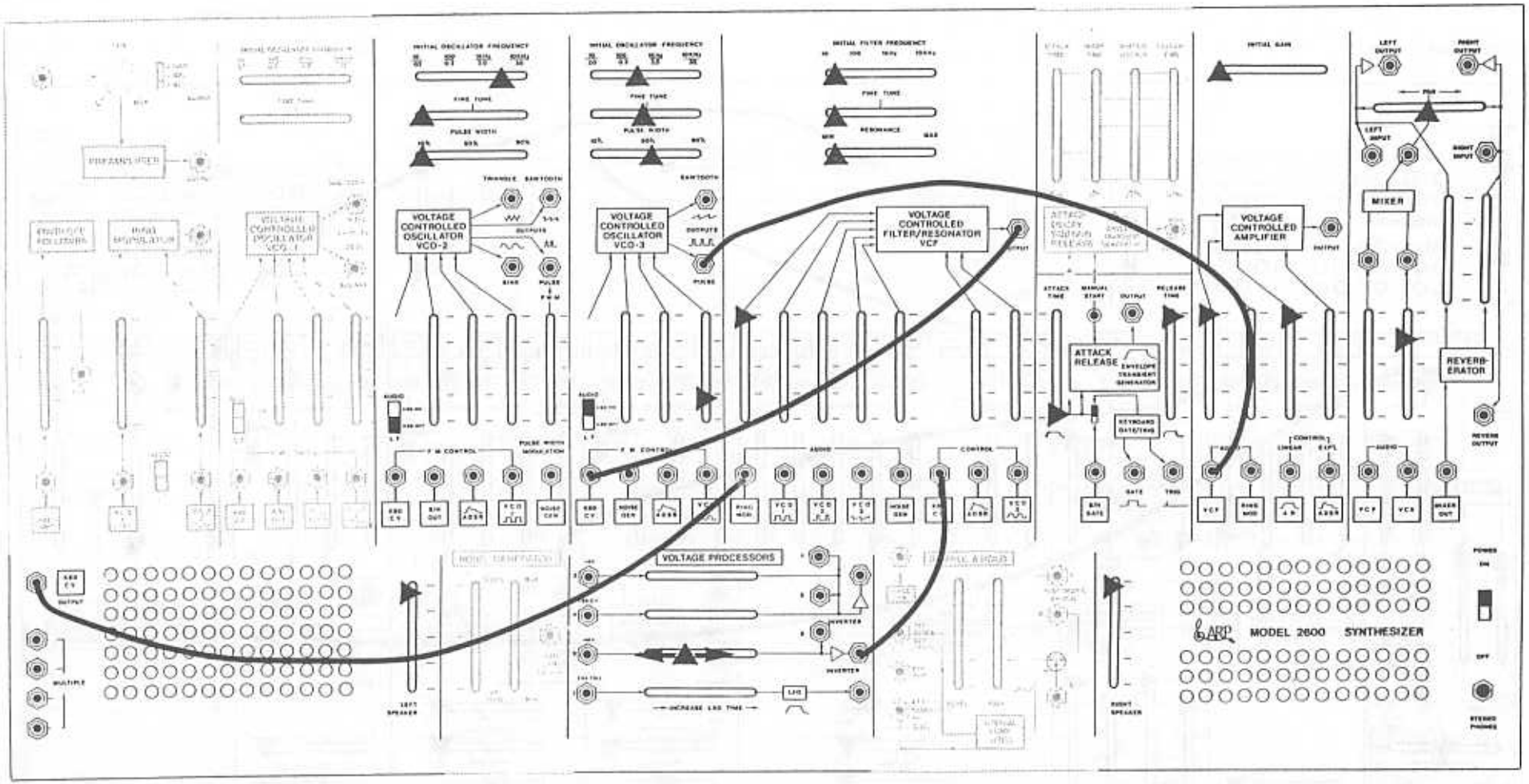


1. Open VCA — .
2. Adjust VCO 3 gain into VCA for minimum volume.
3. Close VCA — .

3 PATCHCORDS

"Pwee" or Synthesized High-pass Filter 77.

Advanced Applications

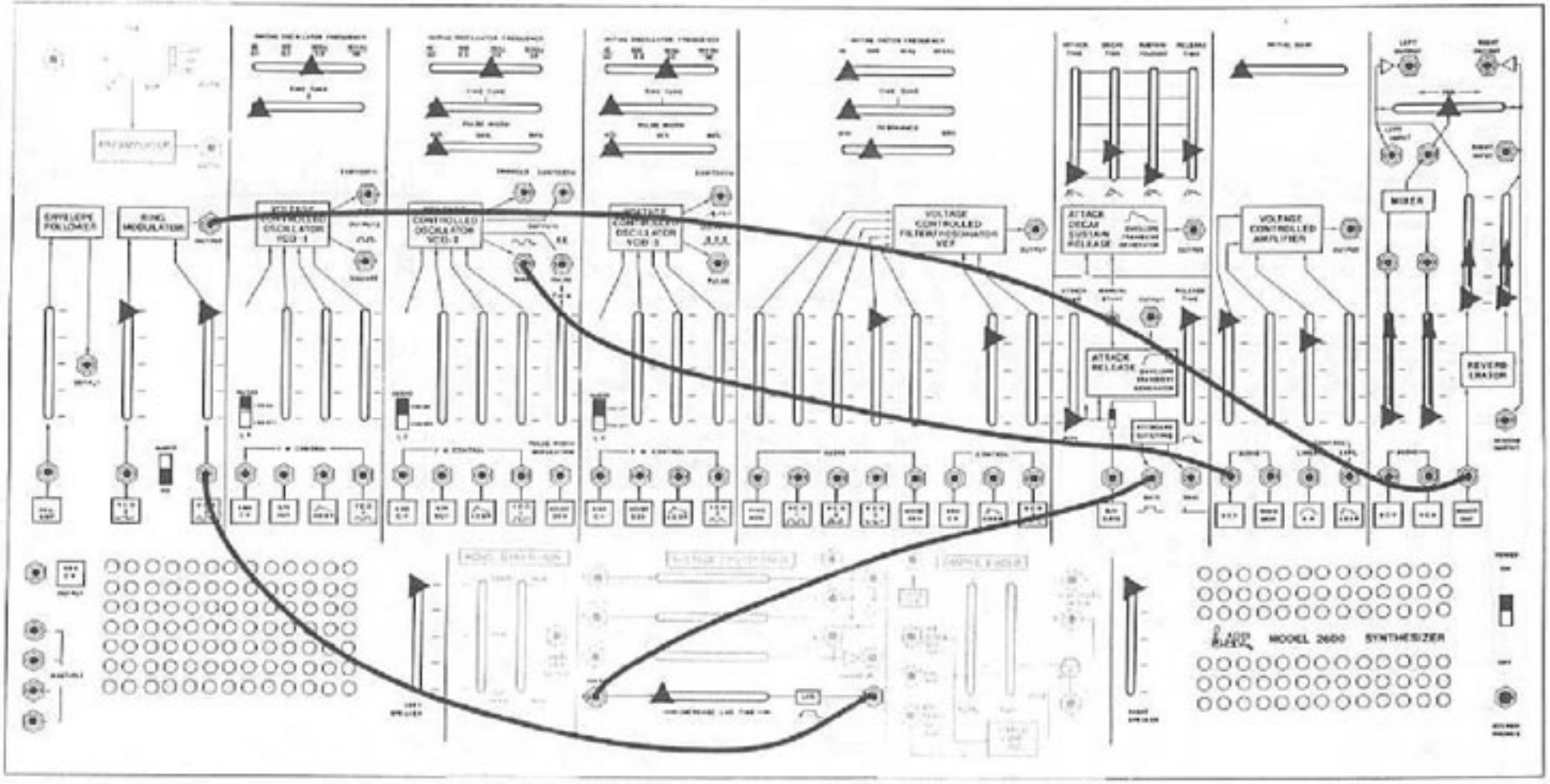


Adjust Inverter for 'glide time'.

4 PATCHCORDS

Ultraglide with Release Memory

79.

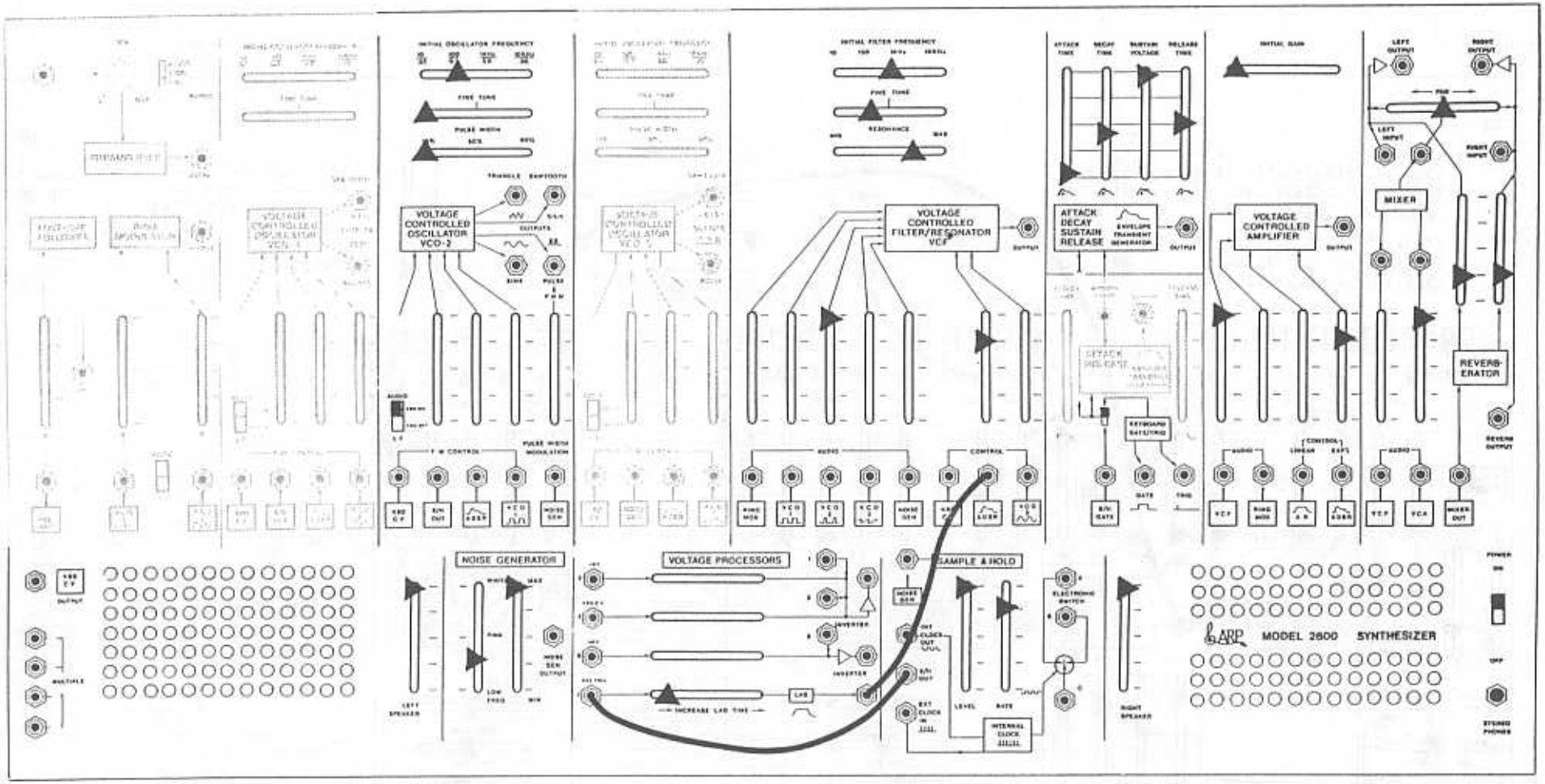


Tune Oscillators as desired.

Balance volume at arrows.

4 PATCHCORDS

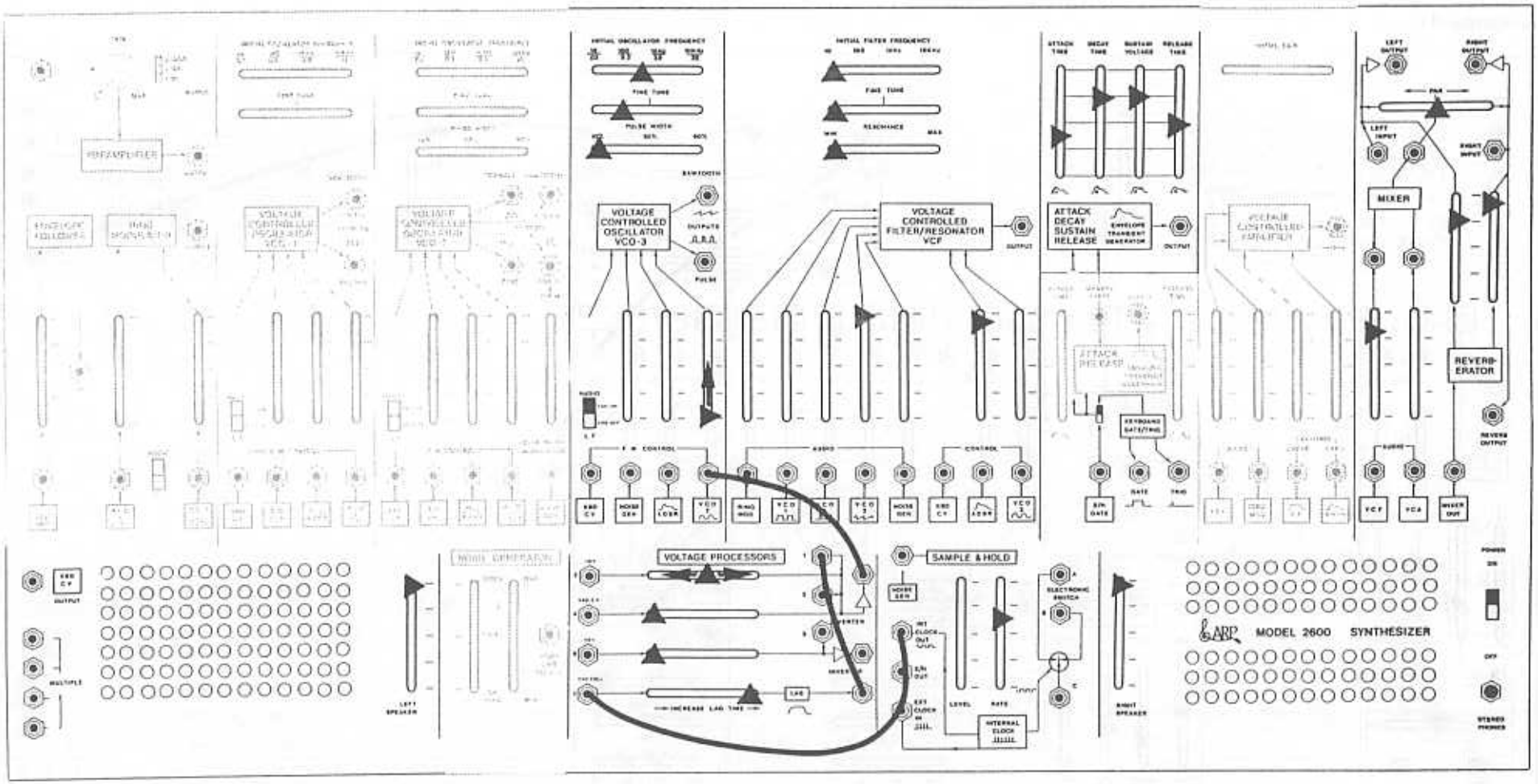
Trio:
Three Separate Envelopes & Timbres **80.**



2 PATCHCORDS

Lagged S/H to Filter

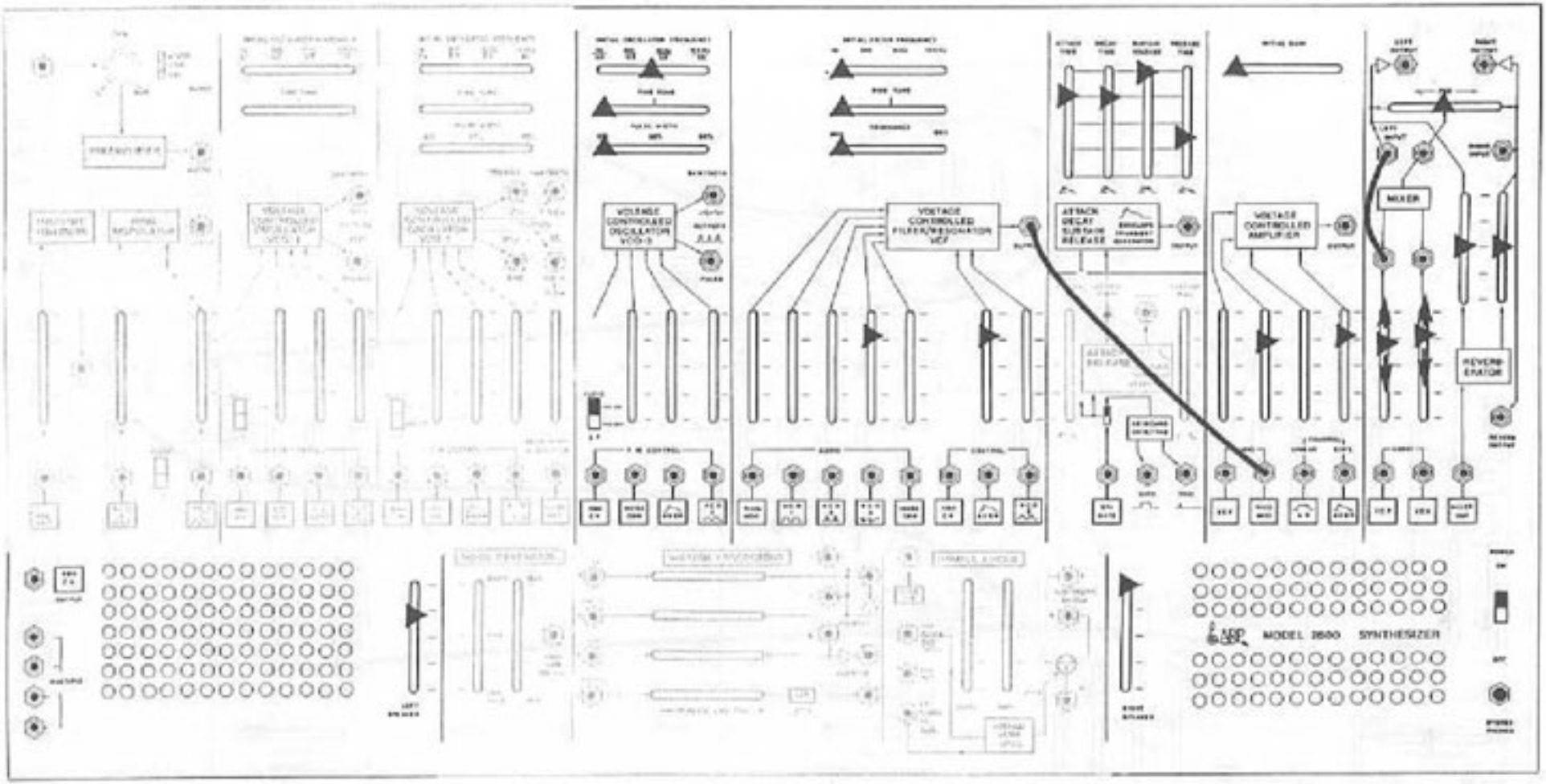
81.



Adjust: Inverter into VCO 3 for fine tuning and vibrato depth.
S/H Rate for vibrato speed.

3 PATCHCORDS

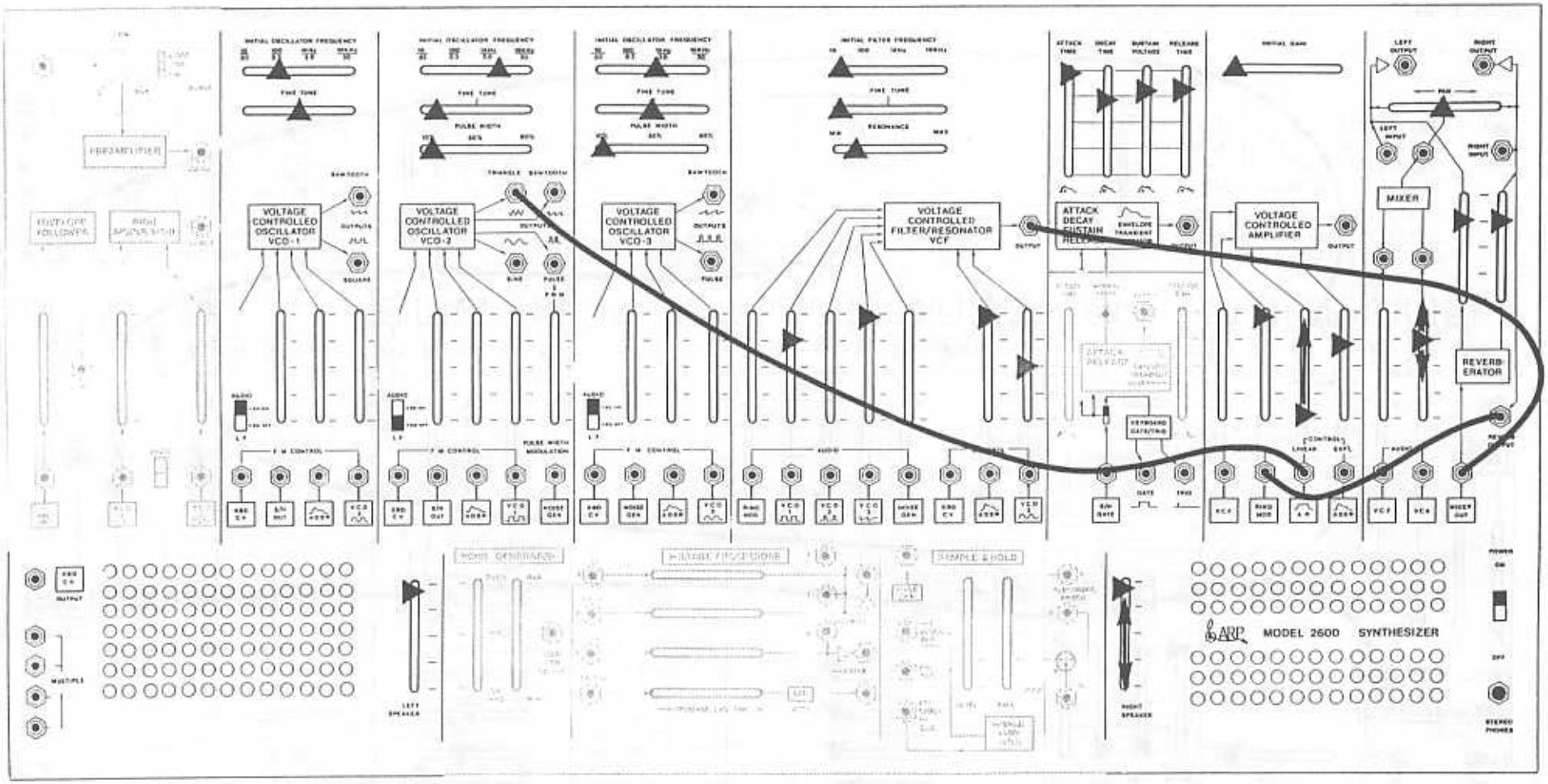
Basic Vibrato from Internal Oscillator 83.



2 PATCHCORDS

1. Hold down any key.
2. Adjust VCF and VCA Mixer sliders for minimum volume in left speaker.
3. Adjust ADSR sliders for speed and position of pan.

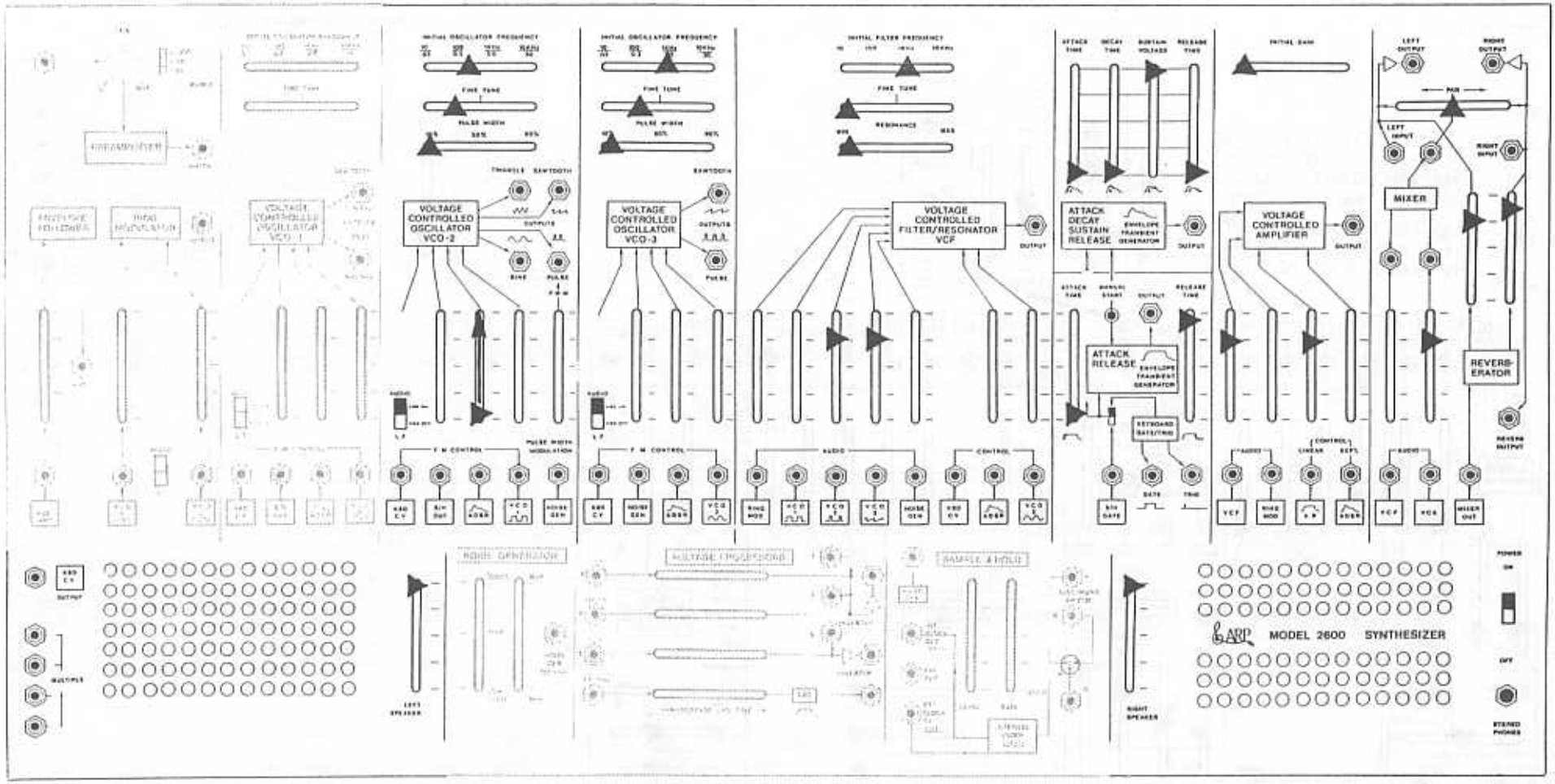
ADSR Pan



1. Tune VCO 1 and 3 as desired.
2. Close right speaker | .
3. Press any key and adjust VCA into Mixer for minimum volume in left speaker.
4. Open right speaker | and raise Linear Control into VCA.
5. Adjust VCO 2 frequency for pan speed.

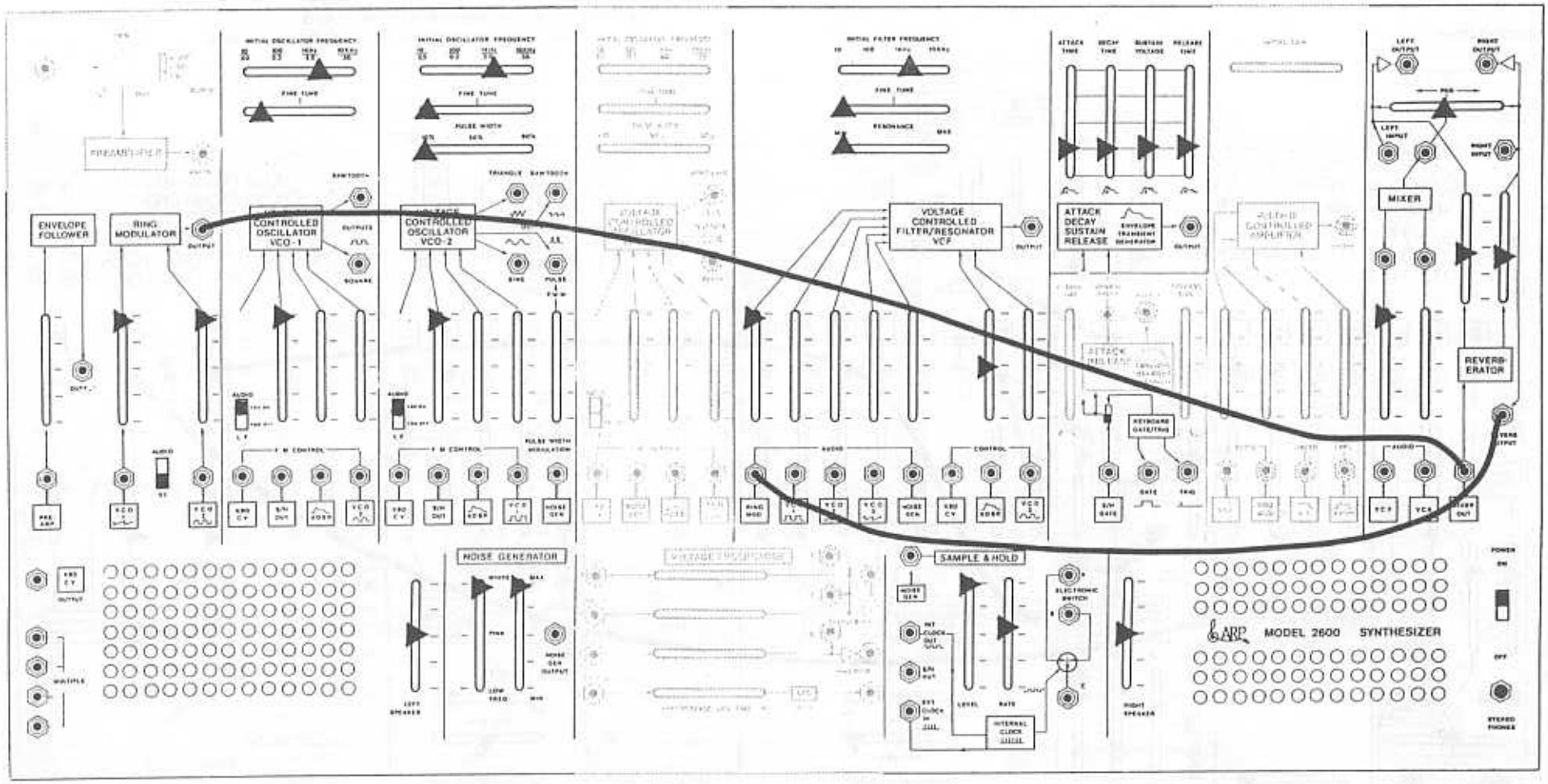
3 PATCHCORDS

Auto-pan with Reverb



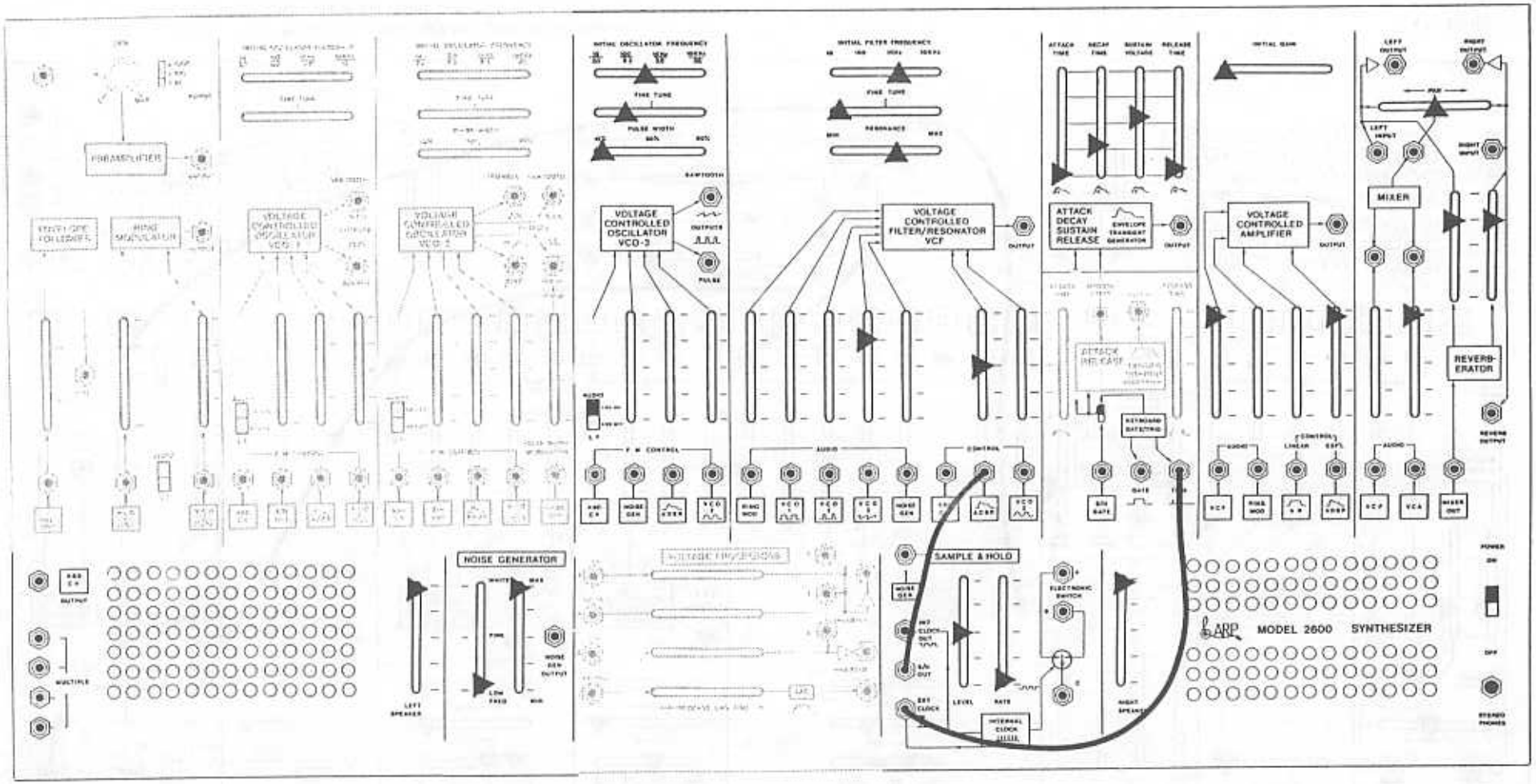
1. Tune VCO 2 and 3 to desired interval.
2. Raise ADSR into VCO 2.
3. Play staccato.

Release-follow



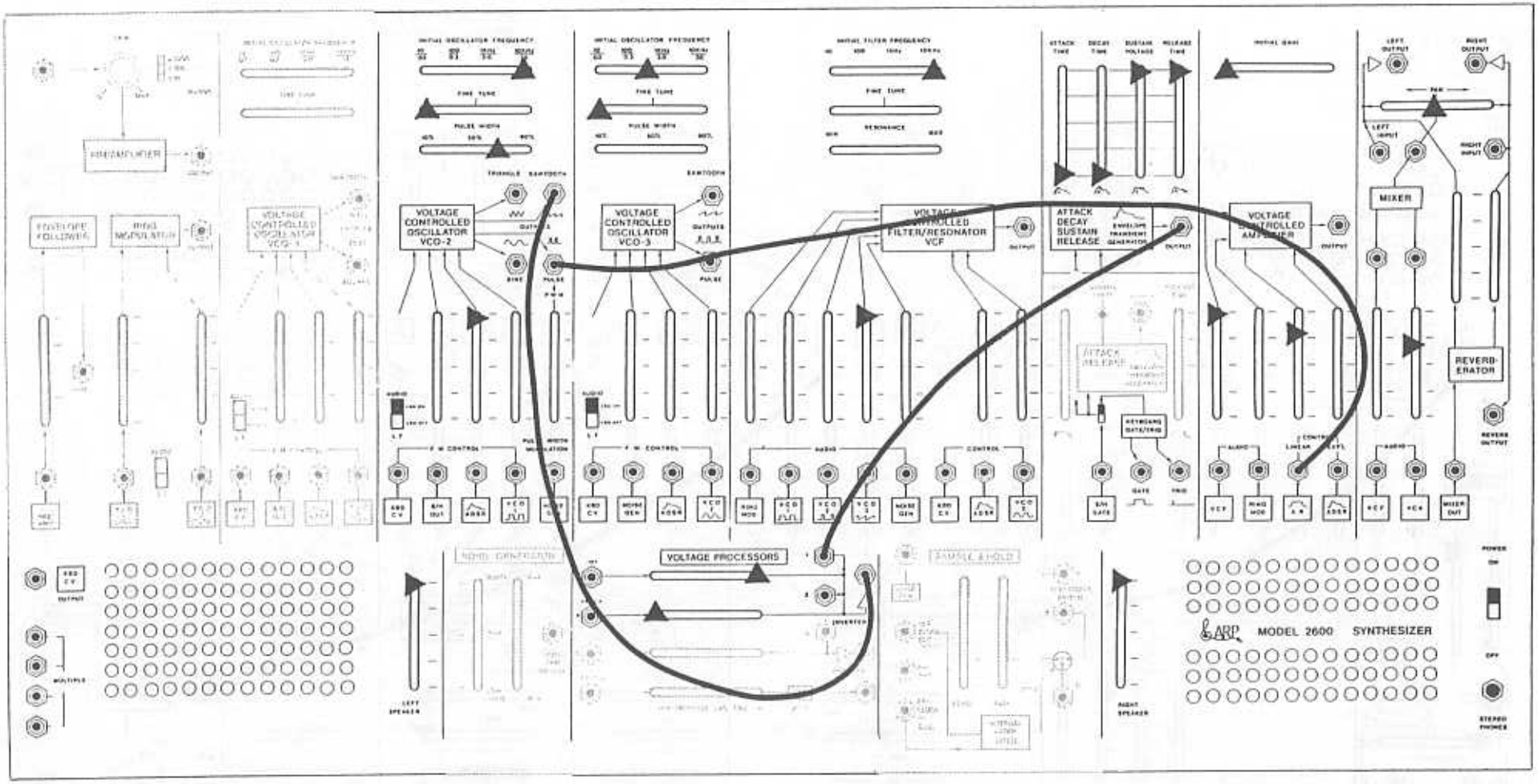
2 PATCHCORDS

S/H Echo



2 PATCHCORDS

Random Filter Sample: Keyboard Triggered

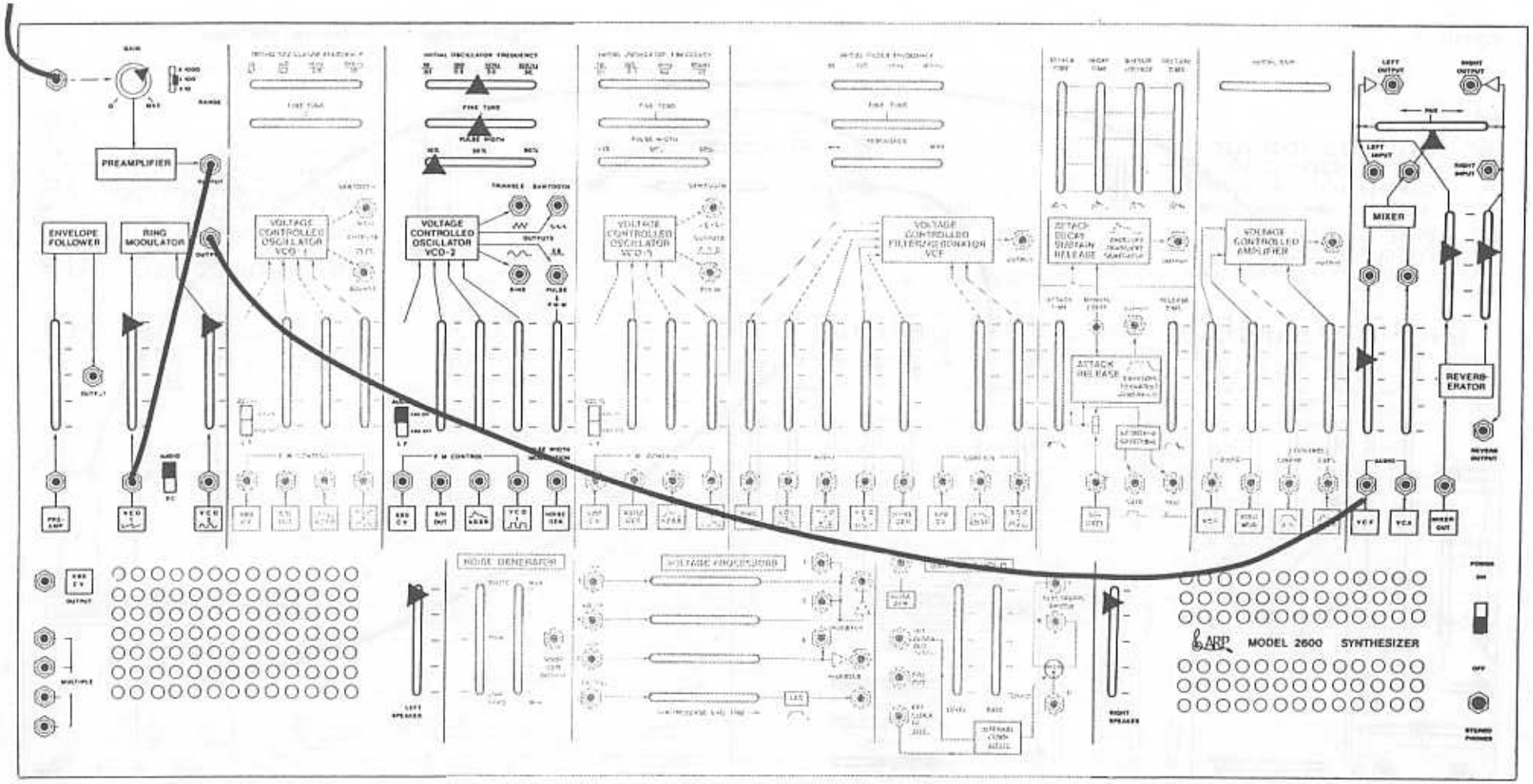


Adjust VCO 2 Pulse Width for envelope length.

3 PATCHCORDS

Voltage-controlled On-time

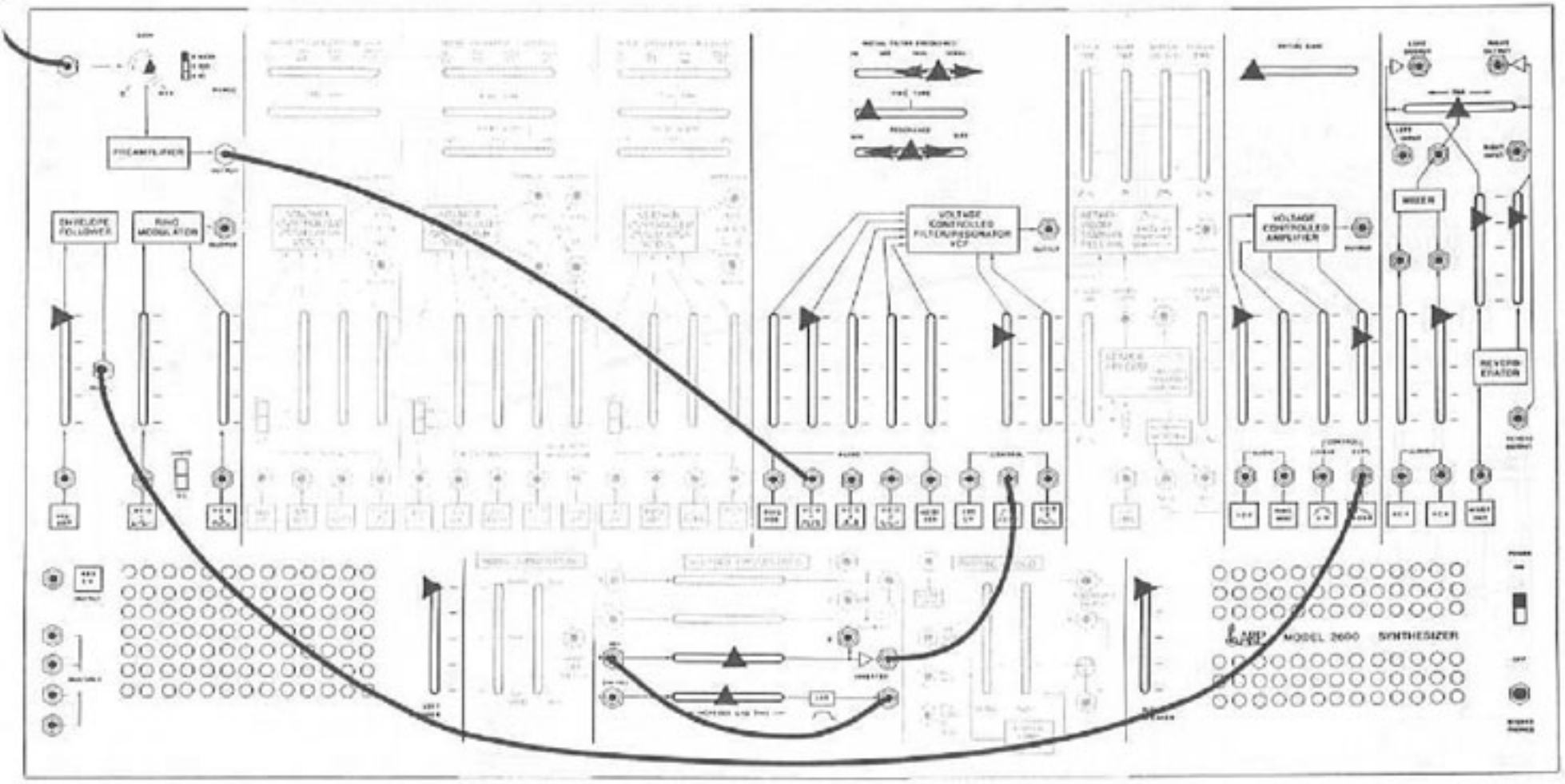
Signal Source



2 PATCHCORDS

Modulated External Source

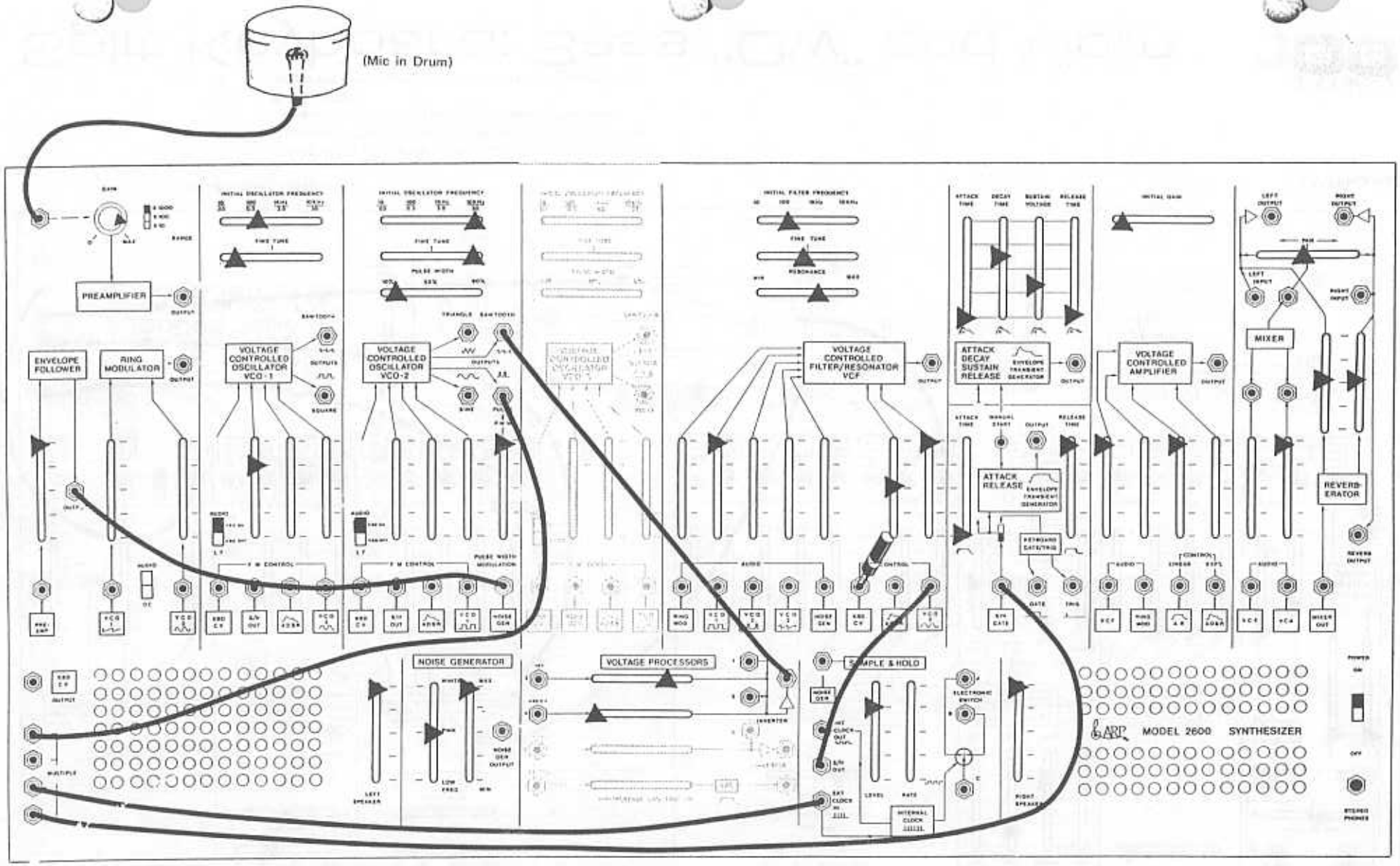
Signal Source



Adjust VCF frequency and Resonance as desired.

4 PATCHCORDS

"Ow" on External Source

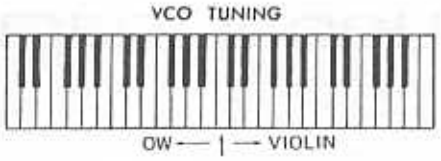


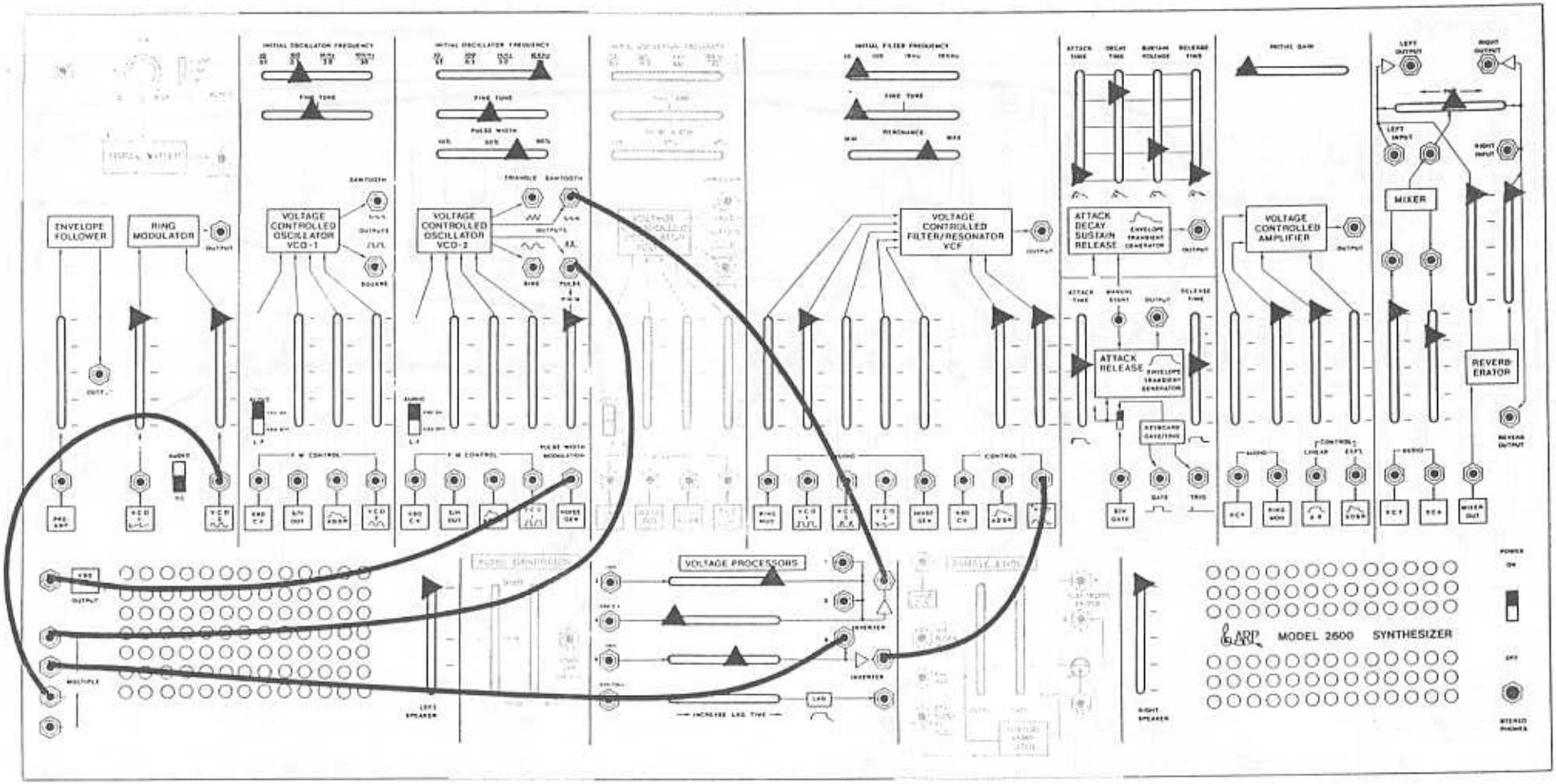
Adjust Preamp Gain for Gate sensitivity.

6 PATCHCORDS

Drum-controlled ADSR and S/H

99.



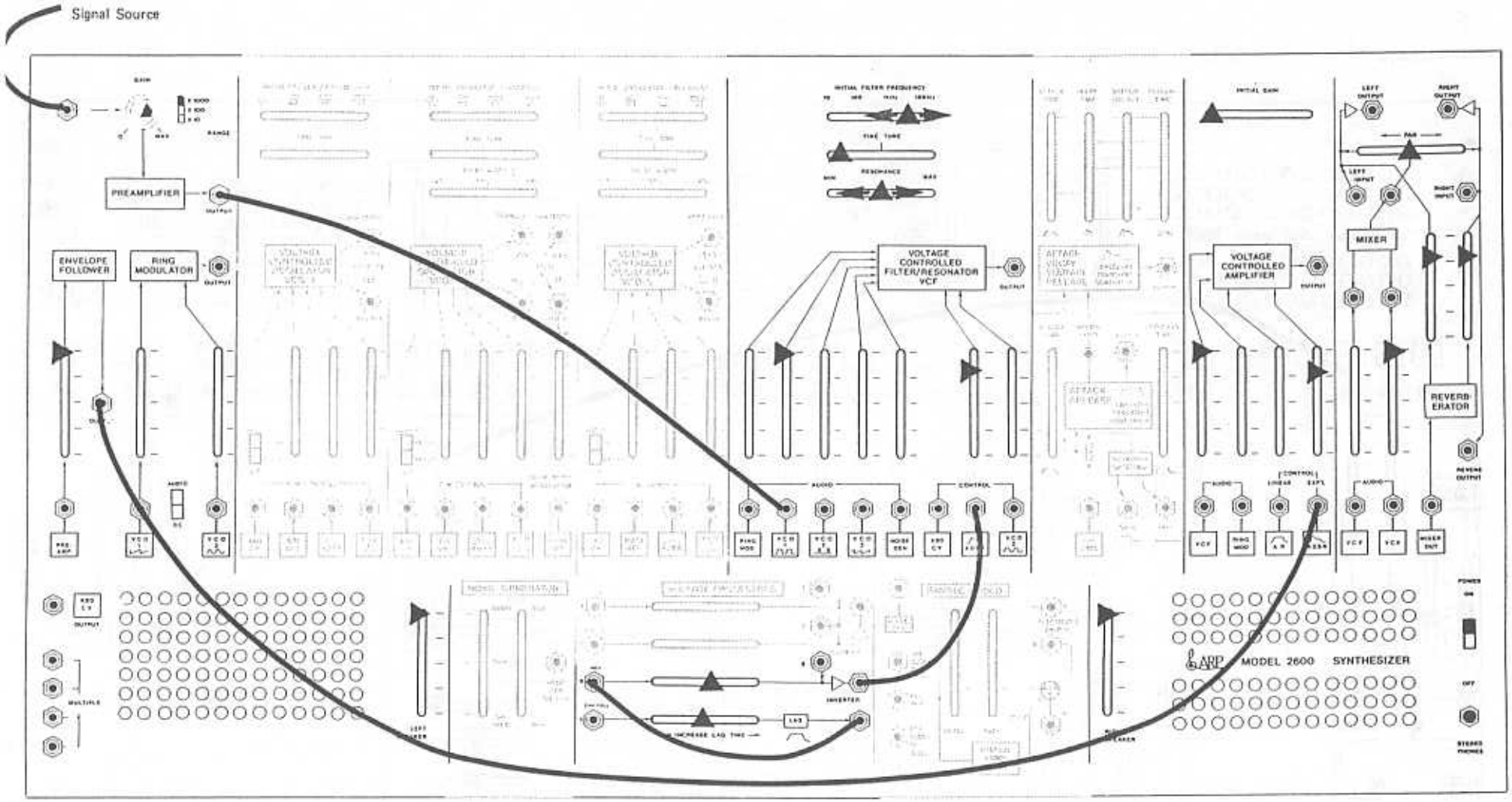


Split Keyboard Adjustments:

6 PATCHCORDS

1. Adjust VCO 2 Pulse Width while playing Keys C3 and Csharp3 alternately. You are fine tuning the placement of the split so that a violin will be heard on Csharp 3 and an 'Ow' will be heard on C3.
2. Adjust the +10V inverter slider for desired filtering on 'Ow'.

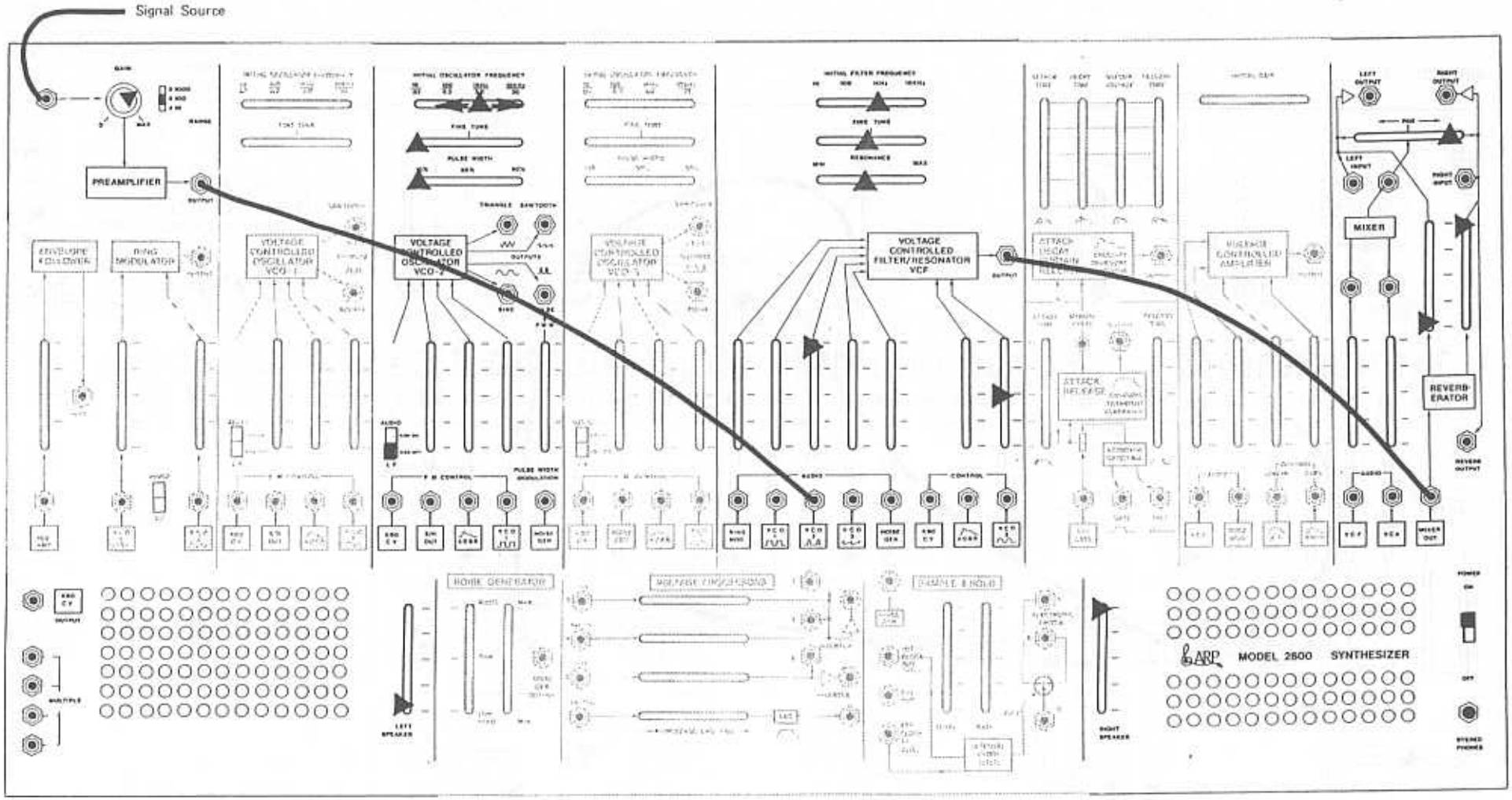
Split Keyboard: Bass "Ow" and Violin



Adjust VCF frequency and Resonance as desired.

4 PATCHCORDS

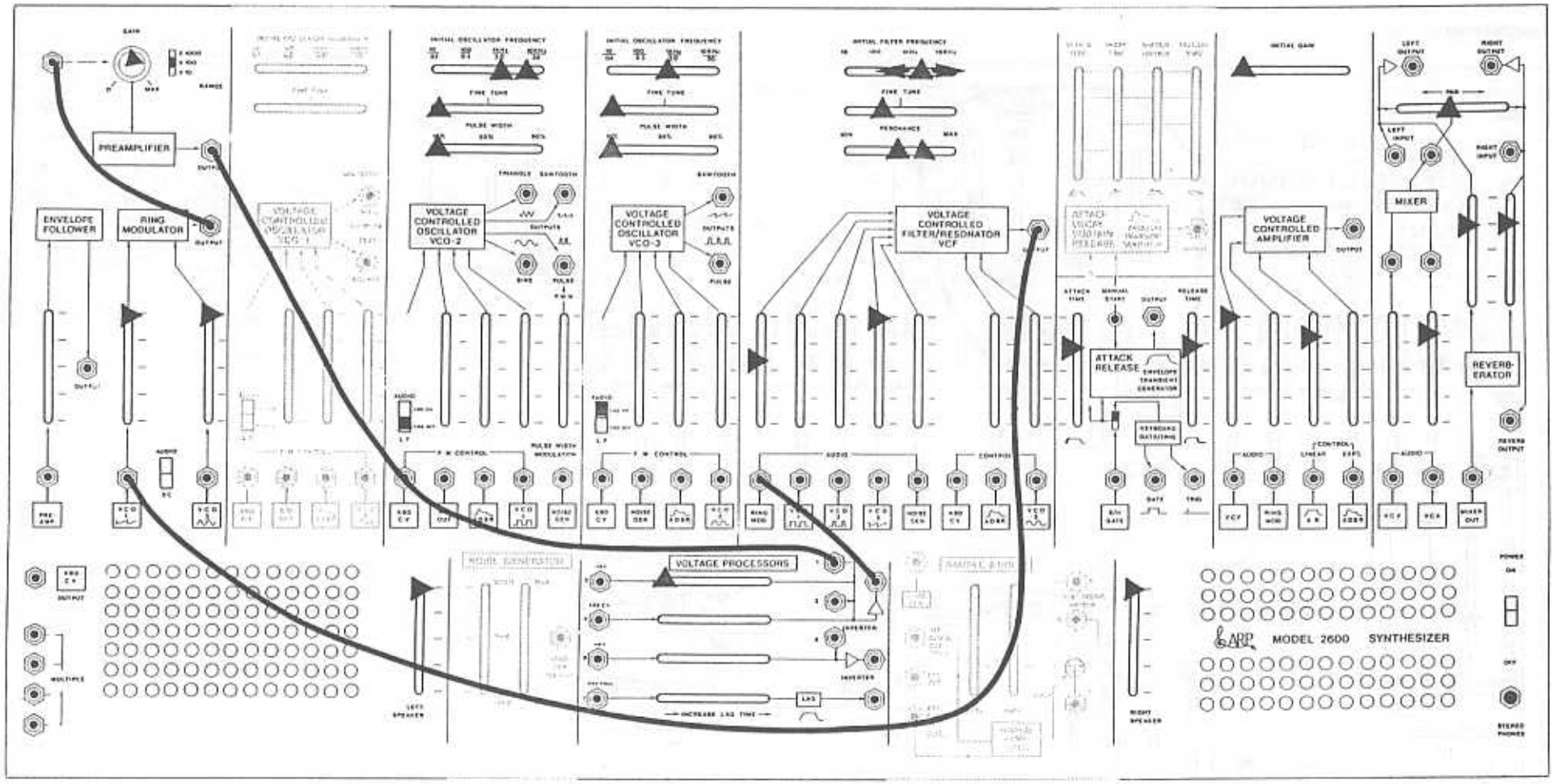
"Ow" on External Source



Adjust: VCO 2 ∿ | into VCF for phase.
VCO 2 frequency for phase-shifting speed.

2 PATCHCORDS

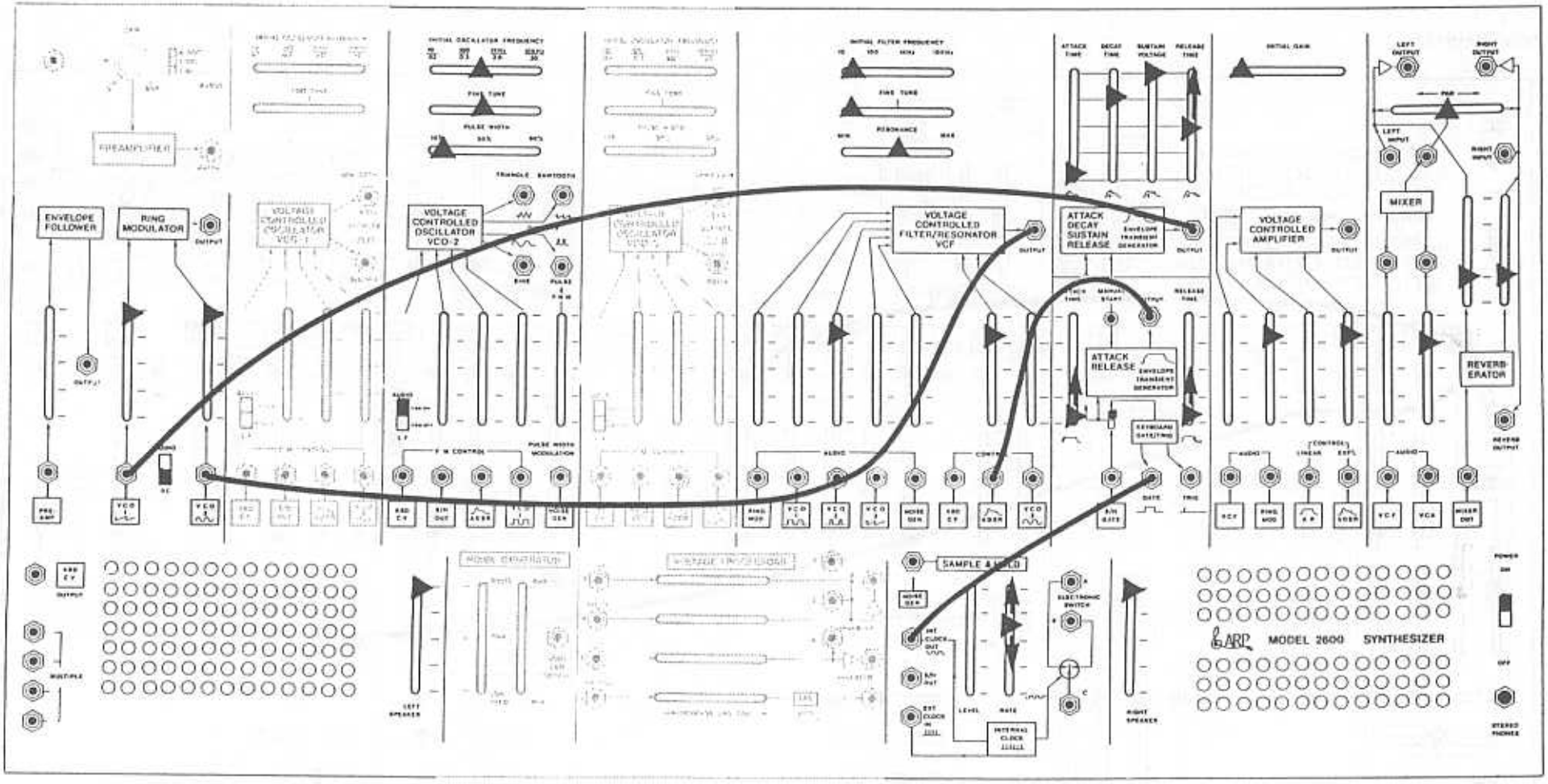
Ethereal Phase-shifting on External Source



Note: This patch will give you a basic pitch and a harmonic which fades in and out.
Different harmonics may be selected by altering the VCF frequency.

4 PATCHCORDS

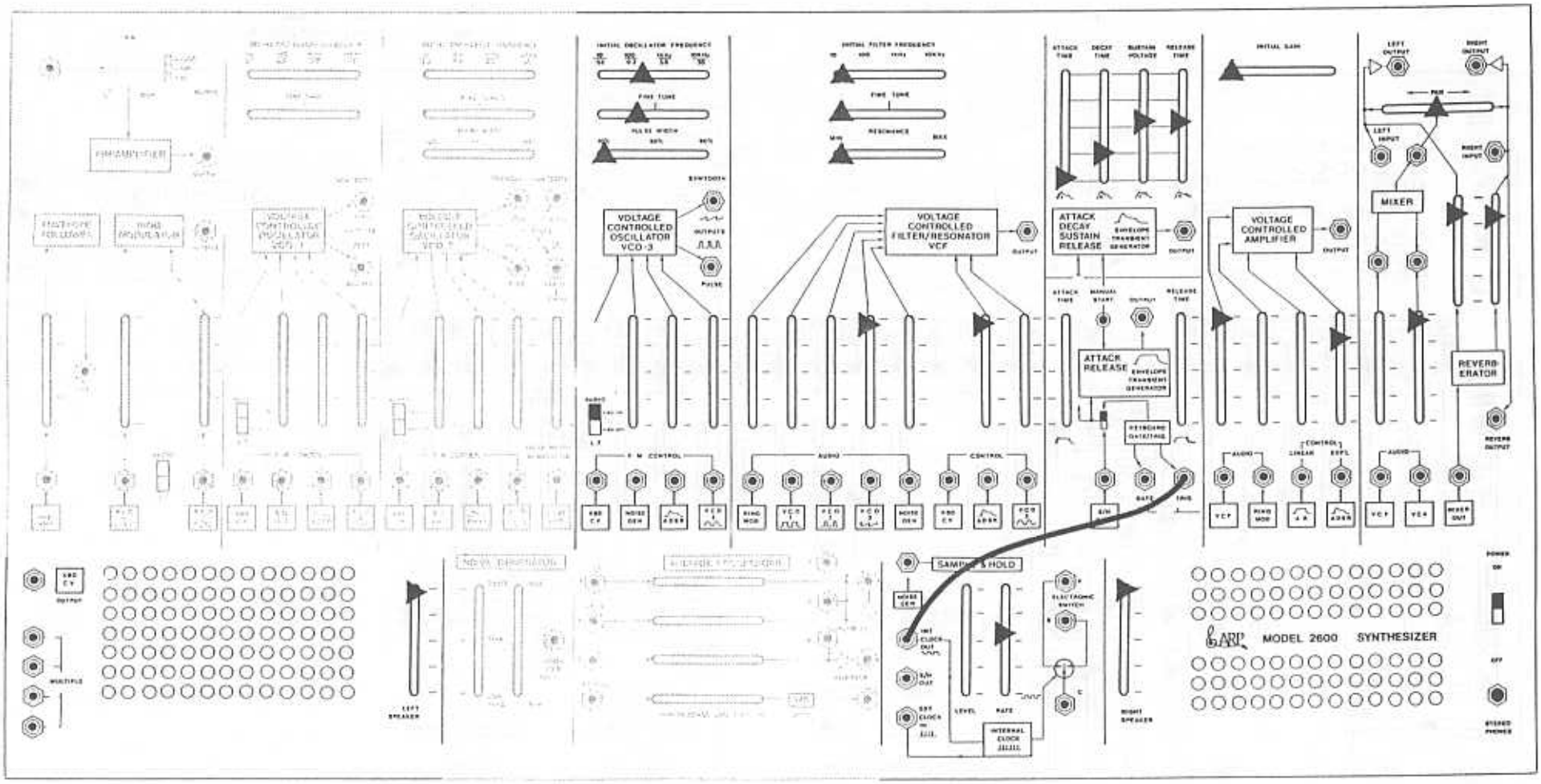
Voltage-controlled Resonance



Note: ADSR release determines number of repeats.
Echo is used on single notes only—AR is repeating envelope on fade-out.
AR can be altered for repeated 'wow' effect.
Adjust S/H Rate for repeat rate.

4 PATCHCORDS

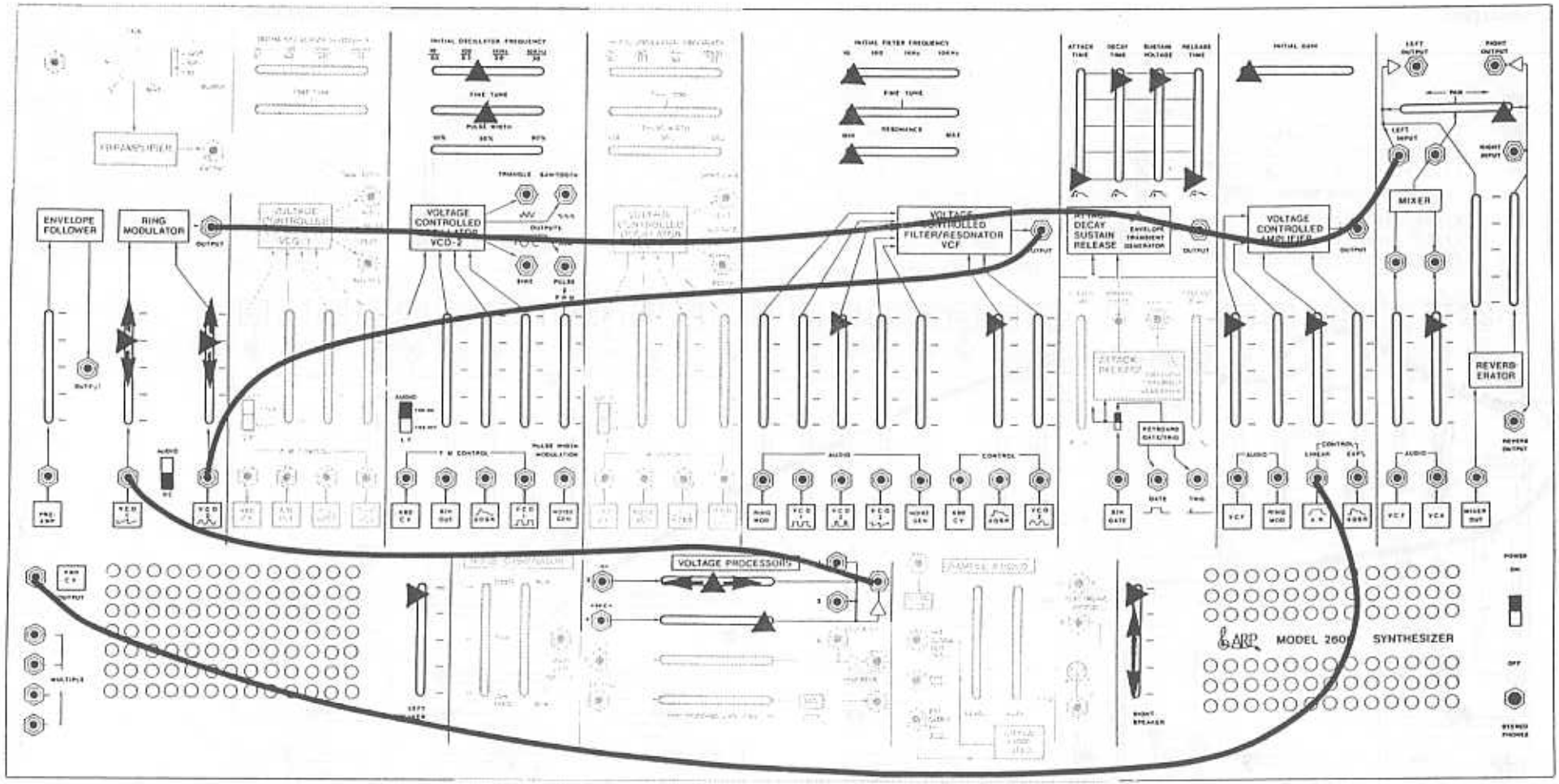
Echoperplex



Adjust S/H Rate for repeat speed.

1 PATCHCORD

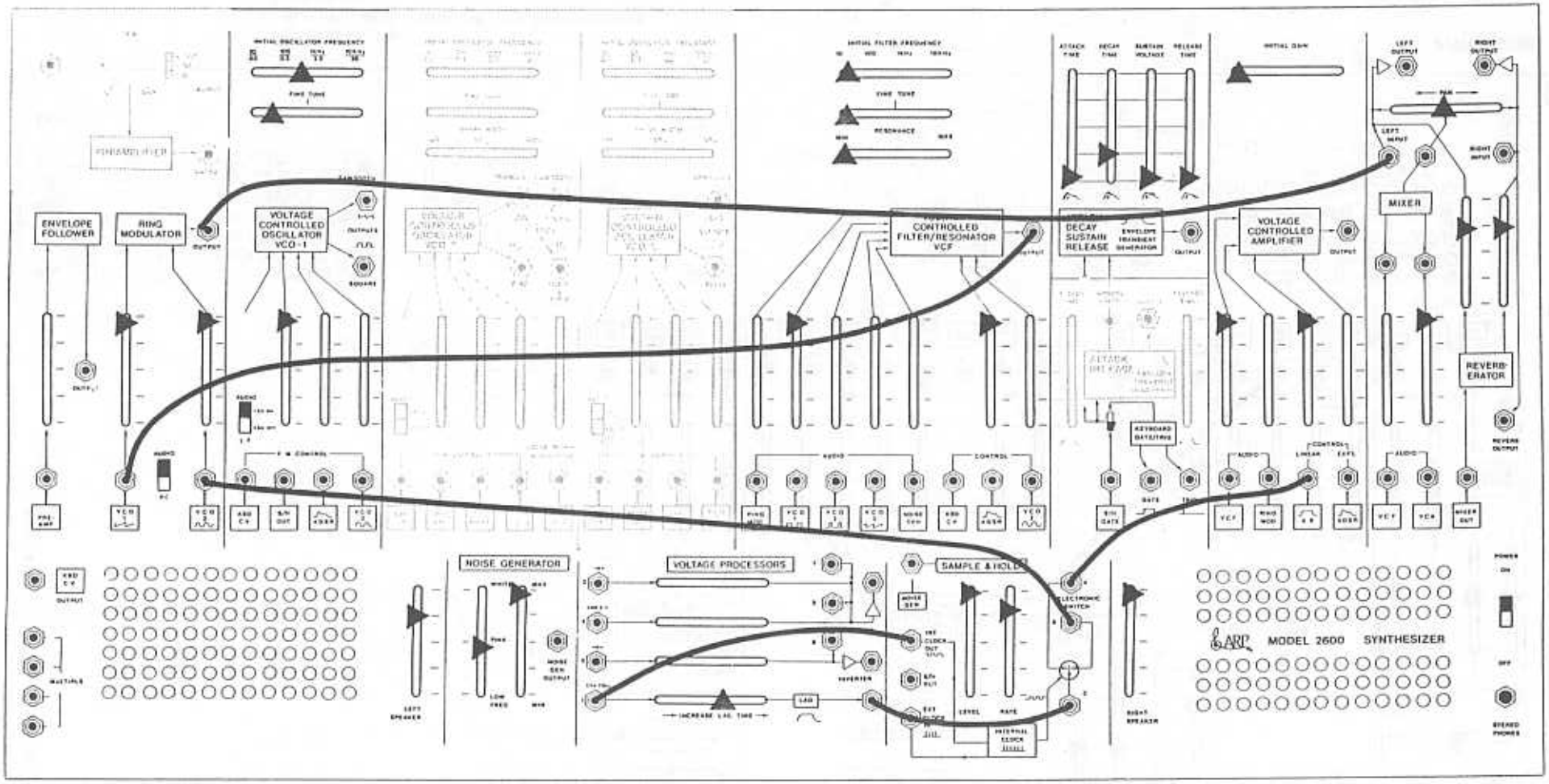
Touch-repeat



1. Close right speaker
2. Press Key C5 and adjust Inverter slider to get minimum volume in left speaker.
3. Open right speaker.
4. Adjust input sliders on Ring Modulator for balance while depressing Key C3.

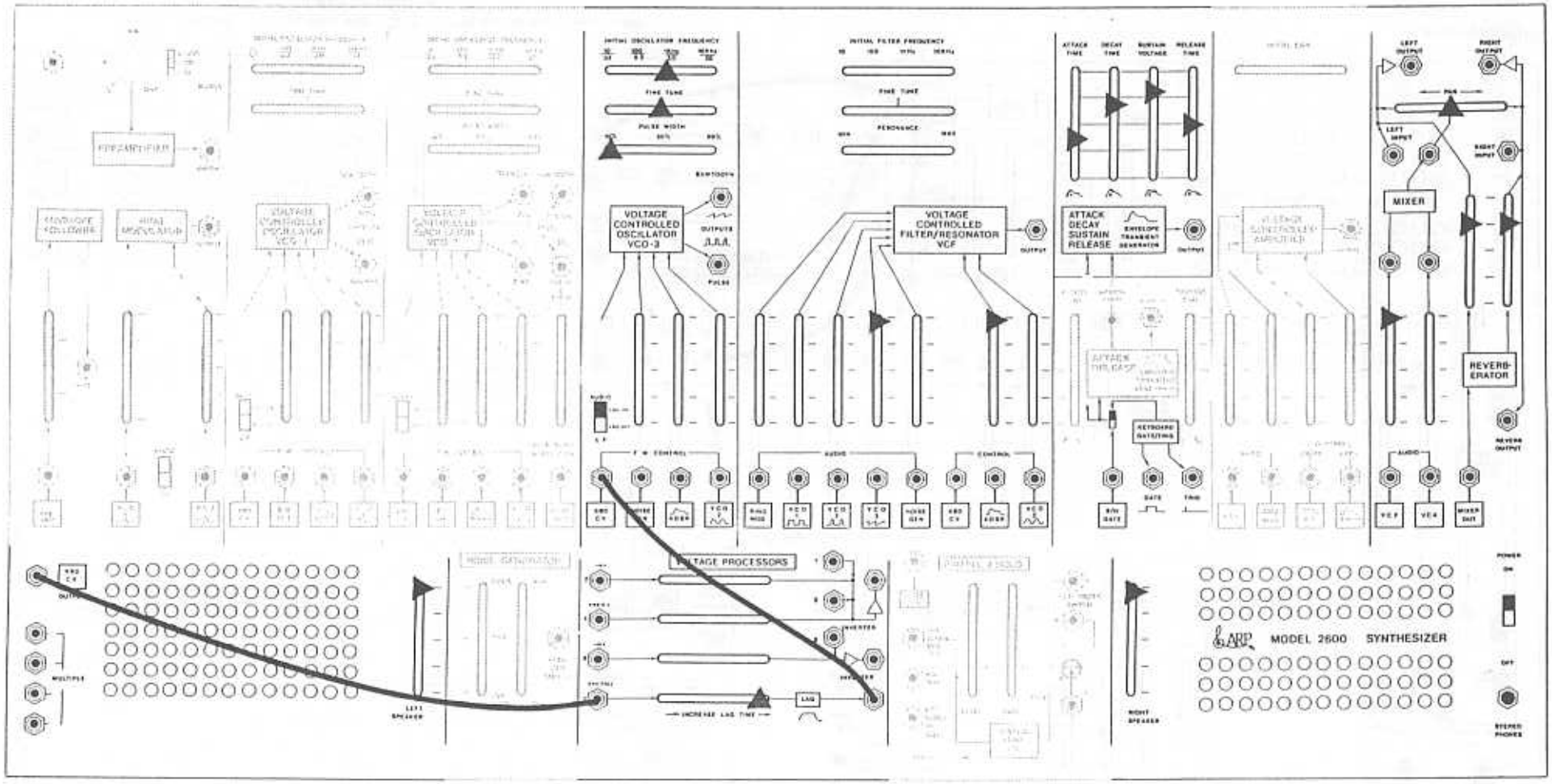
4 PATCHCORDS

Keyboard-controlled Pan



6 PATCHCORDS

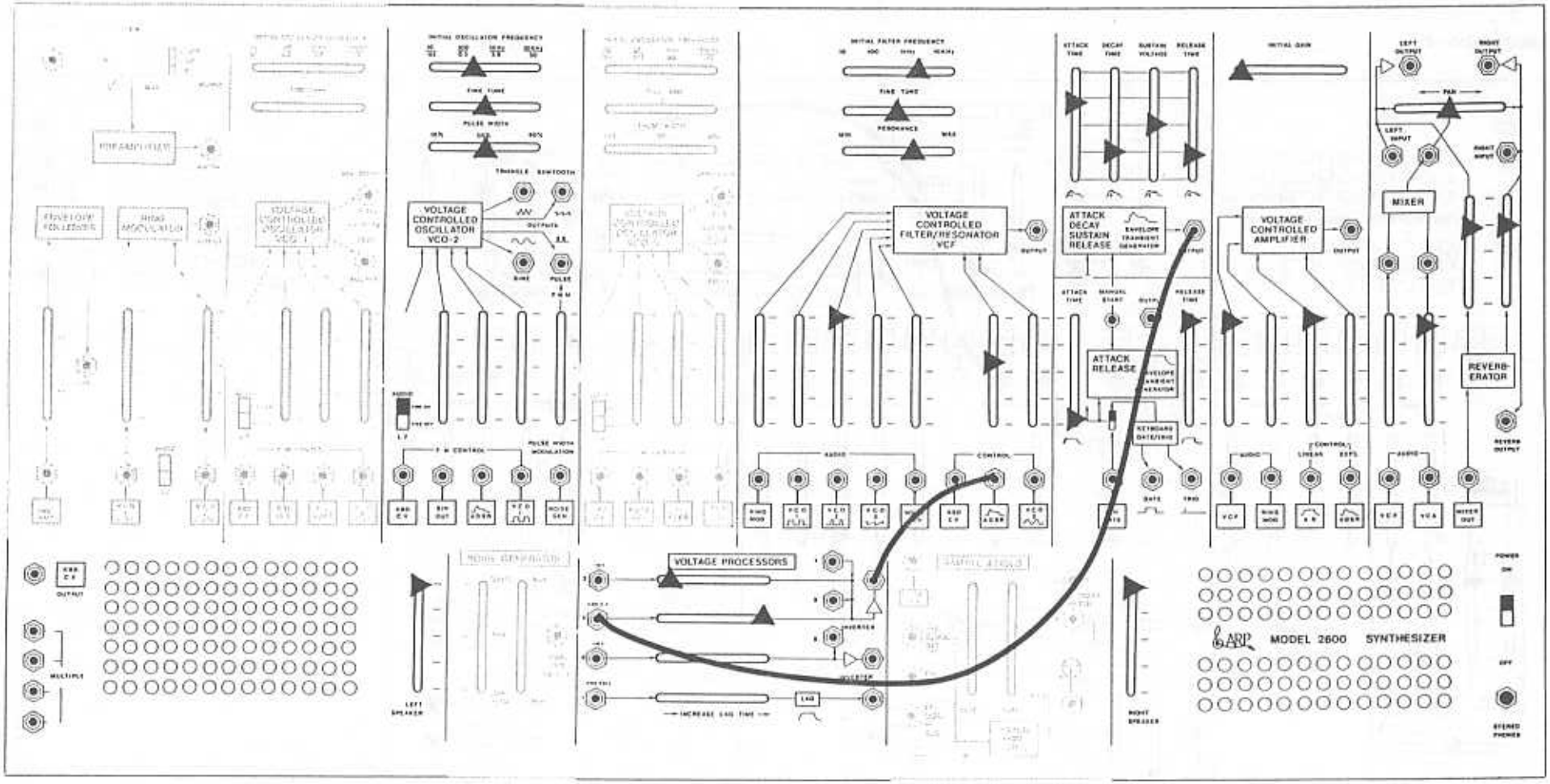
Auto-pan on S/H



2 PATCHCORDS

Lagged Keyboard Voltage

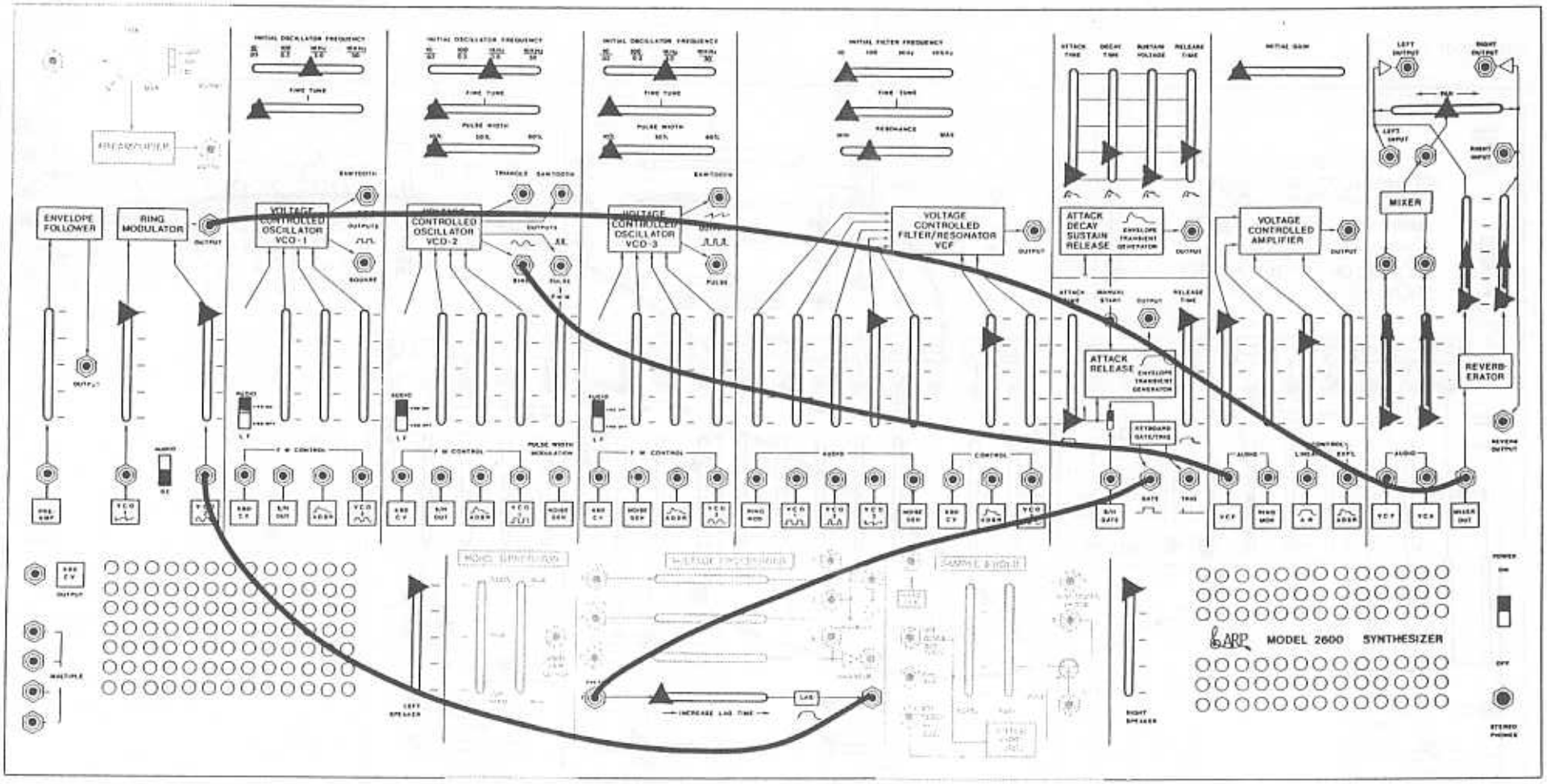
84.



Adjust VCF frequency for desired 'owwa';

2 PATCHCORDS

"Owwa" or Inverted ADSR to VCF

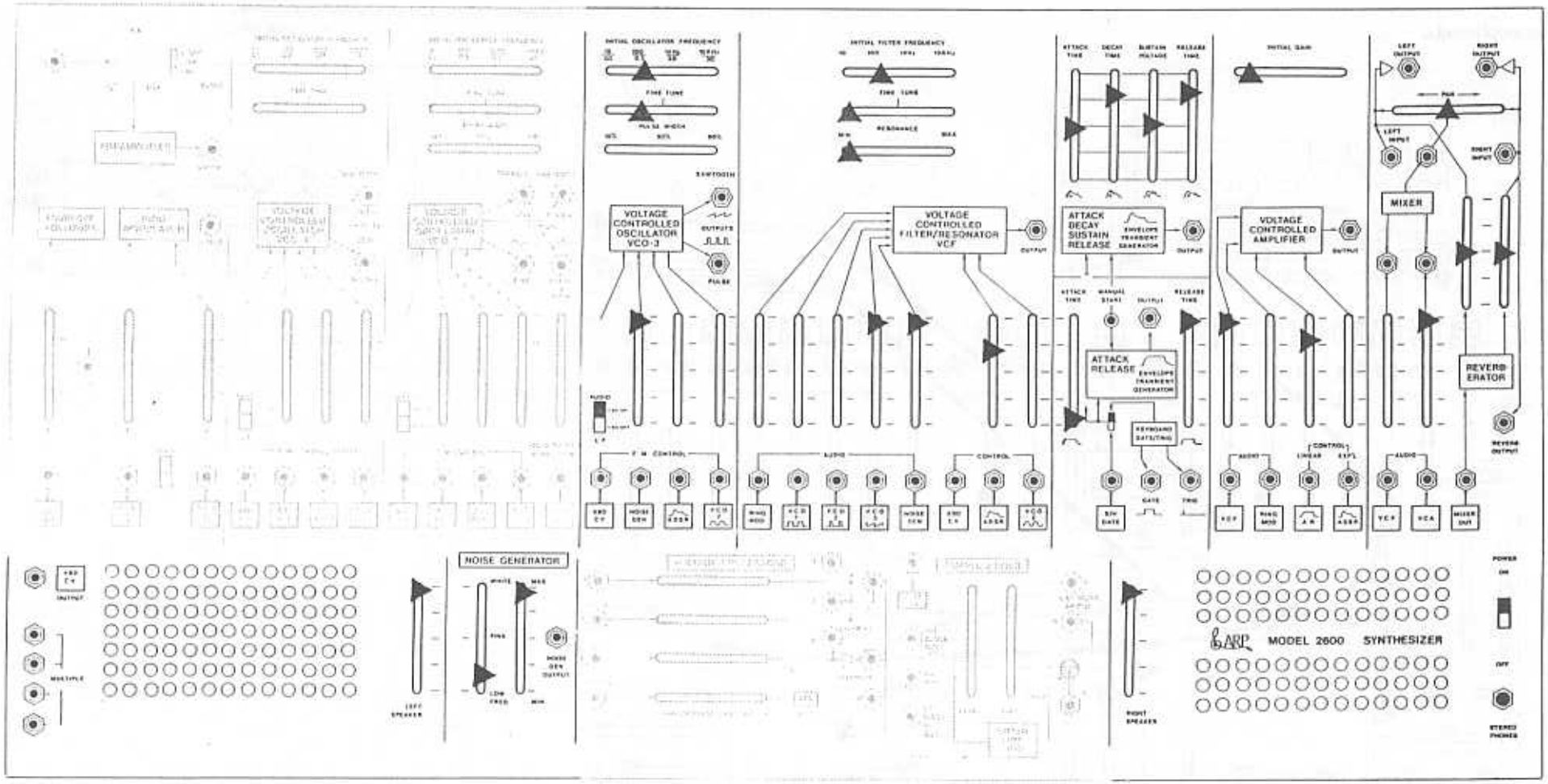


Tune Oscillators as desired.

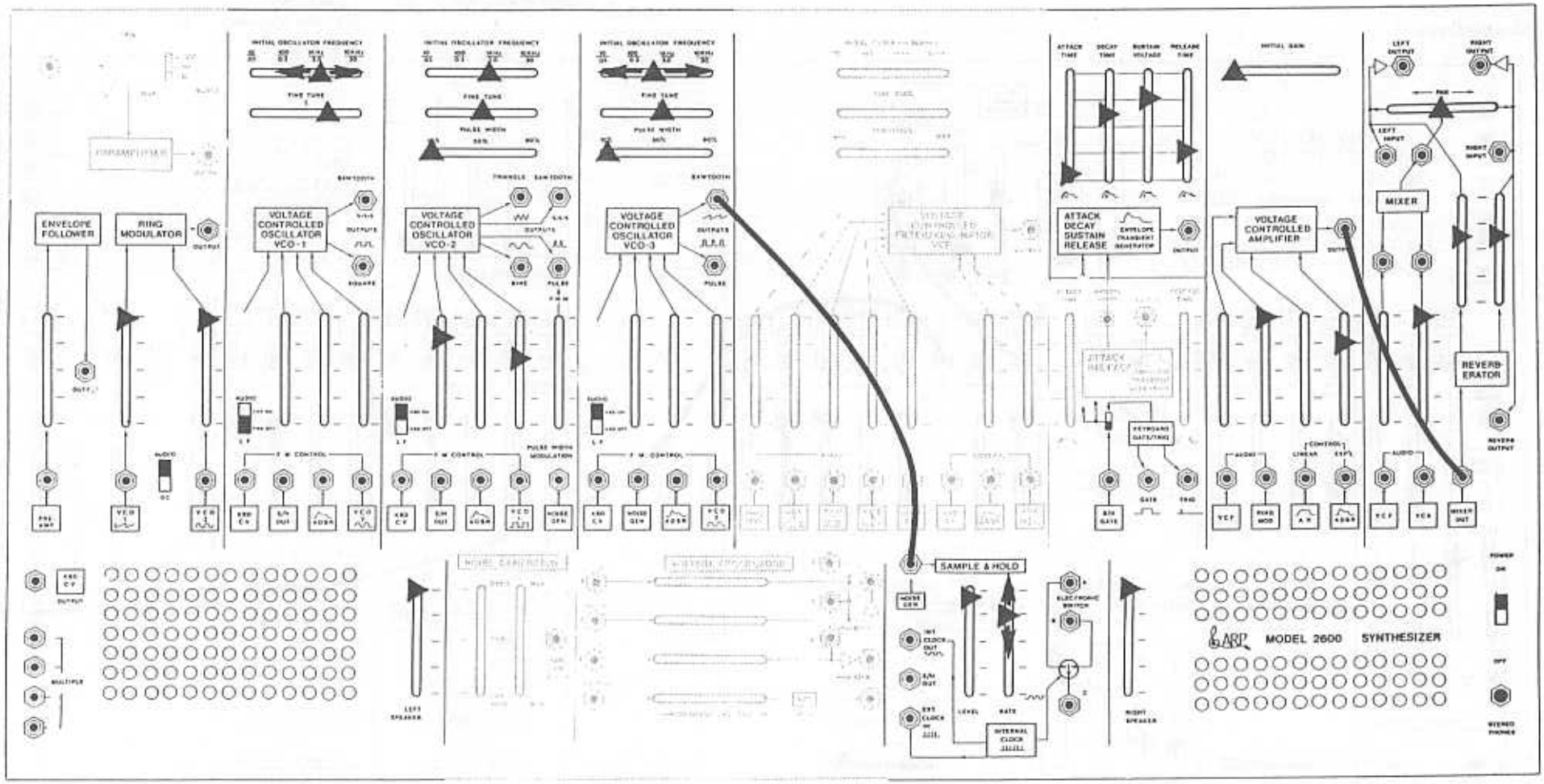
Balance volume at arrows.

4 PATCHCORDS

Trio:
Three Separate Envelopes & Timbres **80.**


VOLTAGE CONTROLLED OSCILLATOR VCO-3
VOLTAGE CONTROLLED FILTER/RESONATOR VCF
ATTACK DECAY SUSTAIN RELEASE
ATTACK RELEASE
VOLTAGE CONTROLLED AMPLIFIER
MIXER
REVERB ERATOR
NOISE GENERATOR
ARP MODEL 2600 SYNTHESIZER

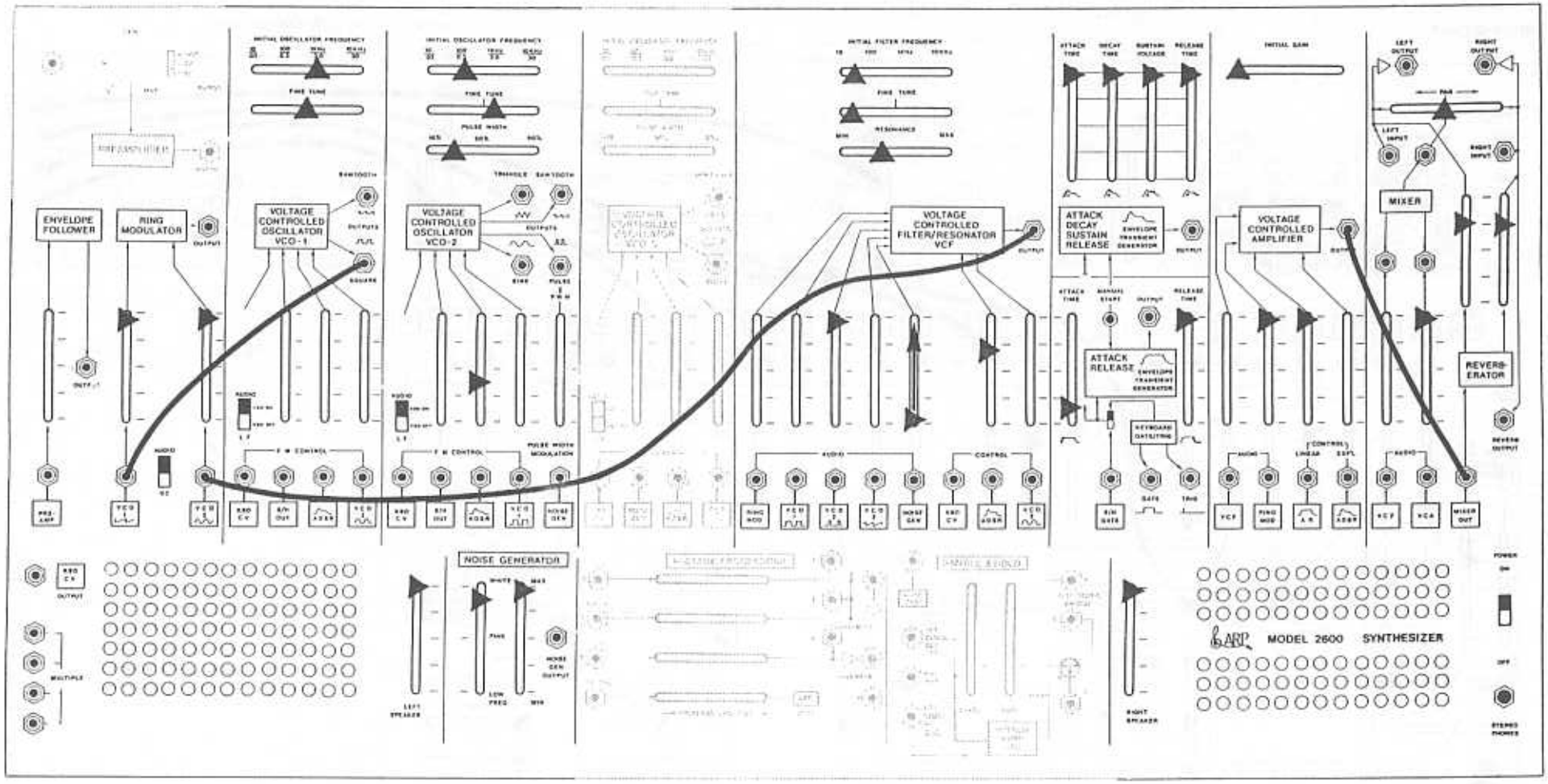
Explosion



Adjust: VCO 1 frequency for speed of pattern.
VCO 3 frequency for different patterns.
S/H Rate for speed of drops.

2 PATCHCORDS

Prancing Raindrops

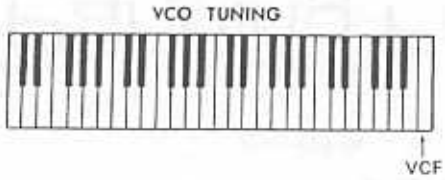


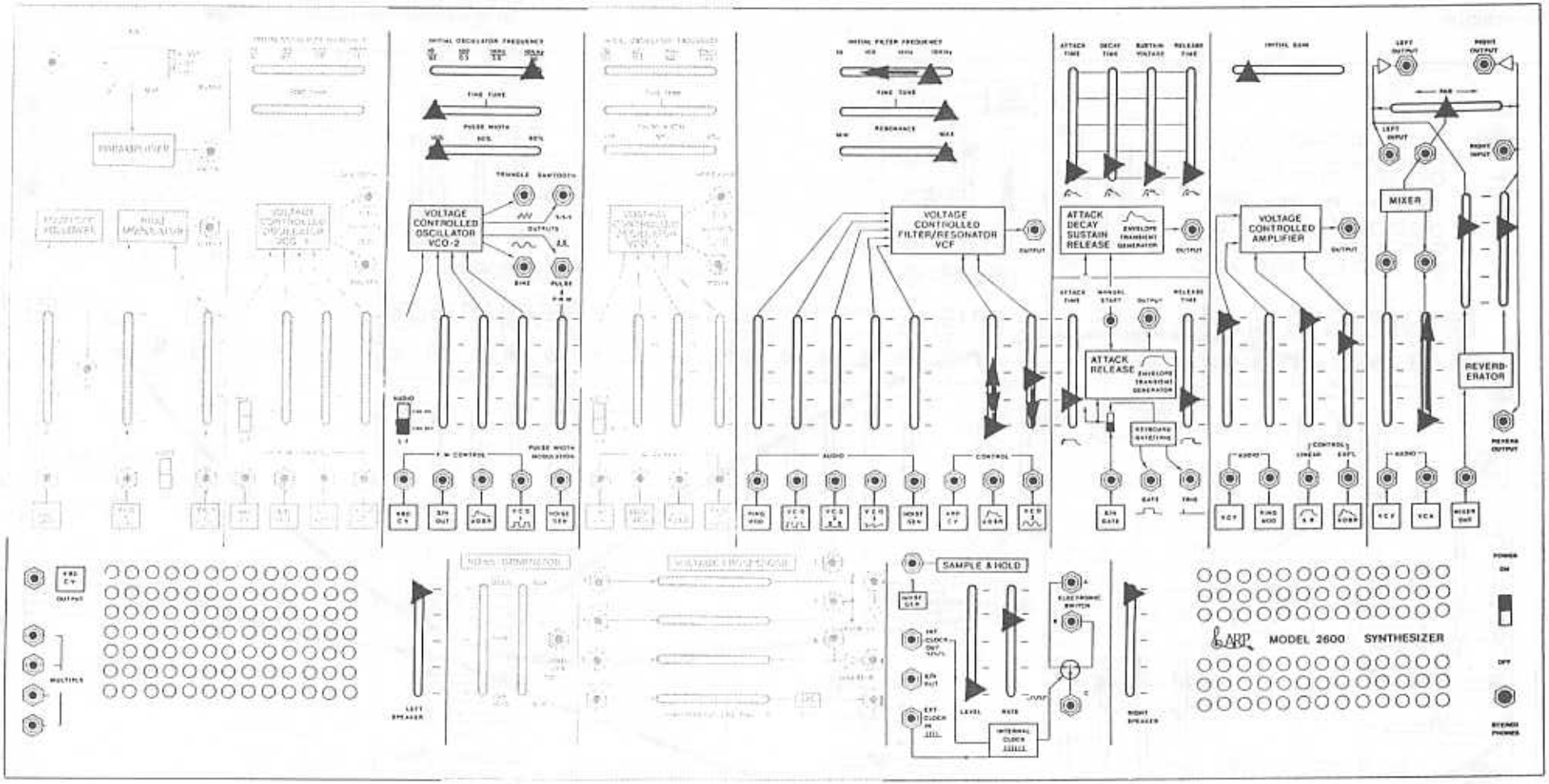
Raise Noise into VCF for special effects.

PLAY KEY Eflat3

3 PATCHCORDS

Wampus Monster

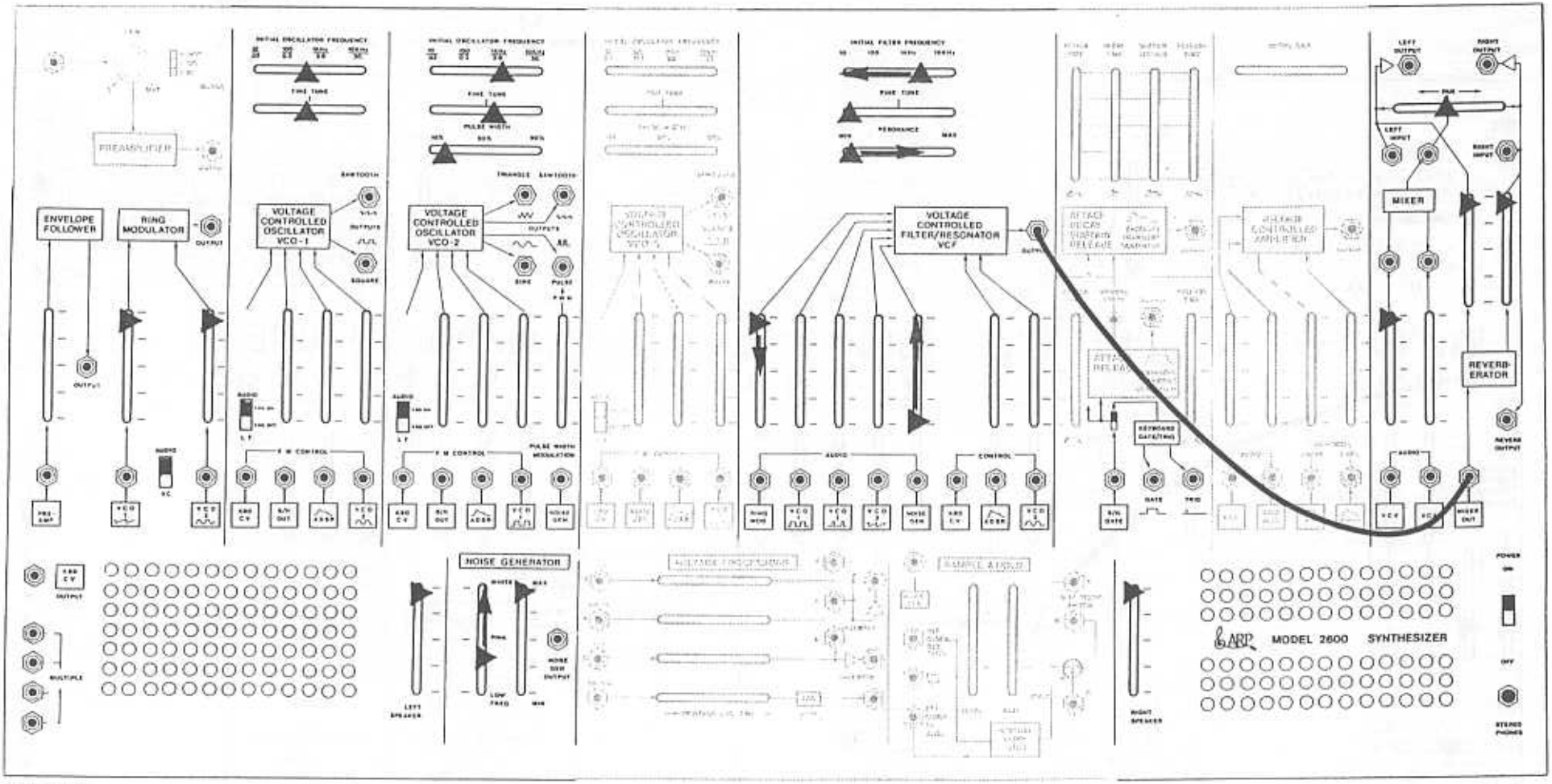




SEQUENCE:

1. Raise VCA into Mixer.
2. Move VCF frequency from 10K to 100 slowly.
3. Lower VCO 2 ∿ | at VCF and jerk ADSR slider into VCF up and down in time to the drum solo.

Edgar Winter's "Frankenstein"



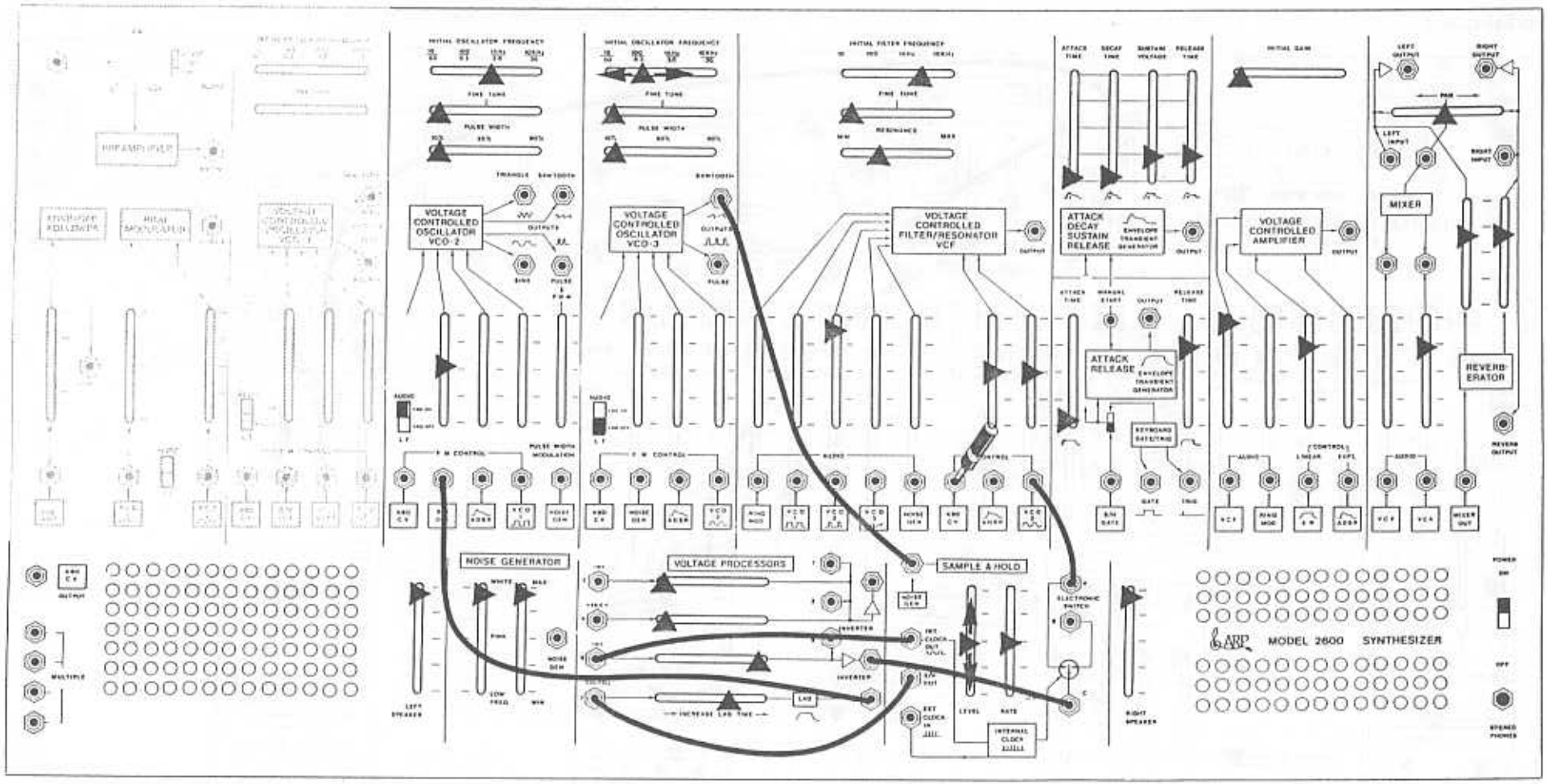
Portamento

1 PATCHCORD

Procedure:

1. Play Key C1, glide to C5.
2. Raise Noise into VCF.
3. Lower Ring Mod at VCF as shown.
4. Raise Noise color—Pink to White.
5. Simultaneously, move VCF frequency to left and move Resonance to right.

727 Starting Up, Taxiing & Taking Off 70.

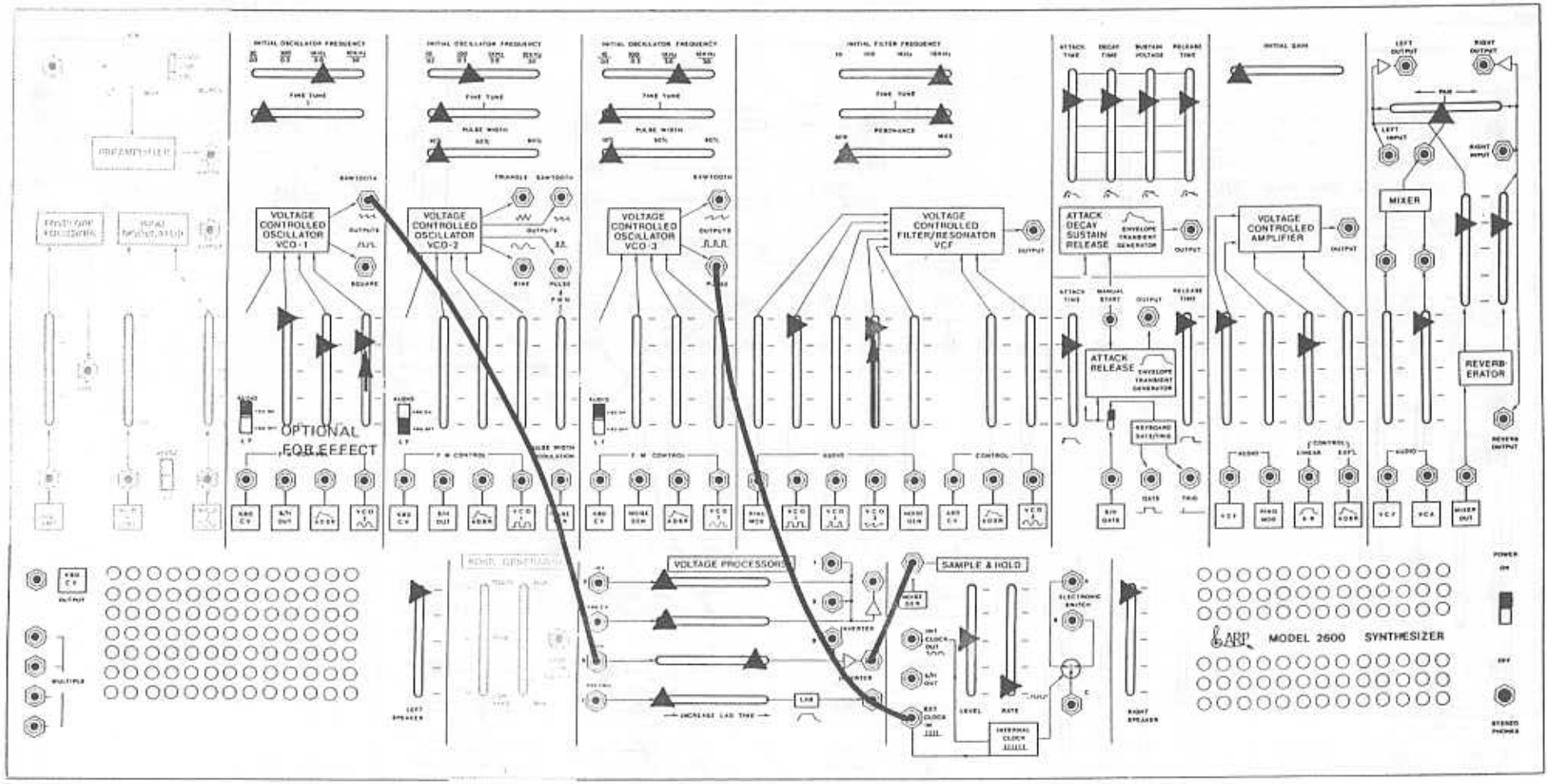


Tune: VCO 3 for desired pattern,
S/H level for desired interval.

6 PATCHCORDS

1 DUMMY PLUG

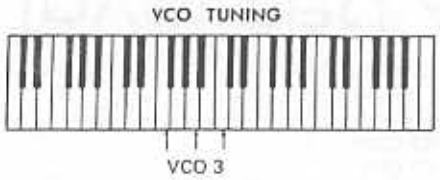
Gliding Intervals

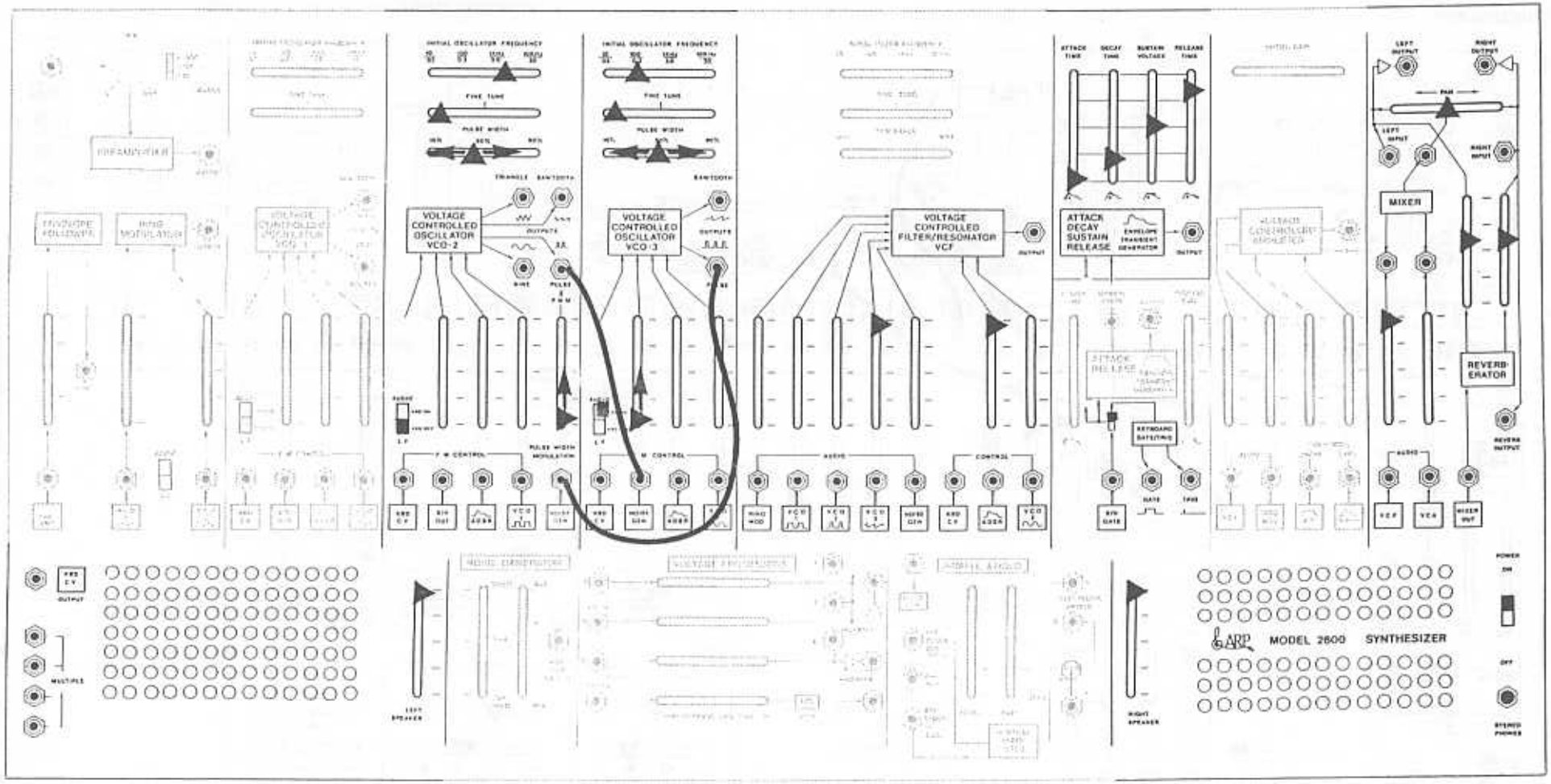


Be certain that the frequency of VCO 3 is above that of VCO 1

3 PATCHCORDS

Inharmonic Sequencing

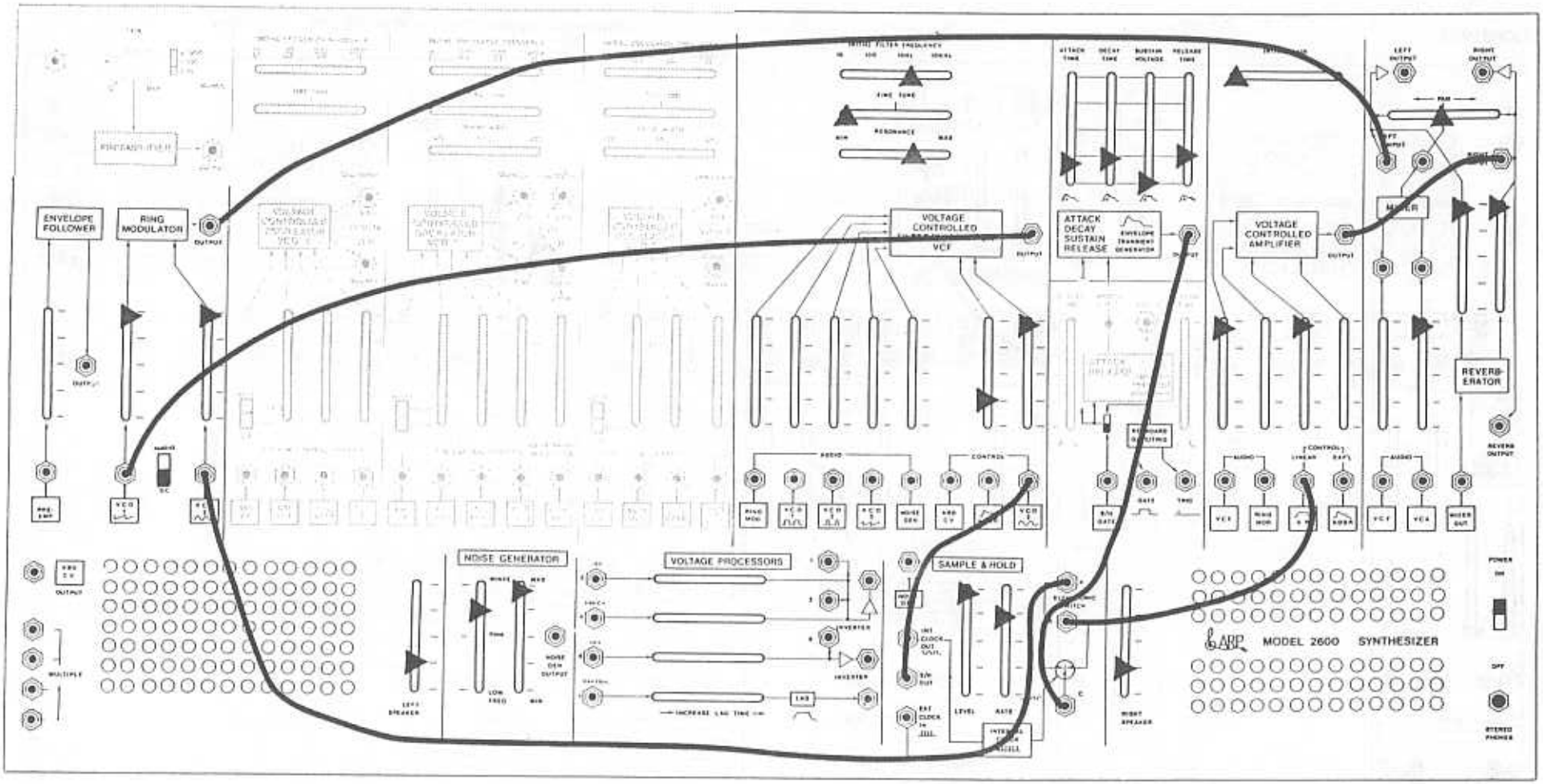




2 PATCHCORDS

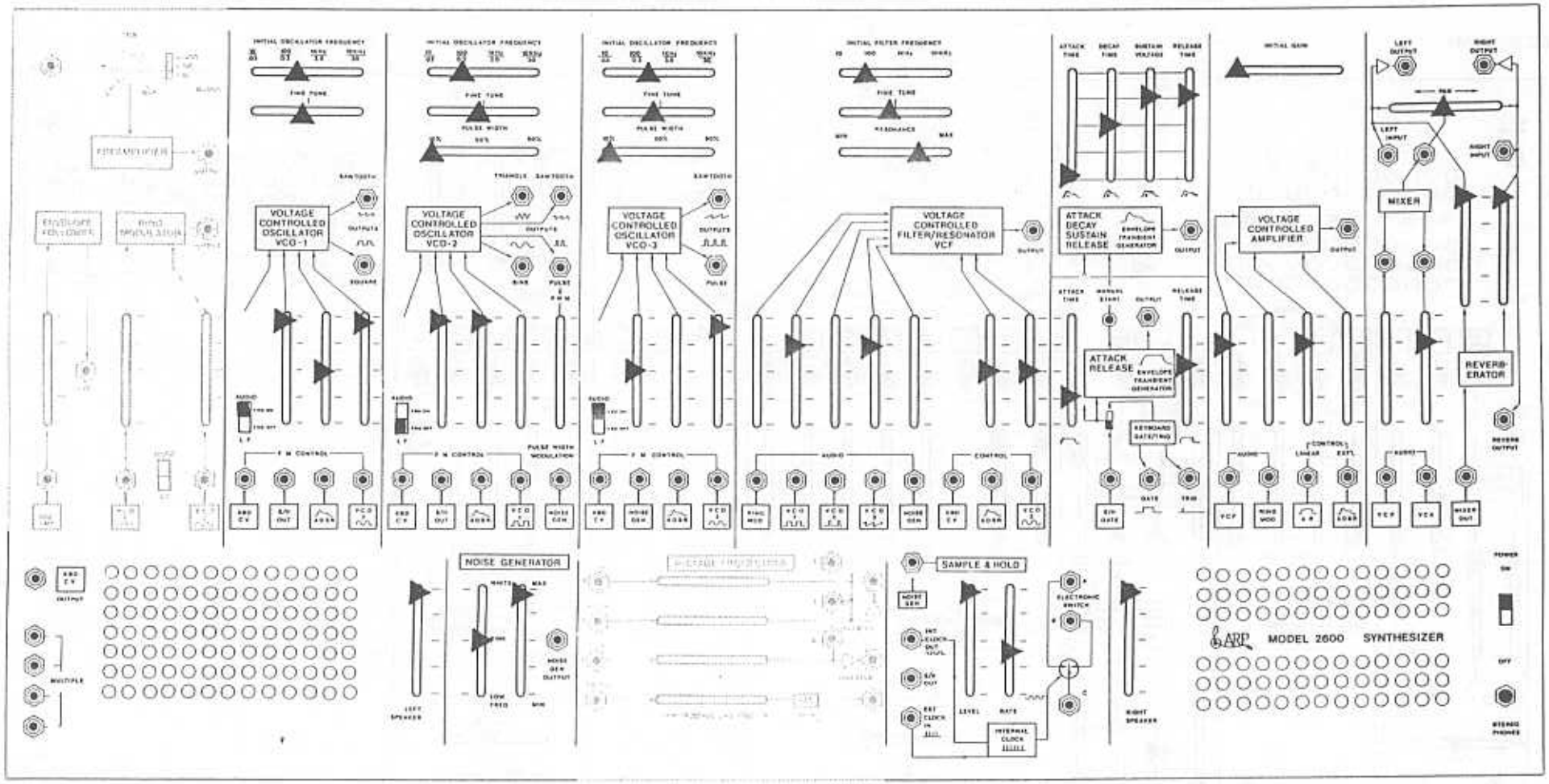
1. Raise ↑ into VCO 3, tuning interval to a fifth.
2. Raise ↑ into VCO 2 for appearance of middle pitch.
3. Adjust VCO 2 Pulse Width for desired rhythm.
4. Tune middle note to a major third above bottom pitch with VCO 3 Pulse Width slider.

Three-note Tunable Sequence

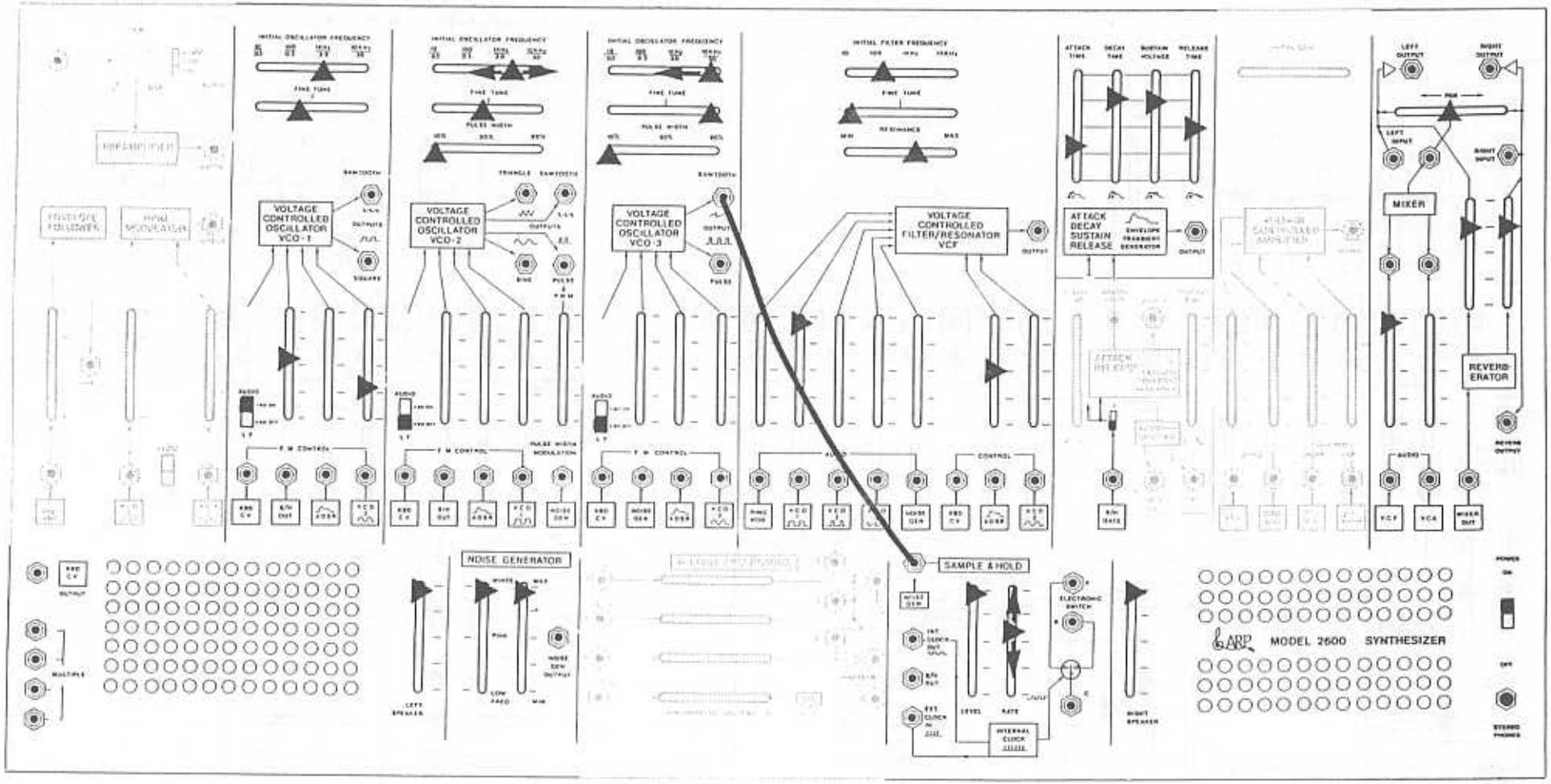


7 PATCHCORDS

Stereo Chickadee Conversation



Playing different keys will produce different timbres.

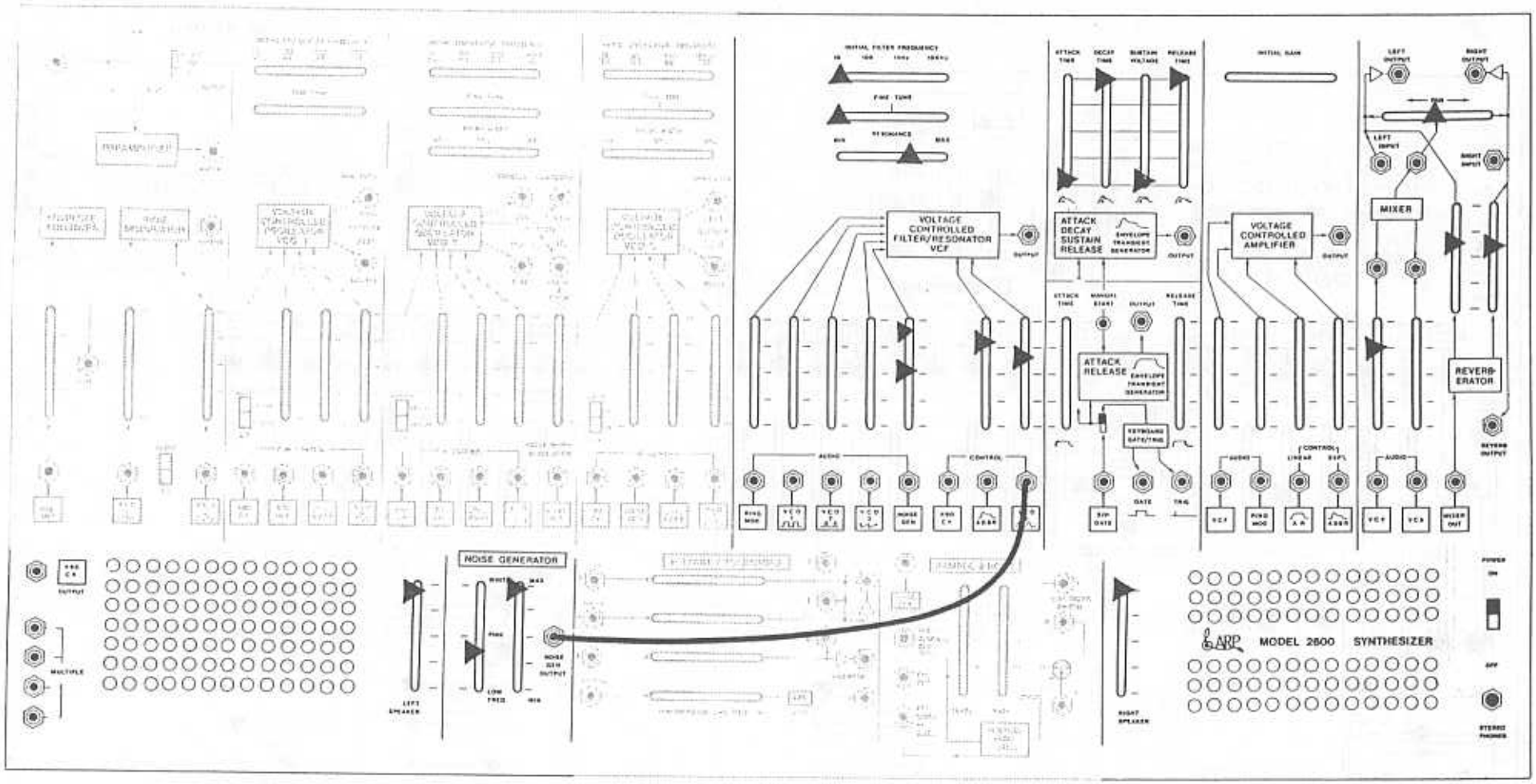


Adjust: VCO 3 frequency for patterns
VCO 2 frequency for vibrato speed
S/H Rate for whistle speed

1 PATCHCORD

PLAY KEY C2

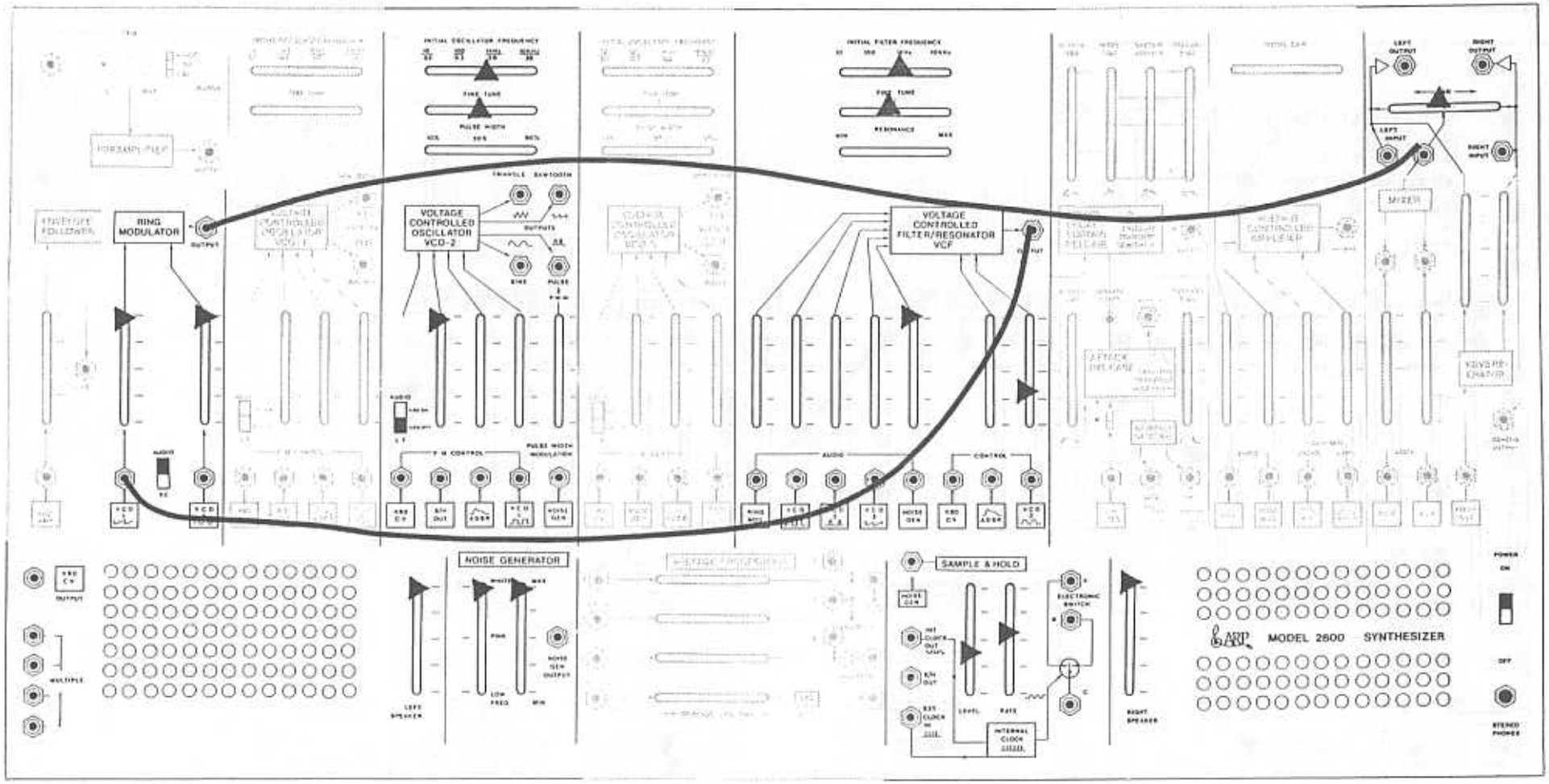
Random Whistler



PLAY KEY C5

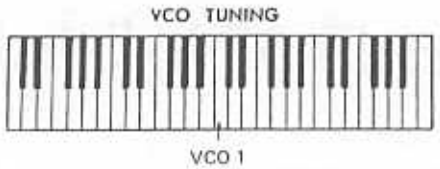
1 PATCHCORD

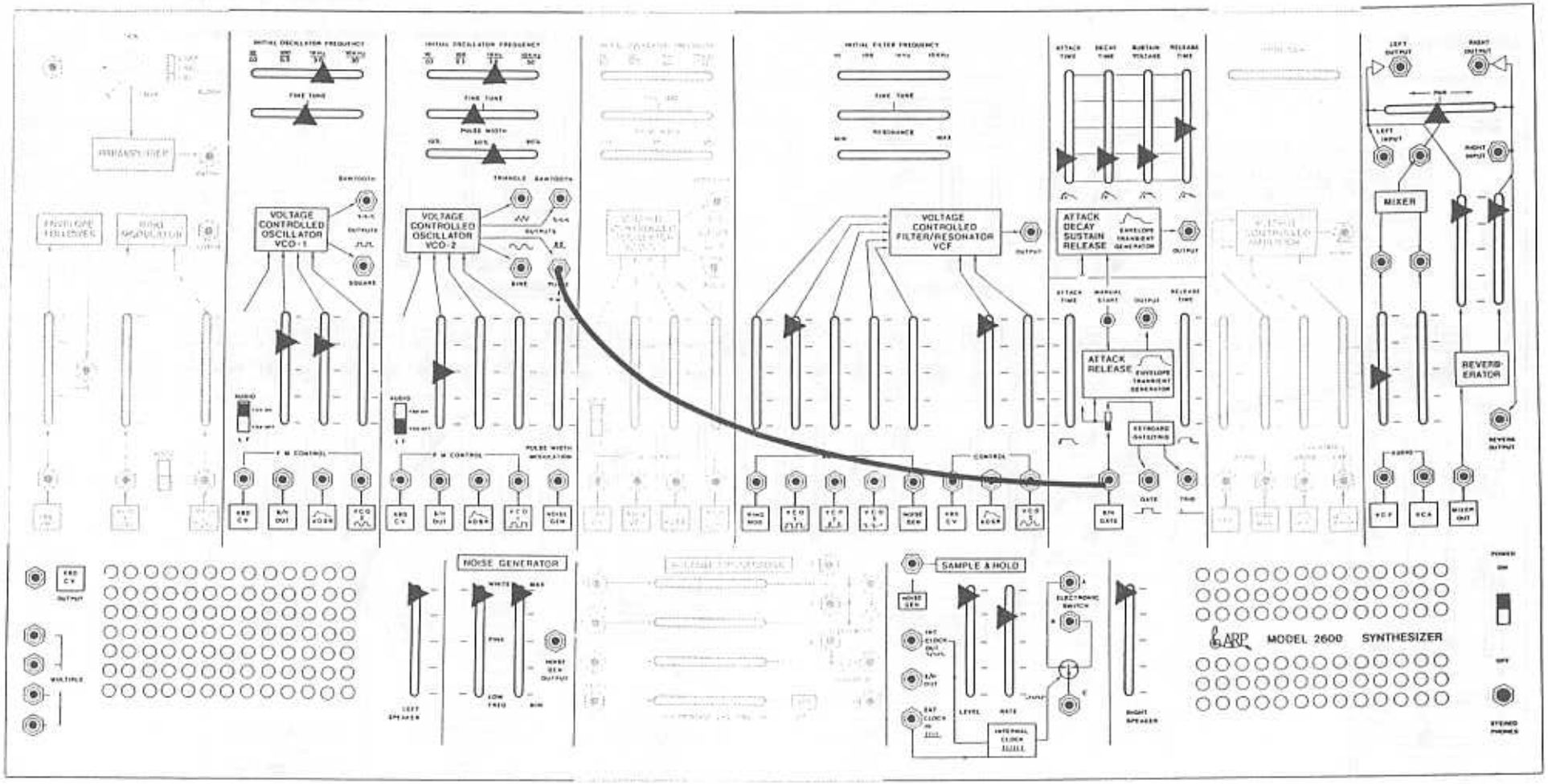
Clapping Thunder



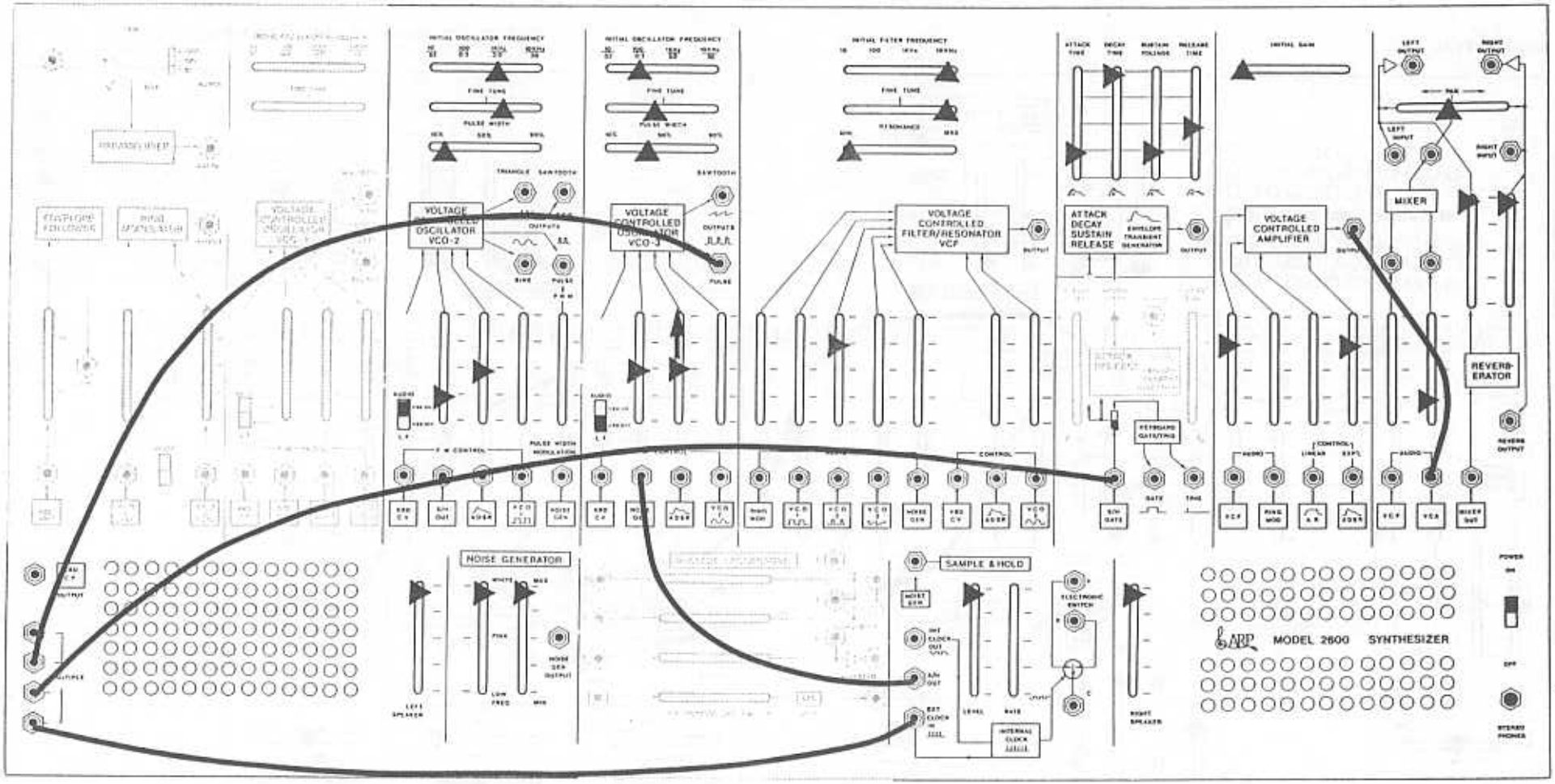
2 PATCHCORDS

Sporadic Heavy Breathing


VCO TUNING
VCO 1


VOLTAGE CONTROLLED OSCILLATOR VCO-1
VOLTAGE CONTROLLED OSCILLATOR VCO-2
VOLTAGE CONTROLLED FILTER/RESONATOR VCF
ATTACK DECAY SUSTAIN RELEASE
ATTACK RELEASE
MIXER
REVERBERATOR
NOISE GENERATOR
SAMPLE & HOLD
ARP MODEL 2600 SYNTHESIZER

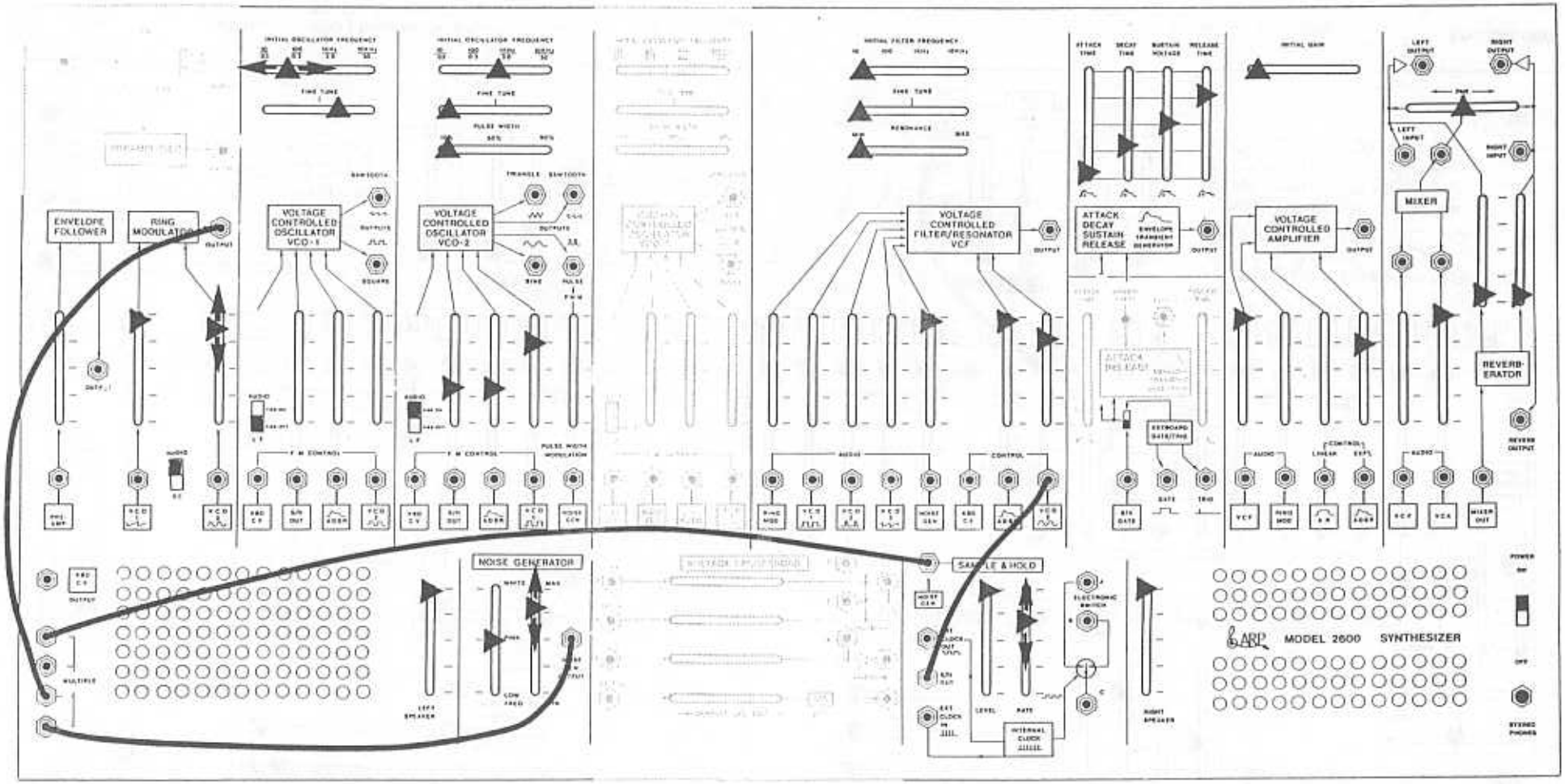
1 PATCHCORD



Note: VCO 3 Pulse Width determines final decay time.
Raising ADSR into VCO 3 induces a state of confusion in seagulls.
Use any note on keyboard for 'tuning' of birds.

5 PATCHCORDS

Johnathan Synthesized Seagull

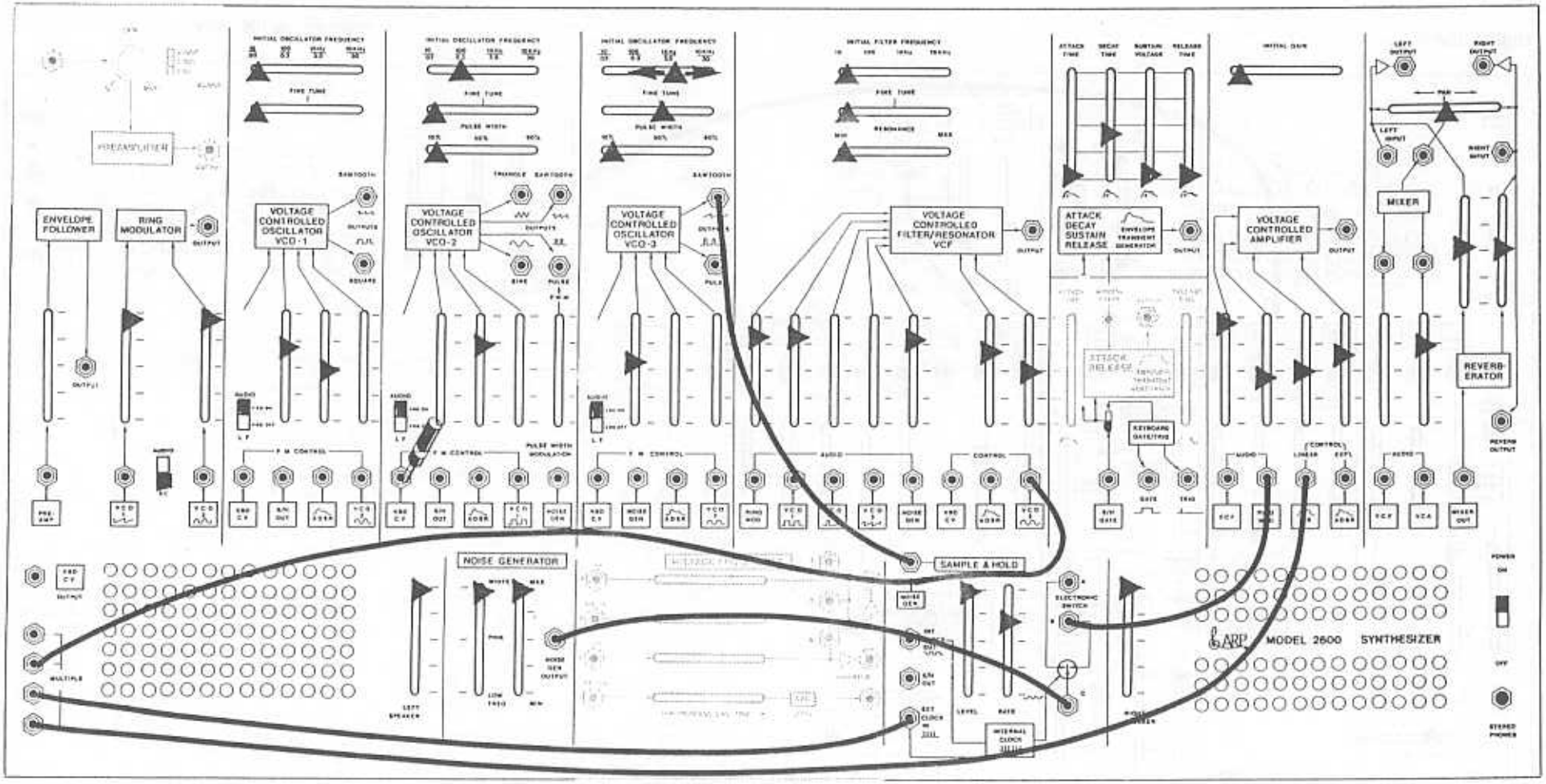


Adjust: VCO 1 frequency for 'solo' length.
VCO 2 ∿ ! at Ring Mod for Conga volume.
Noise Max-Min Slider for snare volume.
S/H Rate for tempo.

4 PATCHCORDS

PLAY KEY C1

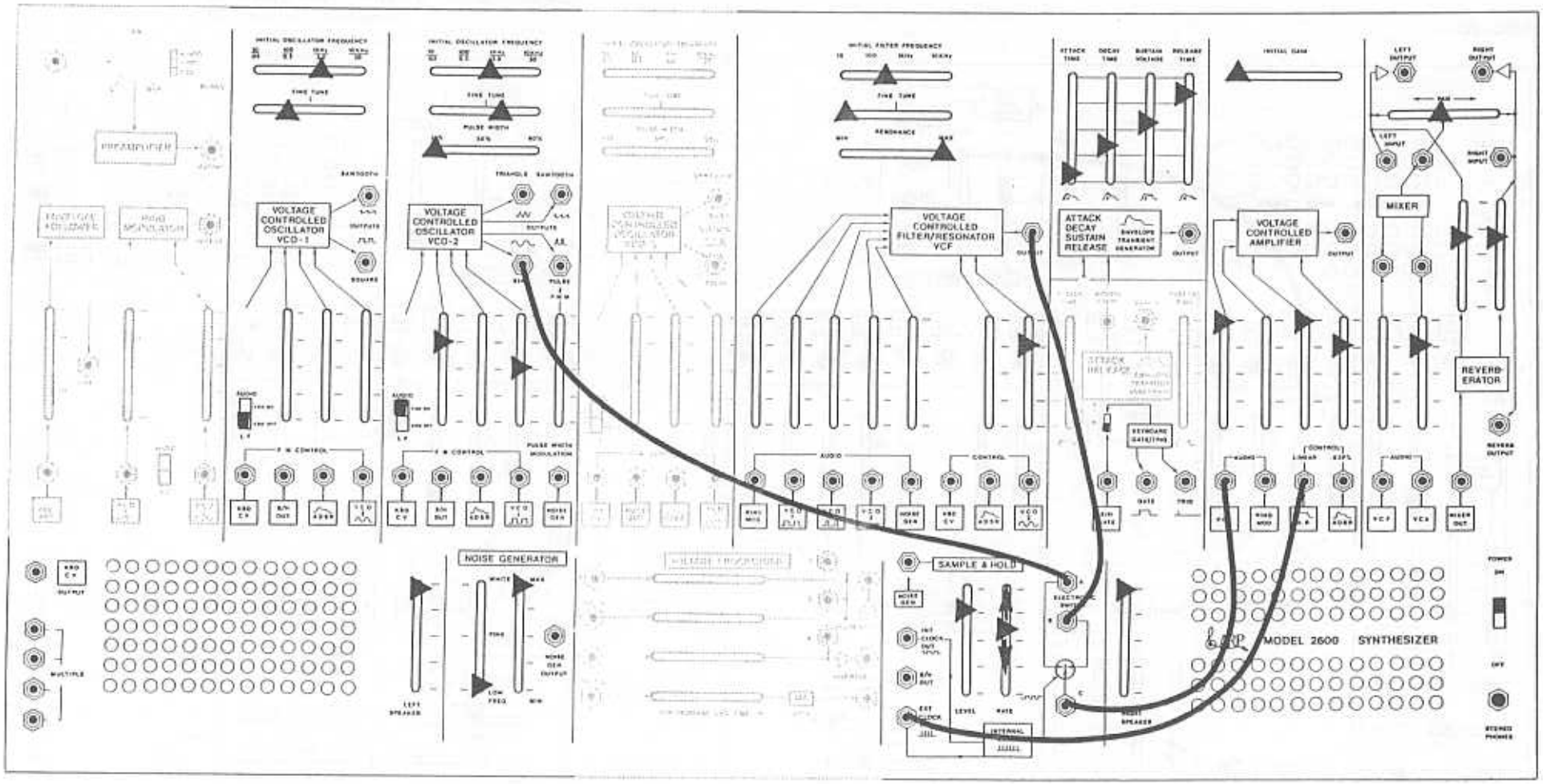
Conga & Snare Duet



Hit Key C1 for proper range.
Adjust VCO 3 frequency for different patterns.
Adjust S/H Rate for tempo.

6 PATCHCORDS
1 DUMMY PLUG

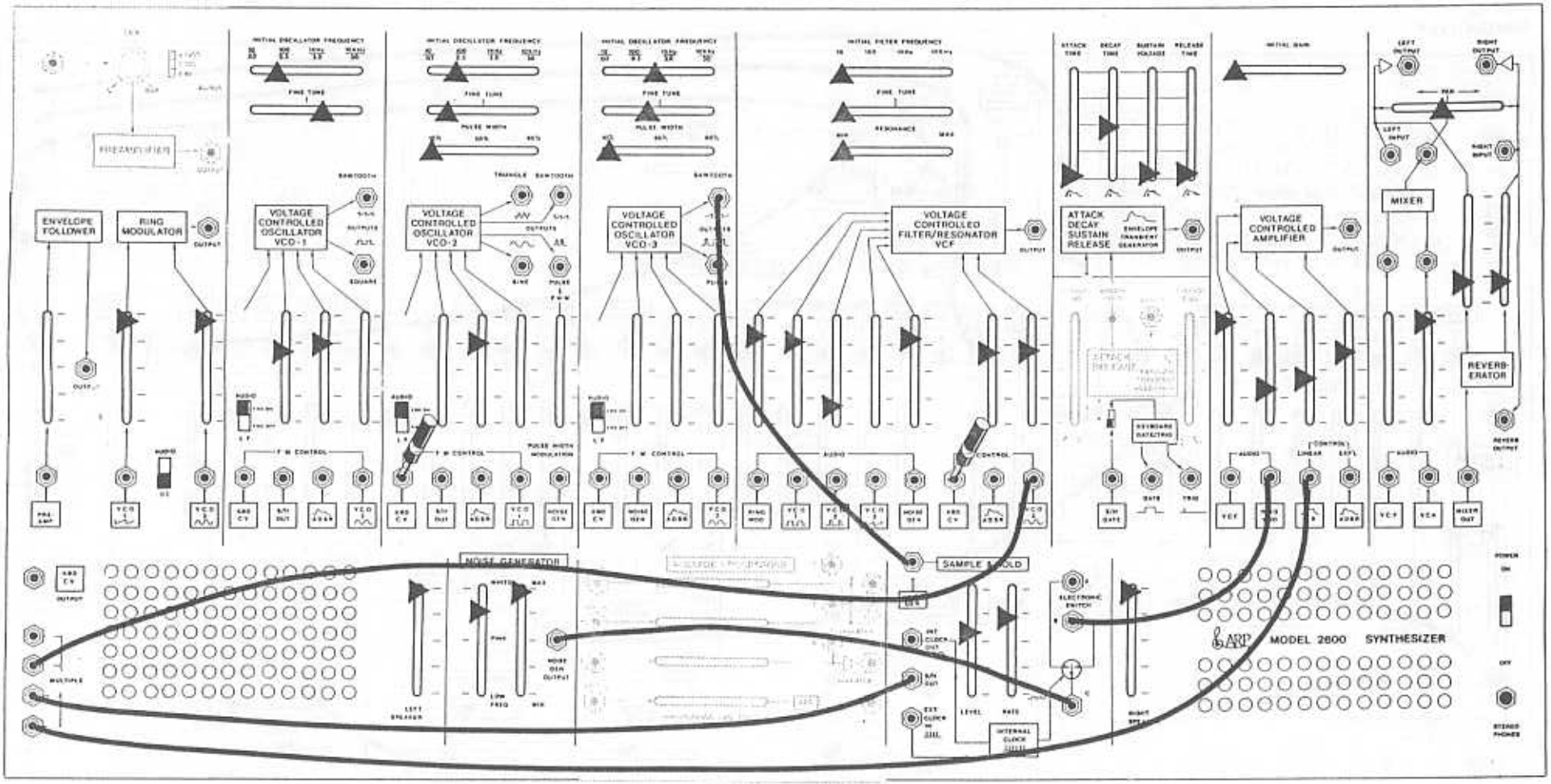
Back-beat: Bass Drum, Hi-hat & Tom



Adjust S/H Rate for tempo.
Play up and down keyboard for different timbres.

4 PATCHCORDS

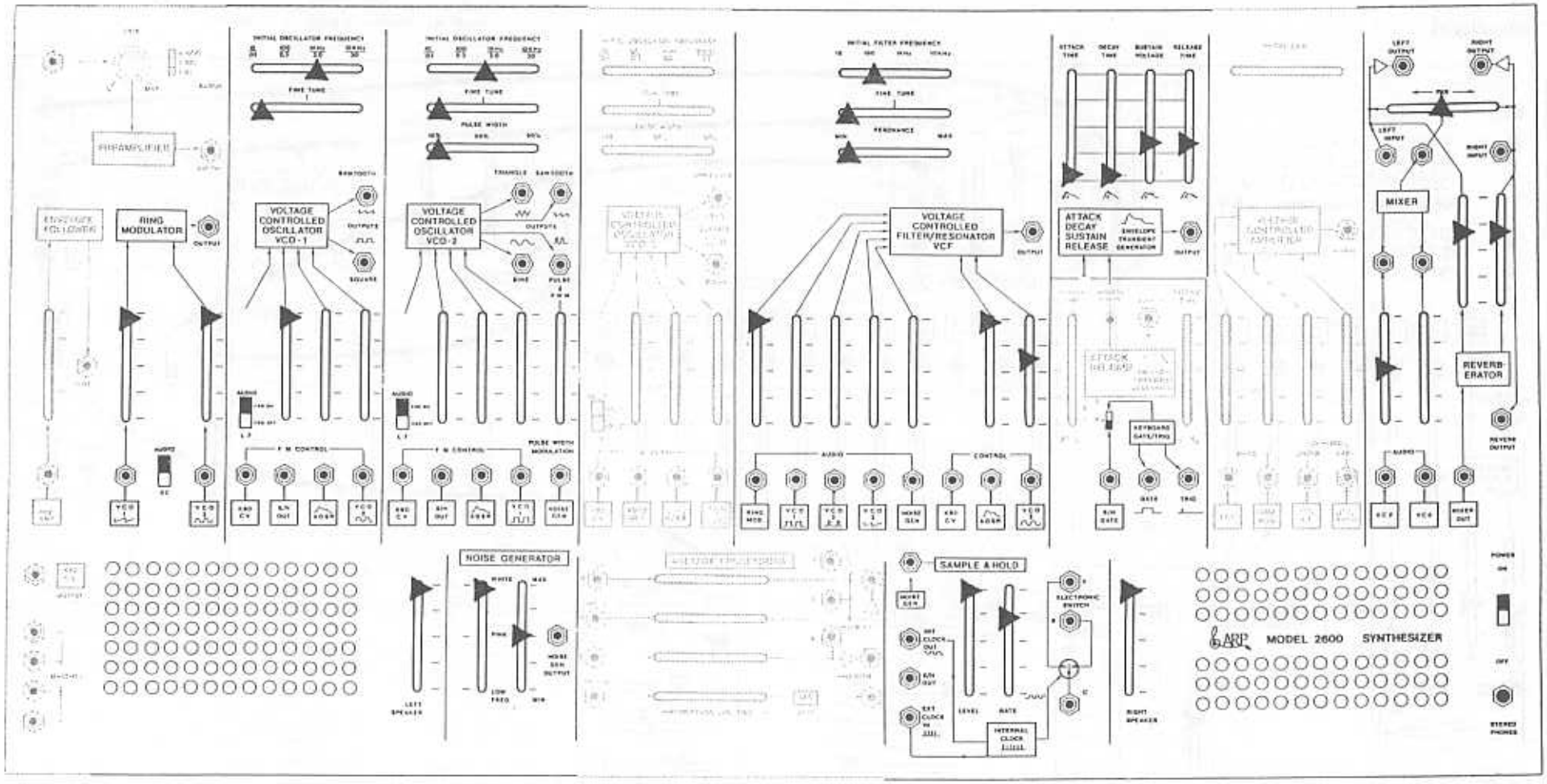
Advanced Steel Drum Corps



Adjust S/H Rate for tempo.

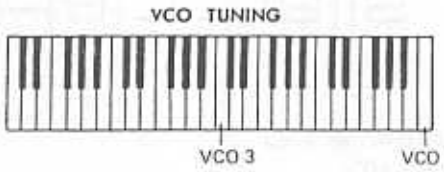
6 PATCHCORDS
2 DUMMY PLUGS

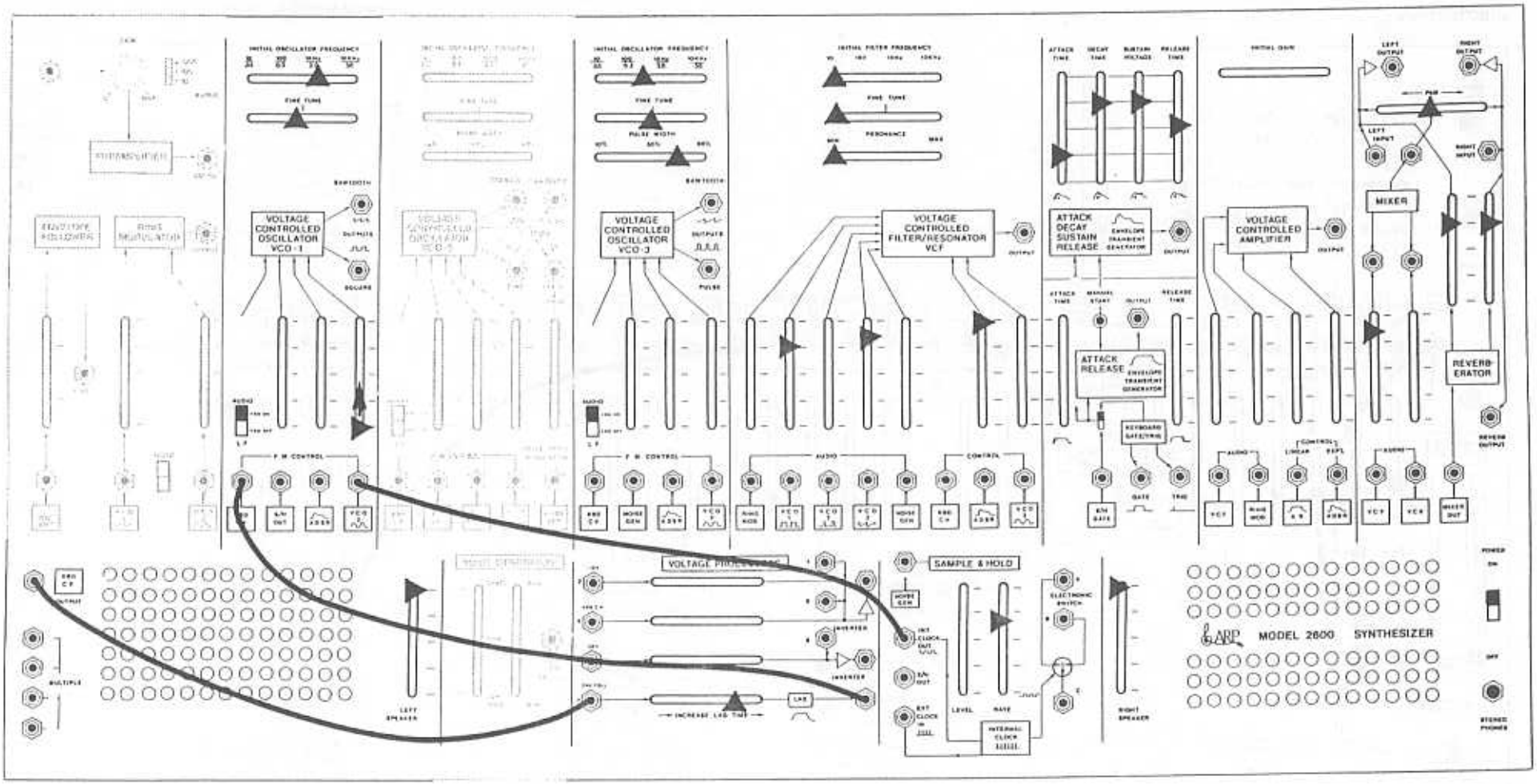
Tom & Hi-hat Duet



Tune VCO 1 and 2 for different timbres.

Metallic Thunks

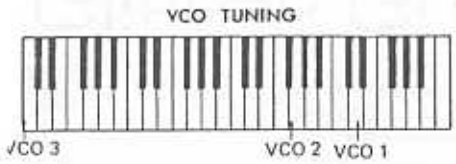


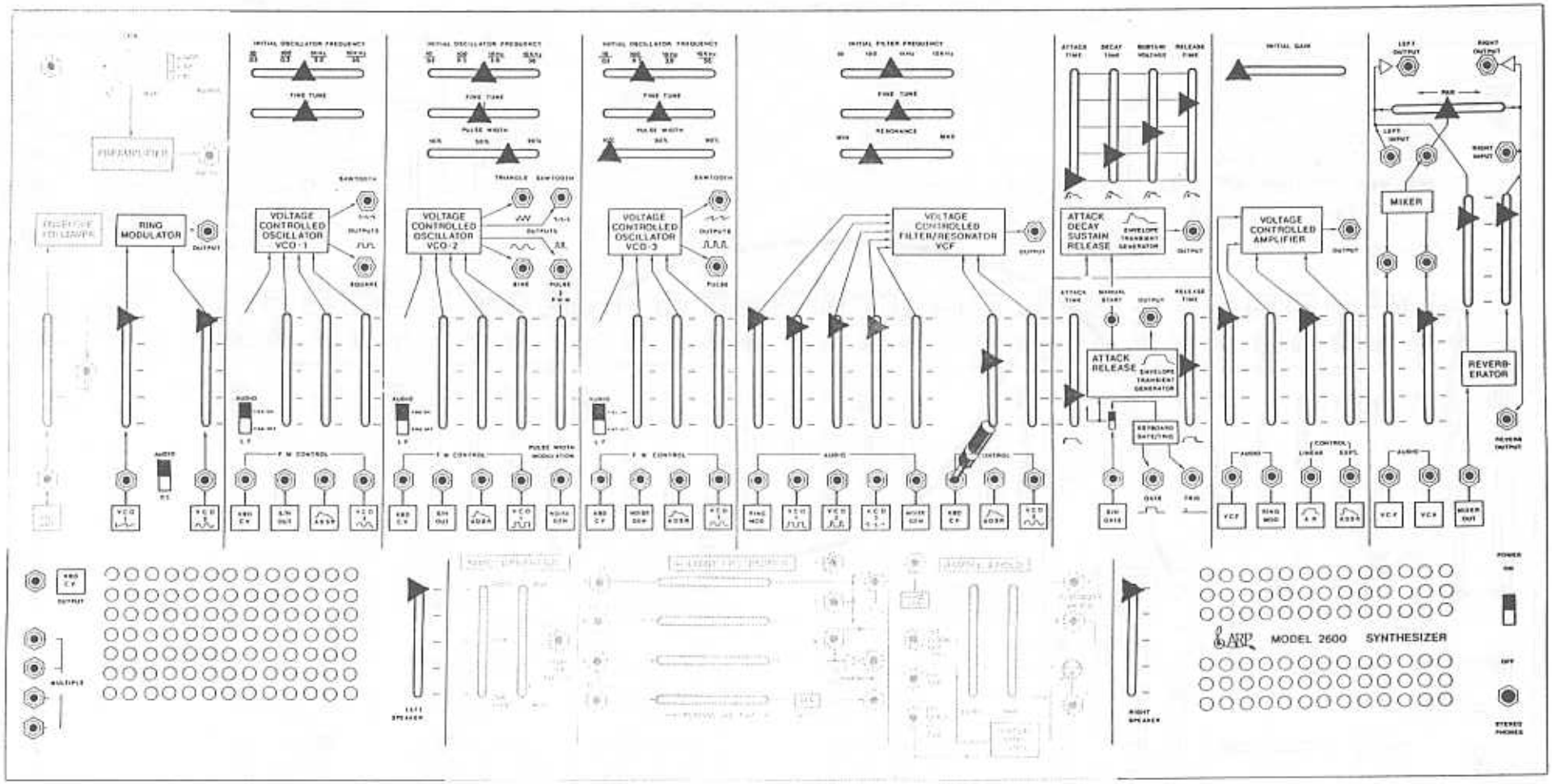


3 PATCHCORDS

1. Tune VCO 3 to middle C.
   VCO 1 to two octaves above middle C.
2. Raise | into VCO 1 and adjust S/H Rate for vibrato speed.
3. Note: Whistle will have vibrato and glide; Trumpet is straight.

Pennywhistle & Trumpet





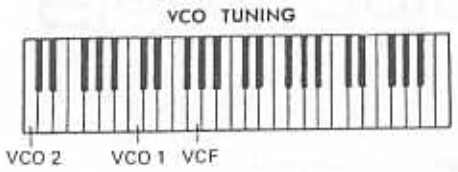
Follow tuning instructions detailed in the Introduction.

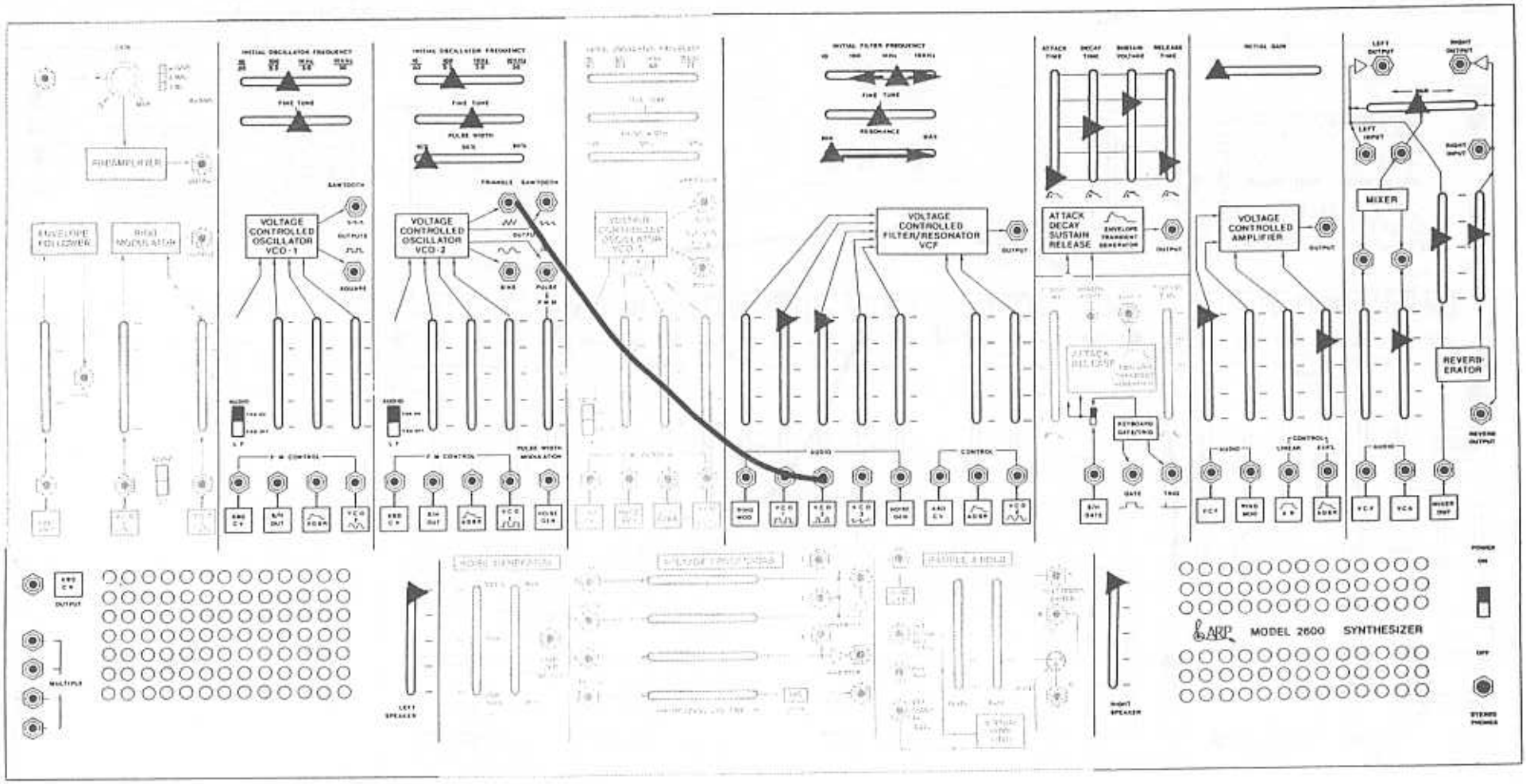
Lead lines are to be played on the top keys.

Minor chords can be heard on the bottom keys.

1 DUMMY PLUG

Marimba: Chords & Lead

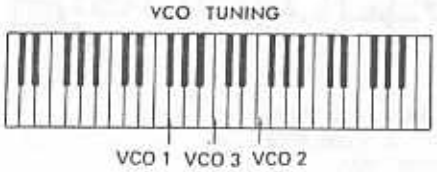


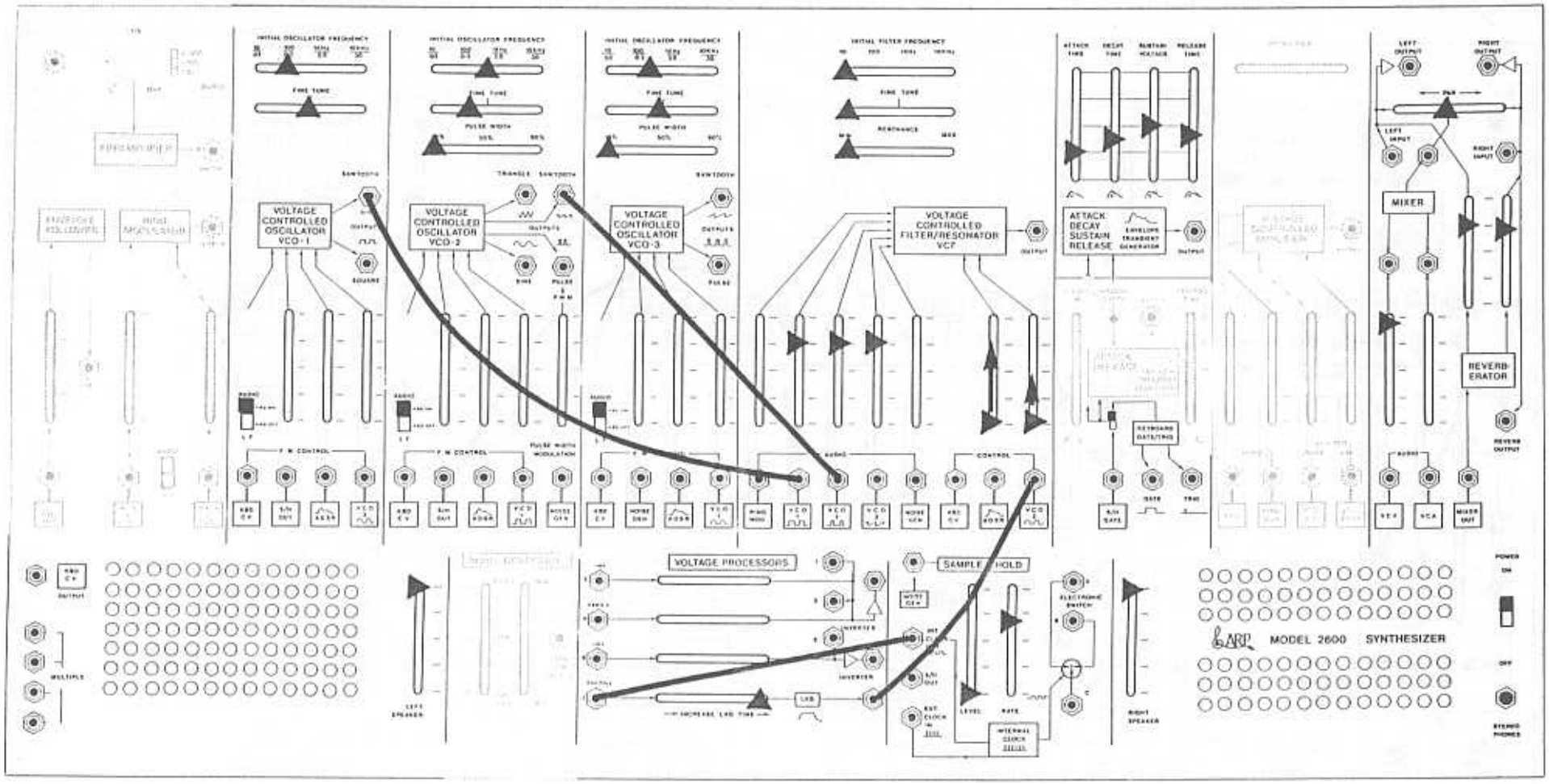


1 PATCHCORD

1. Open VCF → and tune VCO 1 to one octave below middle C. Tune VCO 2 to two octaves below middle C.
2. Open Resonance → and tune VCF ← to a fifth above VCO 1.

Zombie Organ

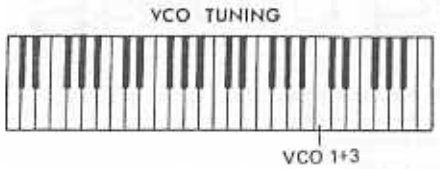


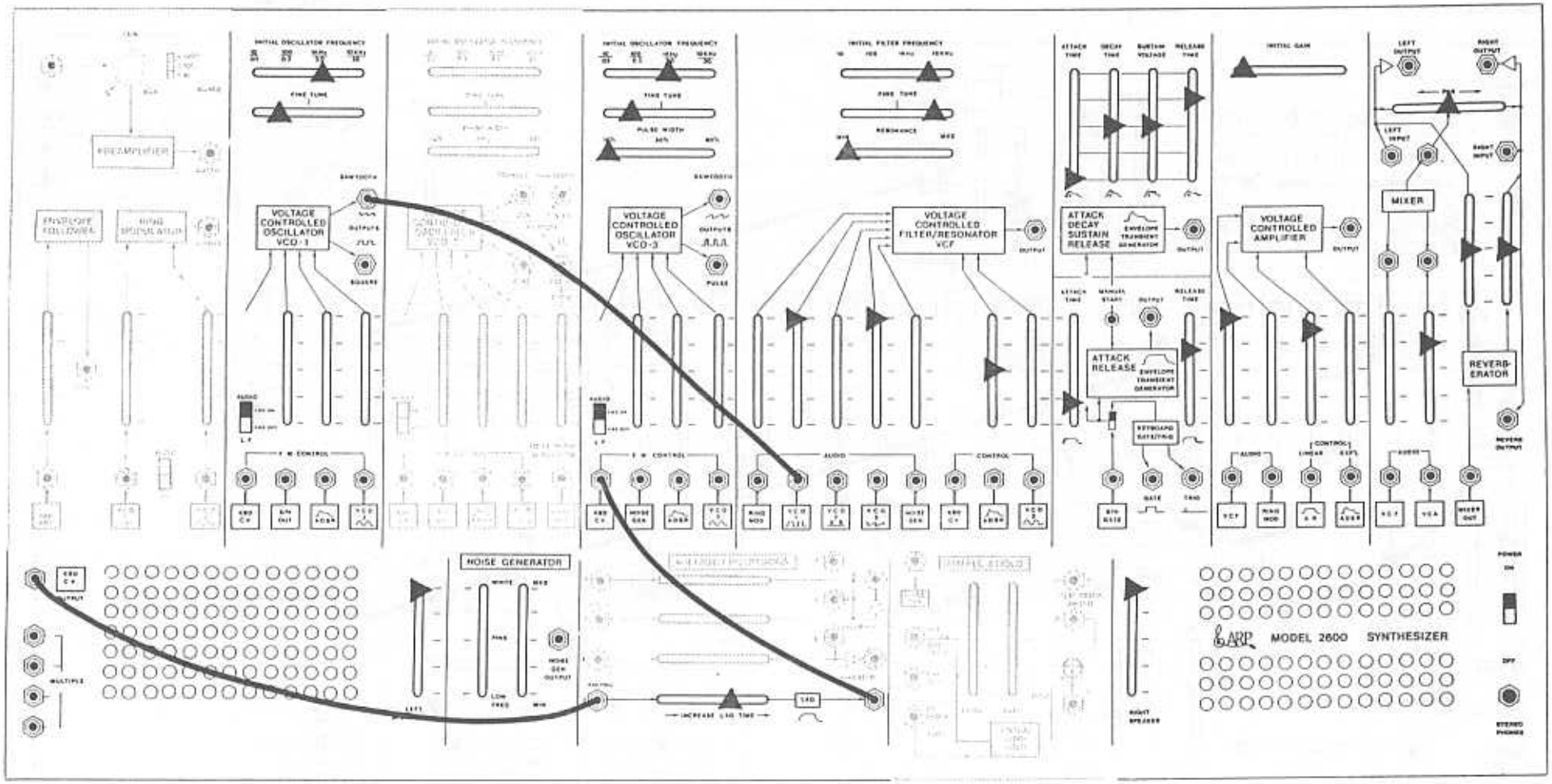


1. Tune: VCO 3 to middle C.
   VCO 2 to a fourth above middle C (to F).
   VCO 1 to a fourth below middle C (to G).
2. Raise ADSR | into VCF for brightness.
3. Raise | into VCF and adjust S/H Rate for tremelo speed.

4 PATCHCORDS

Big Band Brass



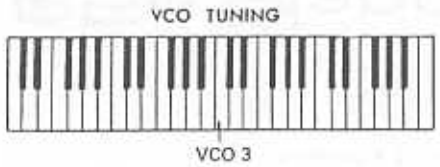


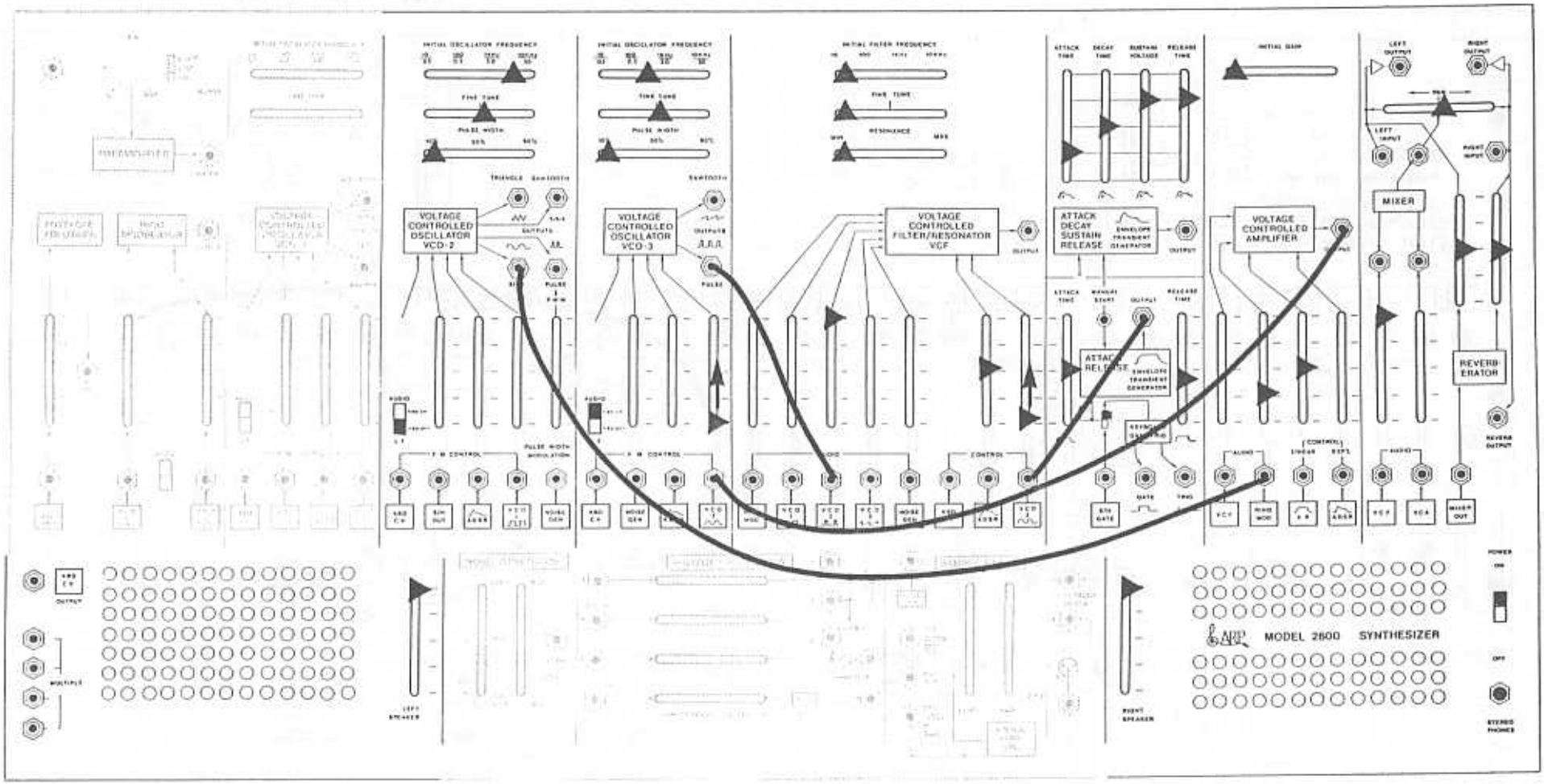
Portamento

1. Tune VCO 1 and 3 to an octave above middle C.
2. Adjust Lag —— for desired keyboard delay.

3 PATCHCORDS

Oriental String Duo

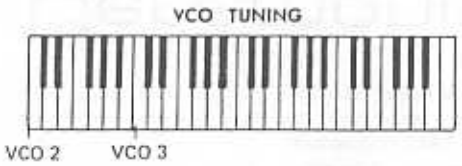


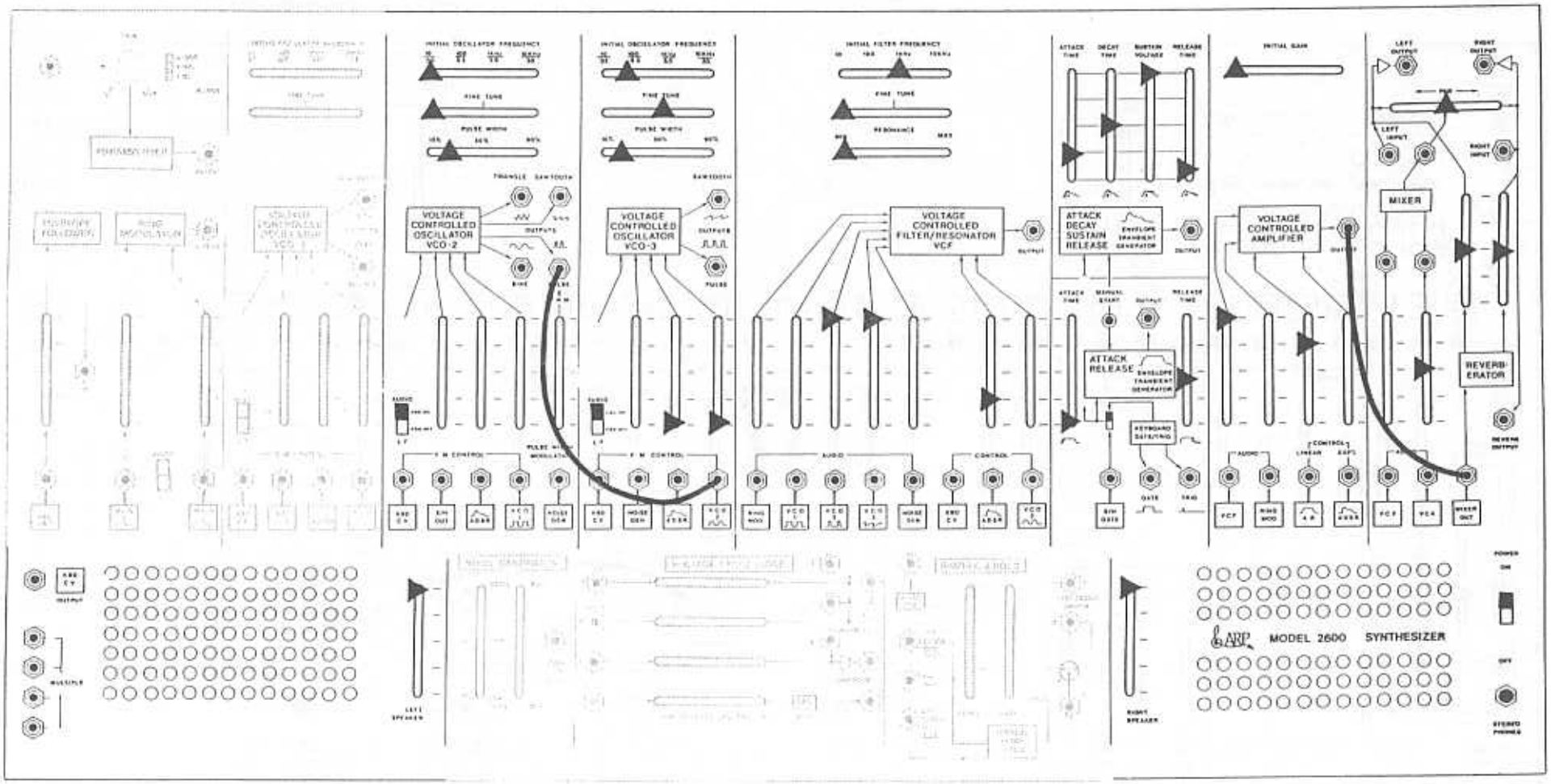


1. Tune VCO 3 to middle C.
2. Raise | into VCO 3 and adjust VCO 2 frequency for vibrato speed.
3. Raise | into VCF for delayed brilliance.

4 PATCHCORDS

Doc Trumpet





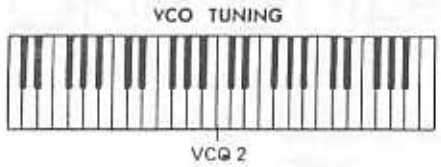
Tuning

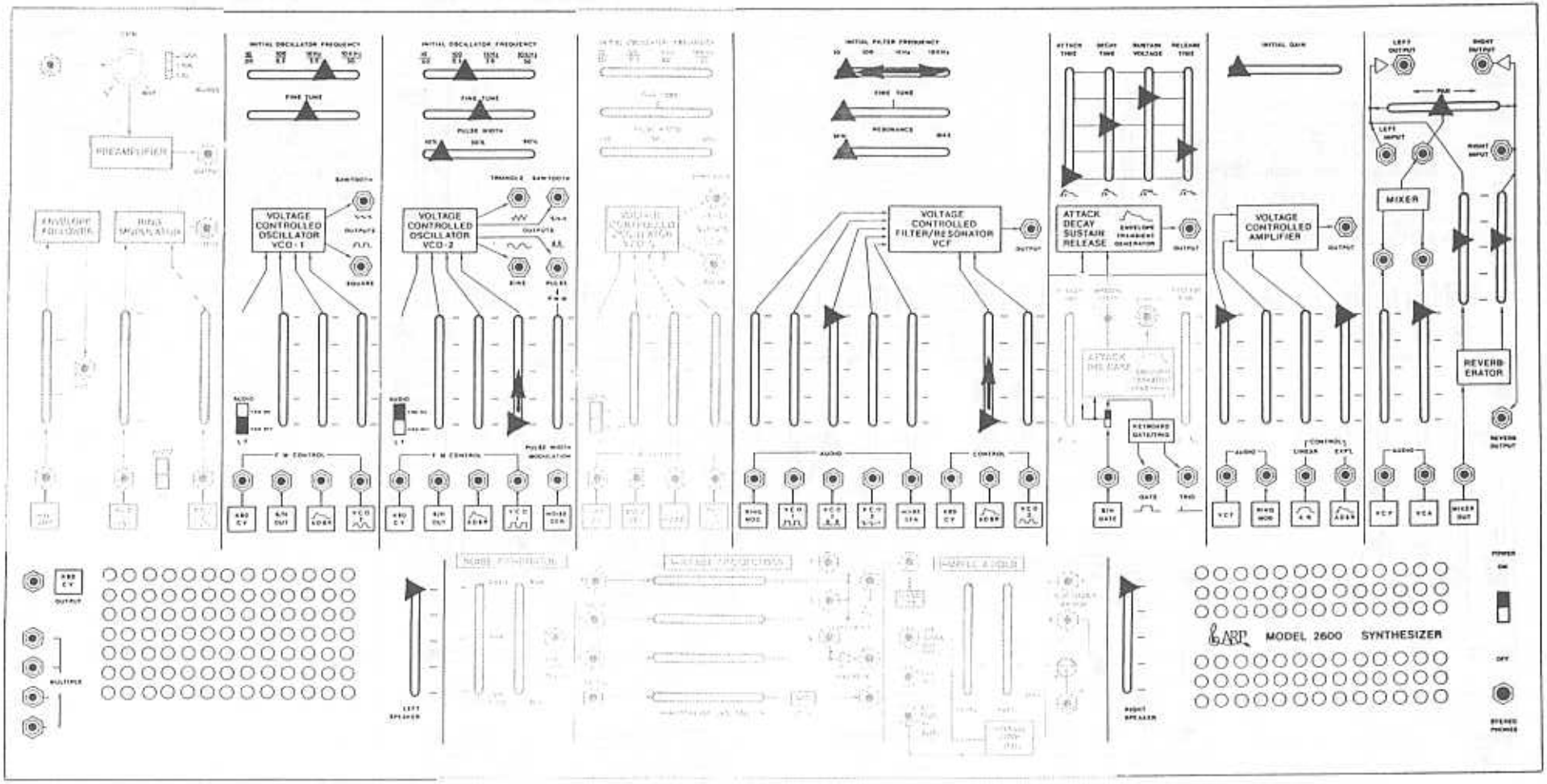
(Pitch Bender)

1. Play Key C3 and tune VCO 3 to an octave above VCO 2, which is tuned as shown.
2. Raise VCO 2 | fully into VCO 3.
3. Raise ADSR | into VCO 3 until a solid tone without beats is heard.

2 PATCHCORDS

Heavy Metal Fuzz Lead





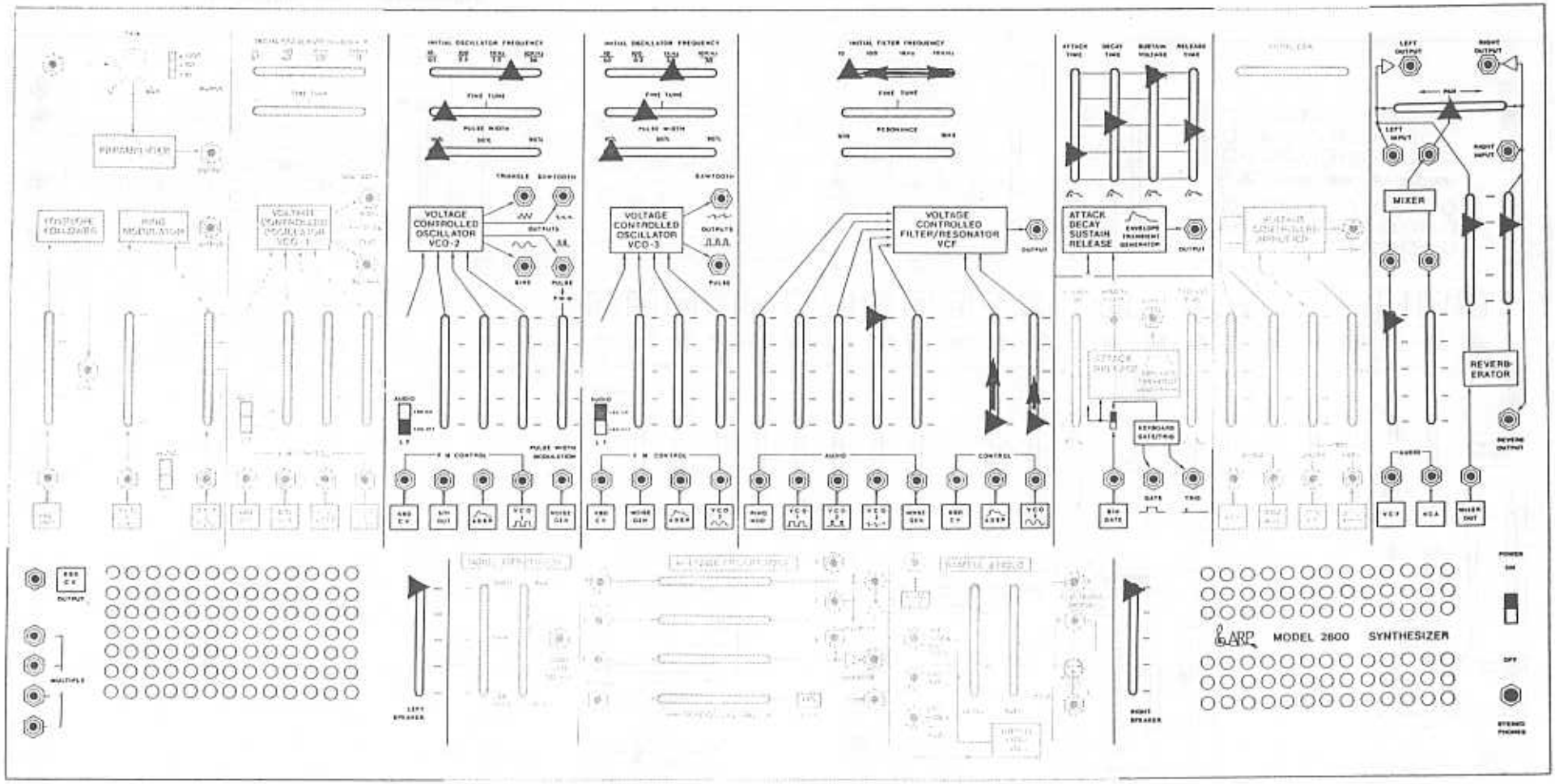
1. Open VCF — and tune VCO 2 to middle C.
2. Close VCF — and raise ADSR | into VCF.
3. Raise VCO 1 | into VCO 2 and adjust VCO 1 frequency for trill speed.
4. Bring VCO 1 | in and out of VCO 2 during performance for trills.

Jazz Guitar

KEYBOARD RANGE: TOP 2 OCTAVES

VCO TUNING

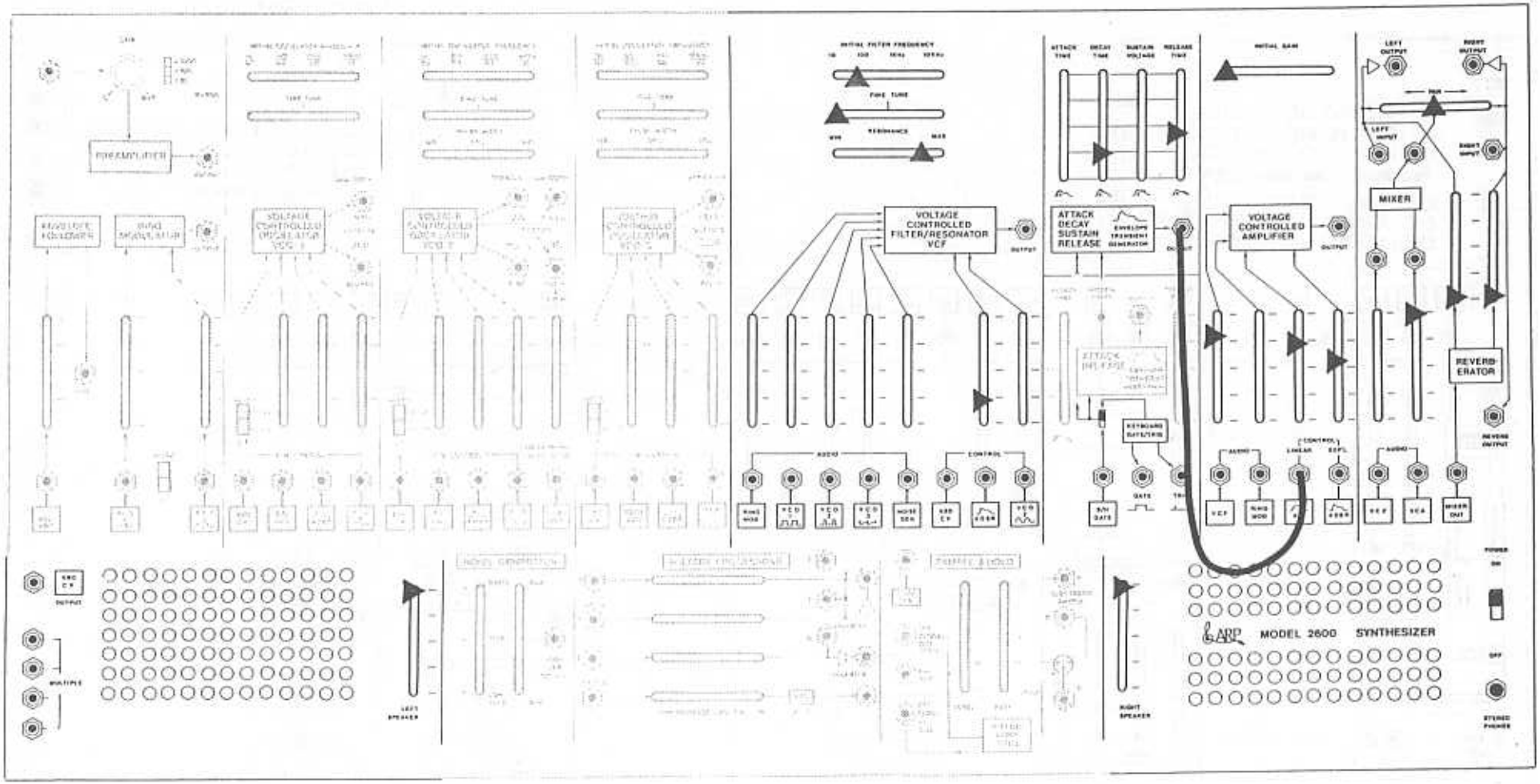
VCO 3



1. Open VCF — and tune VCO 3 to one octave above middle C.
2. Close VCF — and raise ADSR ↑ into VCF for brightness.
3. Raise VCO 2 ↑ into VCF for tremelo.
4. Adjust VCO 2 frequency for tremelo speed.

1 PATCHCORD

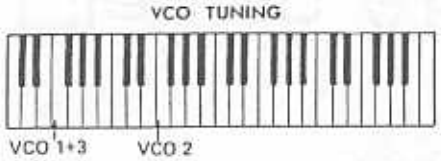
Flute

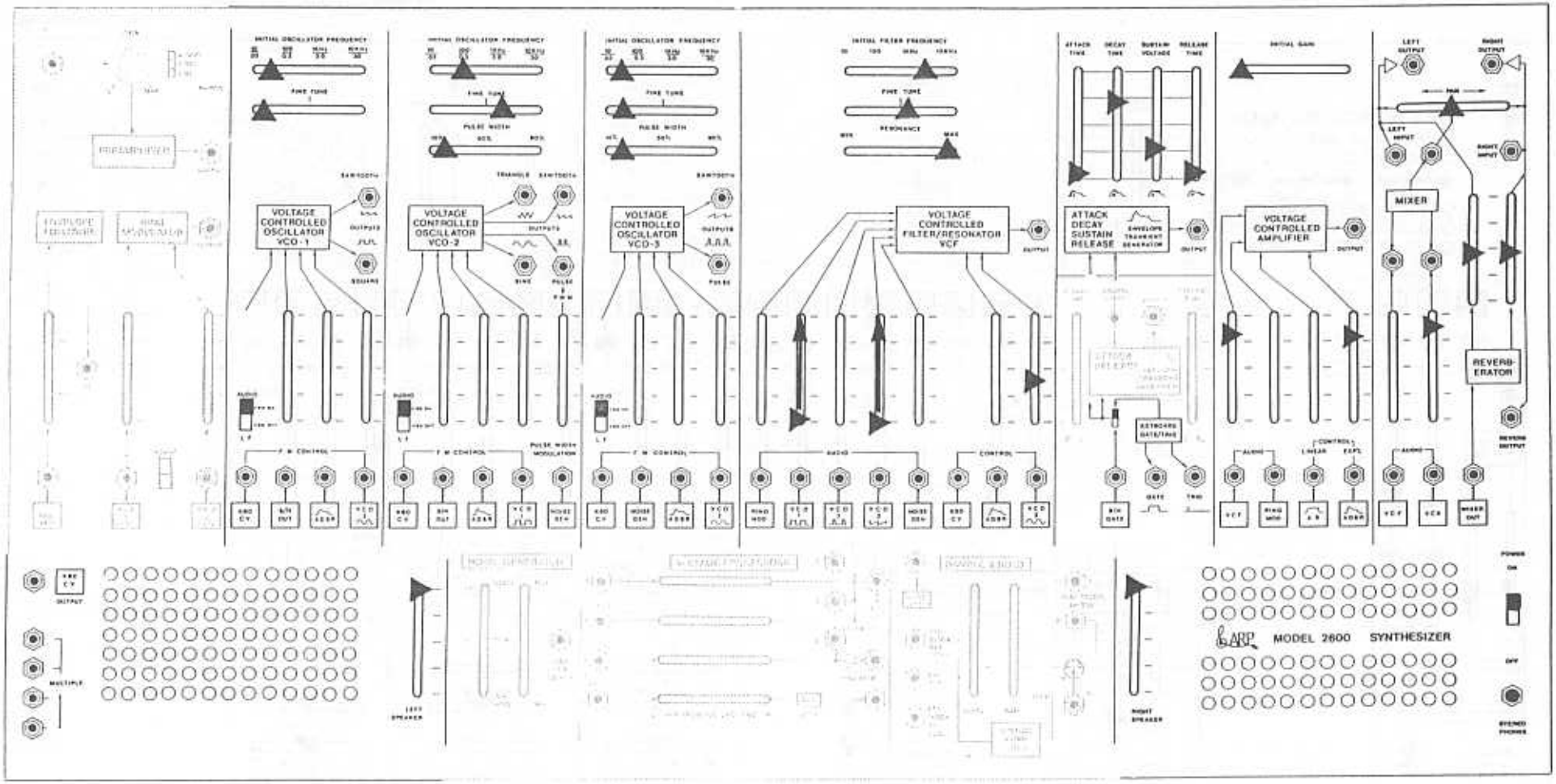


1 PATCHCHORD

Big Bass Drum

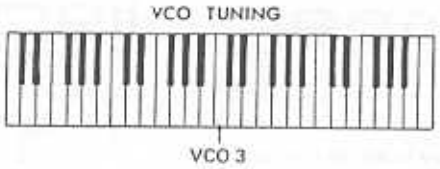
KEYBOARD RANGE: BOTTOM 2 OCTAVES

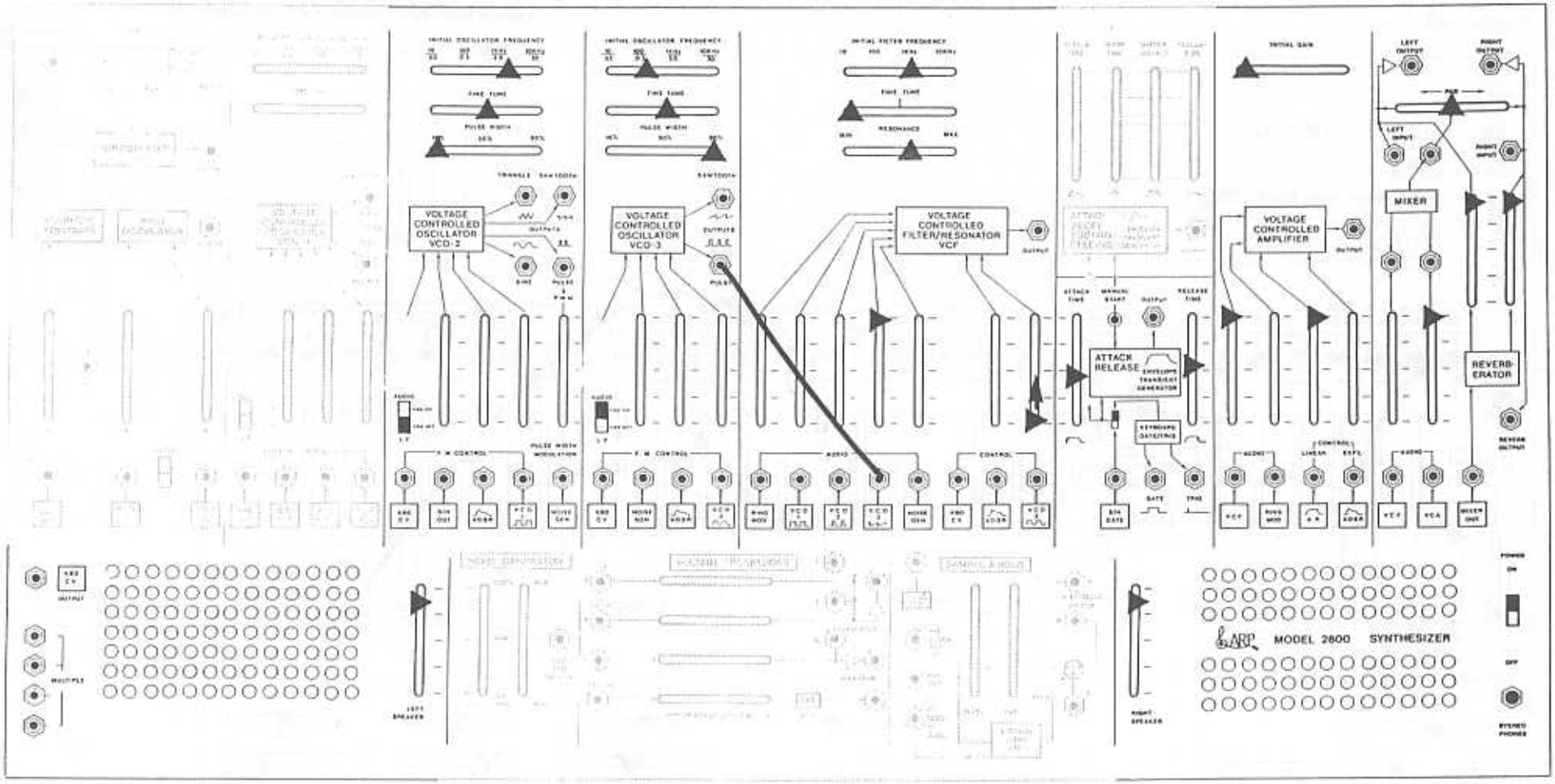




OPTION: Raise VCO 1 | or VCO 3 | into VCF.
Tune to one octave below VCO 2

Electric Mouth-harp

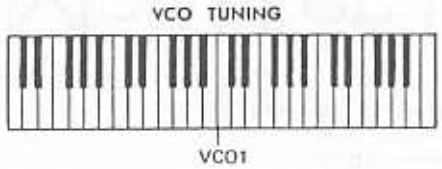


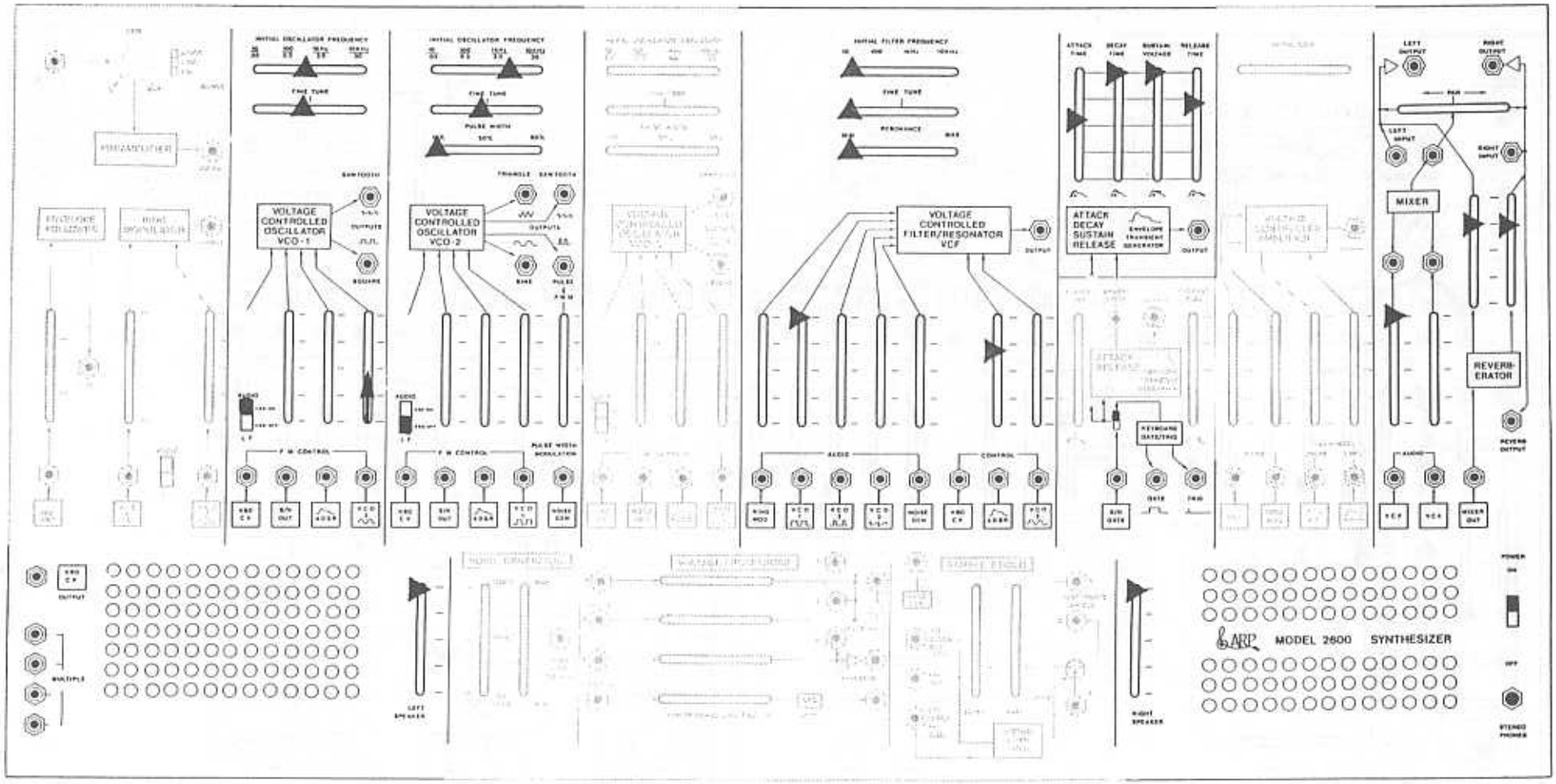


1. Tune VCO 3 to middle C.
2. Raise VCO 2 ↑ into VCF and adjust VCO 2 frequency for tremelo speed.

1 PATCHCORD

Cowboy Harmonica

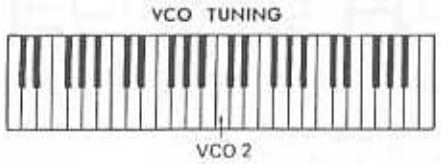


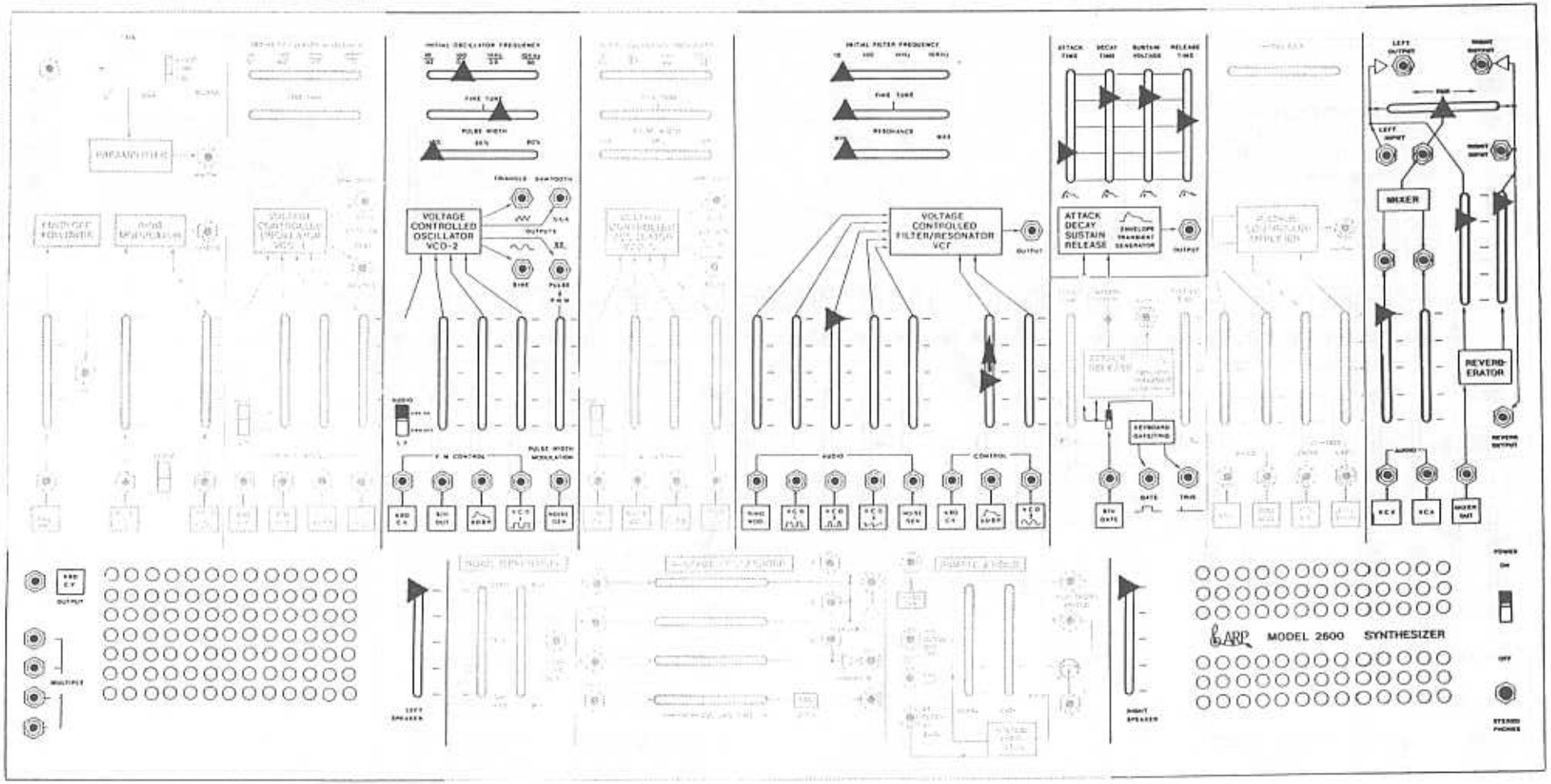


Portamento

1. Tune VCO 1 to middle C.
2. Raise VCO 2 | into VCO 1 and adjust VCO 2 frequency for vibrato speed.

Thereminovox



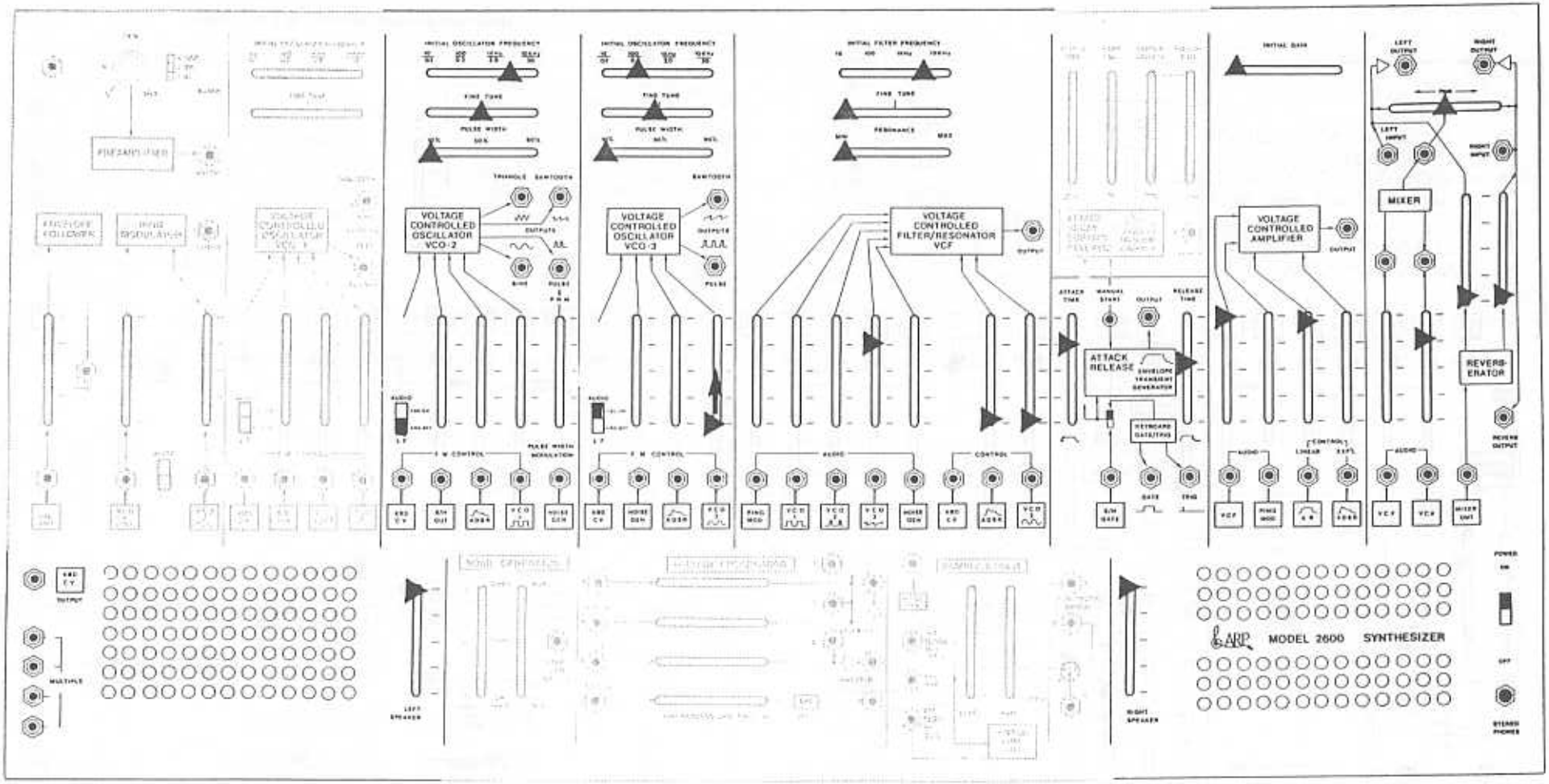


1. Tune VCO 2 to middle C.
2. Raise ADSR ↑ into VCF Control for brightness.

Fanfare Trumpet

VCO TUNING

VCO 3



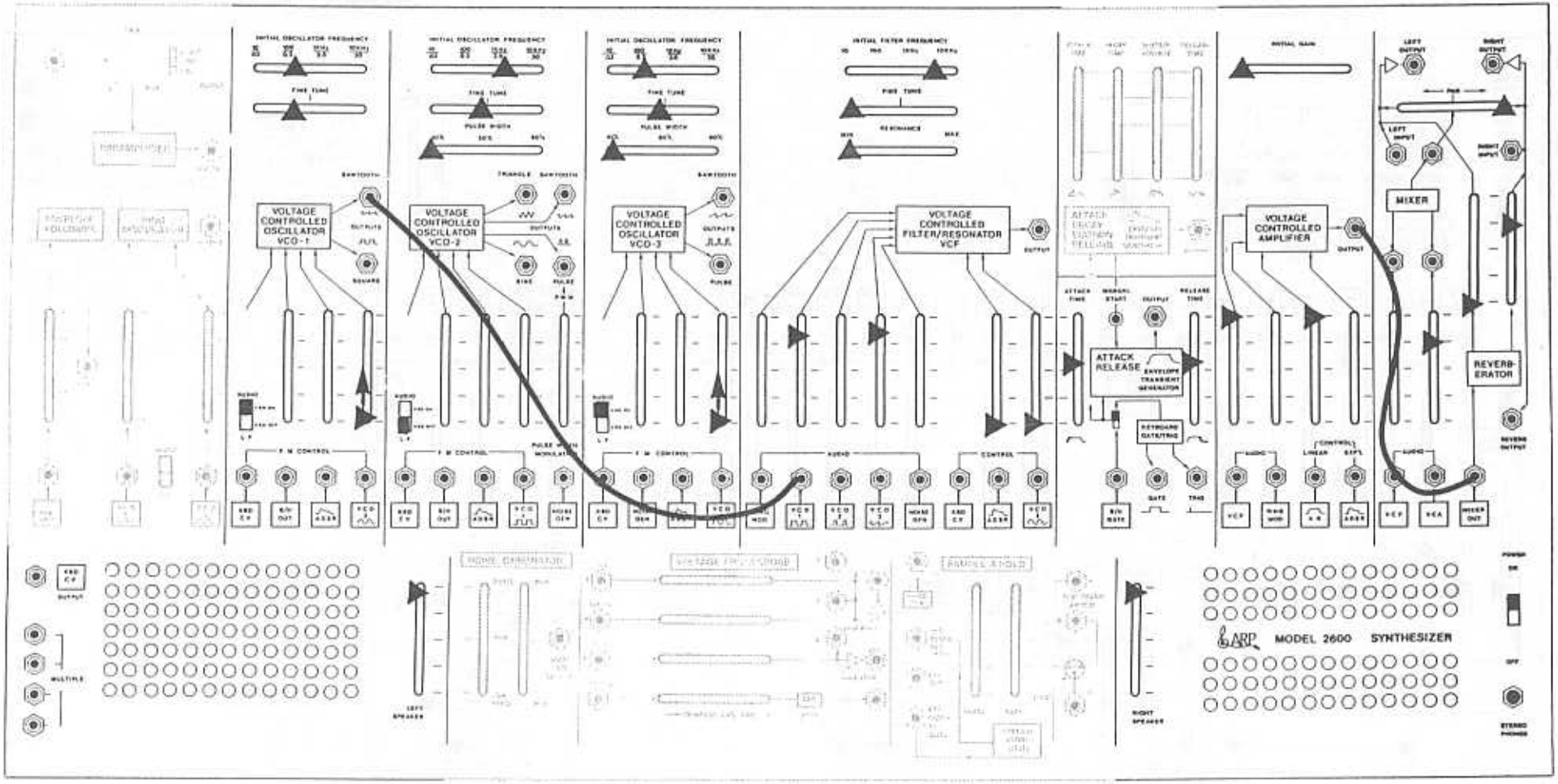
Portamento

1. Tune VCO 3 to middle C.
2. Raise VCO 2 | into VCO 3 for vibrato.
3. Adjust VCO 2 frequency for vibrato speed.

Violin

VCO TUNING

VCO 1+3



2 PATCHCORDS

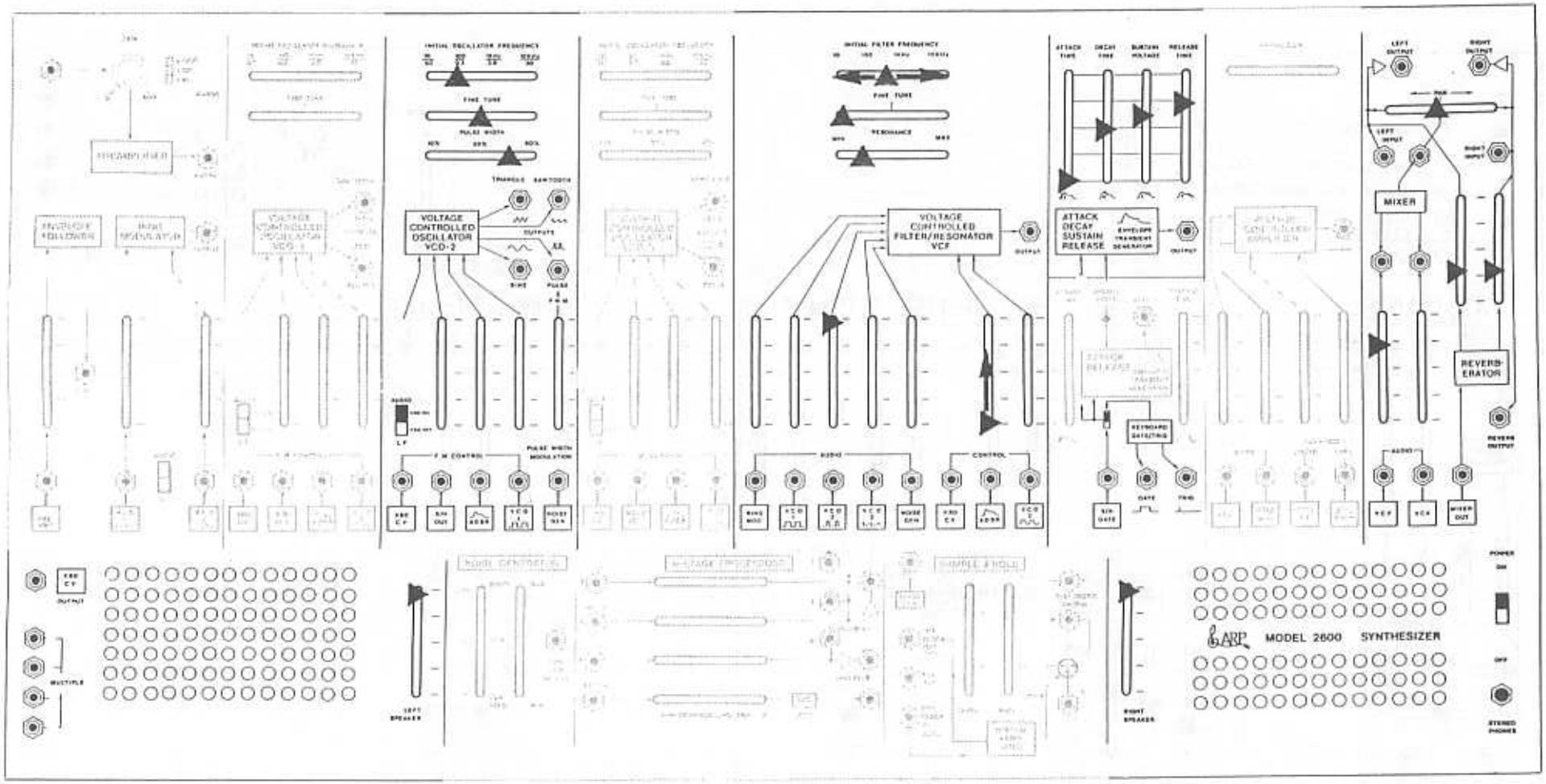
1. Tune VCO 3 to middle C.
2. Tune VCO 1 several beats off VCO 3.
3. Raise VCO 2 | into VCO 1+3 for vibrato.
4. Adjust VCO 2 frequency for vibrato speed.

String Sweetener

KEYBOARD RANGE: BOTTOM 2 OCTAVES

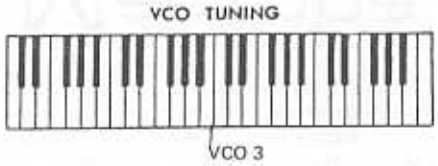
VCO TUNING

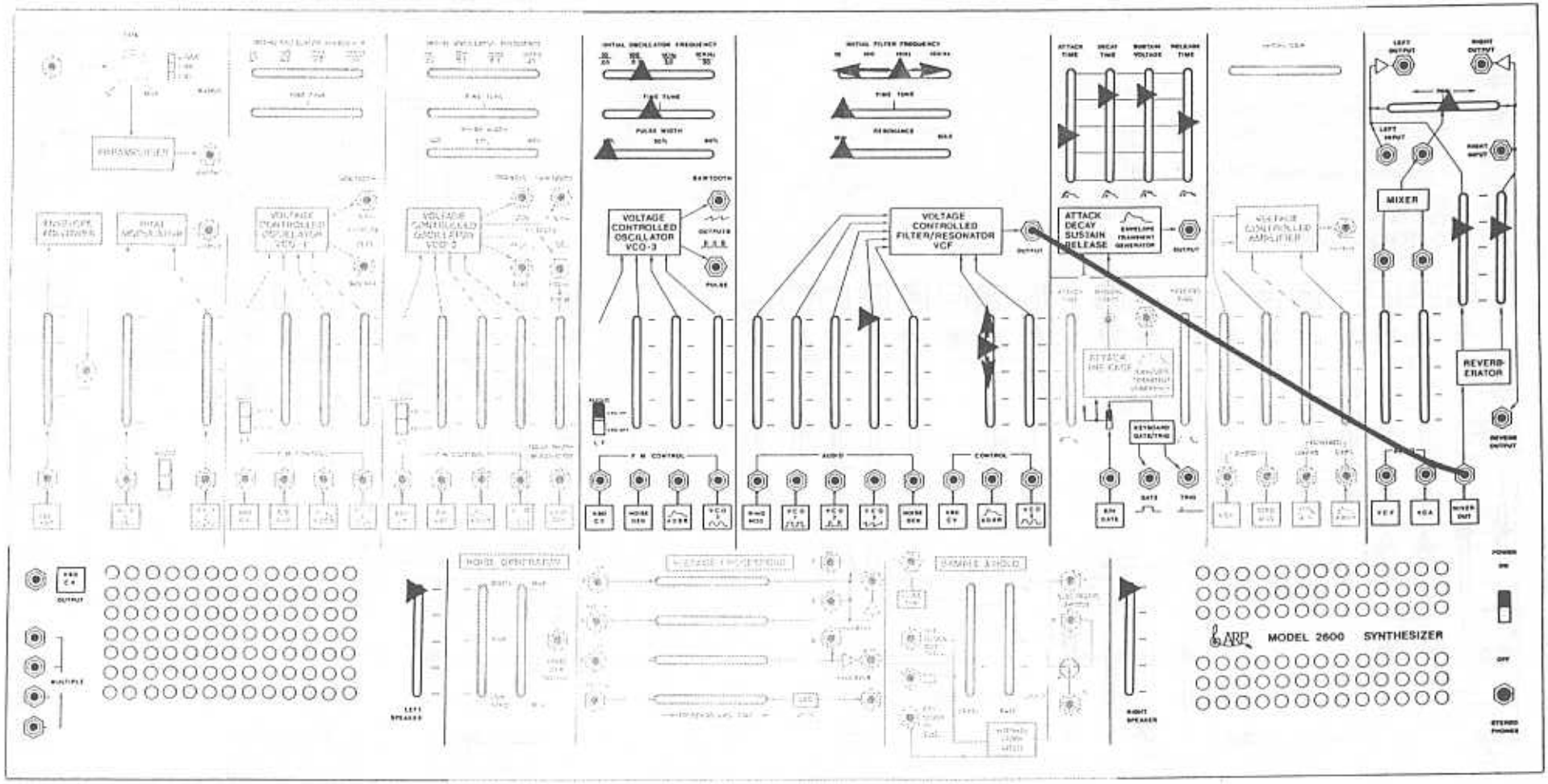
VCO 2



1. Open VCF — and tune VCO 2 to 1octave below middle C.
2. Close VCF — and raise ADSR ↑ into VCF for brightness.

Octabass





1 PATCHCORD

1. Open VCF — and tune VCO 3 to middle C.
2. Close VCF — and adjust ADSR slider | into VCF for trumpet or French horn.

Trumpet & French Horn