

INSTRUCTION MANUAL
WIND SYNTHESIZER DRIVER

Correction of Windgate 2 section, page 4, paragraph 2.

The gating pulse of Windgate 2 is variable by means of the "Windgate 2" slider control and the "Windgate" switch in the Wind Control section. The "Windgate" switch has two positions: "S" for short when switched left, and "L" for long when switched right. In the "S" position, the duration of the gating signal is adjustable with the "Windgate 2" slider control from 1/100 of a second to 3/10 of a second. In the "L" position, the duration of the gating signal is adjustable with the "Windgate 2" slider control from 3/10 of a second to 10 seconds. The Windgate 2 signal will stop when wind action ceases and will start again as wind is applied.

INTRODUCTION

The Lyricon Wind Synthesizer Driver is a new instrument designed to enable the musician to bypass the keyboard of a synthesizer and control directly, its sound generating systems.

With the Wind Synthesizer Driver, the musician is able to introduce into his synthesizer performance the same instantaneous subtleties of musical expression and style afforded by acoustic musical instruments. The degree of musical expression and control possible with the Wind Synthesizer Driver is virtually impossible to duplicate with existing keyboard synthesizers regardless of the number of footpedals, attachments, or special patches incorporated.

The instrument body (controller) of the Wind Synthesizer Driver resembles a soprano saxophone both in appearance and fingering. Three control signals are generated by the controller: The first from lip motion; the second from changes in wind pressure and wind attack; and the third from changes in finger position. The Wind Synthesizer Driver console modifies the three controller signals to be compatible with conventional keyboard synthesizers and provides output jacks and switching for patching to the external synthesizer.

With even a simple patch to a synthesizer of limited capability, the musician is able to create a sensitive and expressive musical performance worthy of his talent and imagination.

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PANEL CONTROLS

Pitch Control Section

Scale allows the player to match the intonation or pitch variation of the external synthesizer over its full range. With the Scale control properly adjusted, the instrument body should play in tune over the pitch range being utilized. The scale slider set at zero (center) provides approximately 1 volt-per-one-octave change which is the standard voltage to pitch ratio of conventional synthesizers.

Tuning

Once the scale slider has been adjusted for proper intonation, the tuning control allows tuning of the system to concert pitch. Changes in the tuning control will not affect the intonation.

Lip Control Section

Bend Down

The "bend down" control adjusts the amount of pitch bend possible from tight (in tune) to loose lip position. Its range allows pitch bend from a minimum of approximately a $\frac{1}{4}$ tone, up to one octave full open.

Bend Up



The "bend up" control adjusts the amount of pitch bend possible upwards from "in tune" with a loose lip to as much as one octave with a tight lip position. "R" under the Trim section provides adjustment over the amount the reed may

be depressed from an open position before pitch is affected.

Wind Control Section

Wind 2

The "Wind 2" slider enables the player to reduce the wind signal level obtainable from the instrument body. It also acts as a remote loudness control to control overall volume. Adjust for a comfortable wind pressure versus loudness. The "Threshold" control in the Trim section adjusts how much wind pressure is necessary before a sound is heard.

In the Trim section, the screwdriver adjustment marked "A" controls the speed of the Wind 2 signal versus wind attack. Clockwise rotation () of the "A" trim allows the wind signal to be more staccato. Counter-clockwise rotation () reduces the start-up speed of the wind signal and produces a more legato effect with wind attack.

Windgate 2

"Windgate 2" slider provides for control of the duration of the gating signal available from "Windgate 2" output jack. The "Windgate 2" slider works in conjunction with the "windgate" switch. (See Windgates)

OUTPUT SECTION

The output section, by means of standard monophonic phone jacks, provides for connecting the desired signals to the external synthesizer (electric guitar type patch cords may be used). Each output has a separate pilot light and switch for convenience and ease of control during performance.

Pitch 1

Pitch 1 signal is obtained directly from the instrument body. It is not affected by the "scale" and "tuning" controls. Pitch 1 ranges from approximately +83 mVDC at the lowest note from the body to approximately +3.5 VDC at the highest note. It may serve as a monitor or to control pitch and filters of additional synthesizers.

Wind 1

Wind 1 signal is obtained directly from the body unmodified. Wind 1 signal varies from +0.5 volts with no wind to approximately +10 volts with maximum wind pressure. It may be used to control additional synthesizers or for filter sweeps and other synthesizer effects.

Lip 1

Lip 1 signal is also obtained directly from the instrument body. The lip 1 signal level of 0 to +10 volts may be used to control various other synthesizer functions as well as pitch. A closed reed produces approximately 0 volts.

The signal changes predictably as the reed is relaxed to equal approximately +10 V full open. Lip 1 signal is not affected by the "Bend Up", "Bend Down" slider controls.

Pitch 2

Pitch 2 output is normally used to control the Voltage Controlled Oscillator (VCO) to the external synthesizer to obtain pitch intervals. Pitch 2 is adjustable both for tuning and intonation with the Tuning and Scale controls. The Tuning control adjusts for concert pitch while the Scale control allows for adjustment of intonation over the $3\frac{1}{2}$ octave range of the instrument body. Pitch 2 output is not affected by changes in lip position.

Wind 2

Wind 2 output is normally used to control the Voltage Controlled Amplifier (VCA) of the synthesizer. Wind 2 allows control over the level of wind signal reaching the VCA (Wind 2 slider) as well as the amount of wind required to turn on the VCA (threshold). The lower screwdriver adjustment in the Trim section labeled "A" controls the speed with which the VCA will react to wind attack or tonguing.

Bend Down

Bend Down output, when connected to the VCO in place of Pitch 2, provides the proper signal for pitch intervals as well as allowing pitch bend with lip motion. Instrument will be in tune with

a tight lip and will bend pitch downward as the lip is relaxed. The "Bend Down" slider determines how much the pitch will change from closed to open lip. The "Bend Down" slider will vary the amount of pitch bend available from (0) at its lowest position to approximately one octave at its highest position (10).

Bend Up

Bend Up when connected to the synthesizer VCO provides the signal for pitch intervals as well as allowing pitch bend up with lip motion. The instrument will be in tune with a loose lip and raise pitch as the lip is tightened. The Bend Up slider is 0 at its lowest position and allows approximately one octave pitch bend up when set at 10. When using Bend Up, it may be necessary occasionally to adjust the zone of no pitch change that occurs when the reed is fully open (loose lip). It is possible to adjust the point at which the reed begins to raise pitch (so that the embouchure will be more comfortable) by adjusting the "R" (reed) screwdriver adjustment in the Trim section. Proceed as follows:

1. Set up instrument and console as described in the Bend Up patch.
2. Turn "threshold" up (clockwise ↻) until a tone is heard.
3. Lay the instrument body down so that the reed is open and not touching anywhere. Locate the "R" (reed) screwdriver adjustment in the Trim section (Green).

4. Move the "Bend Up" slider control up full.
5. Listen to the pitch of the tone and using a small screwdriver turn the "R" trim counter-clockwise ↺ until the pitch begins to go higher. Then back off (reverse) the control slightly clockwise ↻ to the point where pitch stops changing.

Note: If you continue to back off the "R" trim clockwise further than is necessary you will note a corresponding reduction in the total amount of pitch bend available.

Windgates

The Windgates provide for gating (turning on and holding for a period of time) with wind action various synthesizer effects, especially ADSR systems. The Windgate section consists of: the Windgate 2 slider control and the Windgate switch in the Wind Control section; Windgate 1 output jack and on/off switch; and Windgate 2 output jack and on/off switch in the Outputs section. Both Windgate 1 and Windgate 2 require a specific wind pressure before the gating pulse turns on. This allows the player to predict exactly when and how much wind is required to initiate an event. By reducing or increasing his wind level - even in the middle of a note - the player can either turn on or turn off a desired effect from the external synthesizer.



Windgate 1

The gating pulse of Windgate 1 is initiated when wind action begins and continues until wind action ceases.

Windgate 2

The gating pulse of Windgate 2 is variable by means of the "Windgate 2" slider control and the "Windgate" switch in the Wind Control section. The "Windgate" switch has two positions: "S" for short when switched left, and "L" for long when switched right. In the "S" position, the duration of the gating signal is adjustable with the "Windgate 2" slider control from 1/100 of a second to 10 seconds. The Windgate 2 signal will stop when wind action ceases and will start again as wind is applied.

Variations in Gate Signals

Windgate 2 switch provides the proper gating signal or trigger pulse for MOOG, ARP, Oberheim and Eu type synthesizers. With the switch set to the left, a MOOG signal (+ ) is provided at the Windgate 2 output jack. The center position of the switch turns the signal off. With the switch to the right the proper signal is provided for ARP, Oberheim and Eu type synthesizers. + 

With the exception of the Windgate 2 switch, all switches on the Output Section of the Wind Synthesizer Driver console are on to the right and off to the left.

ACCESSORY SECTION

Octave Switch

In order to obtain the full six octave range capability of the instrument it is necessary to set the low-mid-high switch in the Accessory section to the desired range. Normally the instrument is tuned to concert pitch with the low-mid-high switch in the "mid" position (center) with the instrument playing at middle C.

Remote Control of Octaves

By connecting an amplifier type accessory double foot switch (effects-reverb type) to the Foot-switch jack in the Accessory section of the control console, the musician is able to obtain the full six octave range of the instrument without having to manually reset the low-mid-high switch on the console.

With a double footswitch and the low-mid-high switch set in the center or "mid" position, the octave range will change as follows:

The LED indicators on either side of the low-mid-high switch indicate to what range the console is adjusted.

Left LED lit
low range



Both LED's lit
mid range



Right LED lit
high range



The right side footswitch will change the range from low to mid.

The left side footswitch will change the range from high to mid.

Note: If the left footswitch is depressed while the instrument is in "high range", the order of operation of the footswitches will reverse.

Accessory Patch

An accessory patch cable is available from the factory for quick setup purposes. The cable connects to the patch connector in the Accessory section of the console and eliminates the need for running separate cables for each required signal. The 3 conductor cable is terminated

with mini phone plugs and includes three adapters to convert the mini phone plugs to the standard size plugs used in some synthesizers. The outputs provided are:

<u>Wind Synthesizer Output</u>	<u>Connect to Synthesizer Input</u>
Bend Up	VCO
Wind 2	VCA
Windgate 2	ADSR or ADR

WARRANTY

This limited warranty covers all internal electronic components of the Wind Synthesizer Driver instrument body and control console for a period of one (1) year from the date of recorded purchase. Should any of the said components prove to be defective in material or workmanship within the one year warranty period, Computone, Inc. at its factory will repair or replace the defective components(s). THE WARRANTY CARD MUST BE COMPLETED AND RETURNED BY THE CONSUMER WITHIN TEN DAYS OF PURCHASE IN ORDER FOR THIS LIMITED WARRANTY TO BE IN EFFECT. This limited warranty is extended only to the original consumer purchaser and is not transferable or assignable.

Shipping charges to and from Computone, Inc. are the responsibility of the consumer. Units are to be shipped prepaid and will be returned freight collect.

SHOULD COMPUTONE, INC. DETERMINE AN OPERATIONAL FAILURE TO BE THE RESULT OF NEGLIGENCE, CONNECTION TO UNGROUNDED EQUIPMENT, USE OTHER THAN AS DESCRIBED IN THE INSTRUCTION MANUAL, OR INFLUENCES EXTERNAL TO THE WIND SYNTHESIZER DRIVER BODY AND COMPUTER CONSOLE, THE CONSUMER OR DEALER WILL BE NOTIFIED OF THE ESTIMATED COST FOR THE REPAIR BEFORE REPAIRS ARE INITIATED.

COSMETIC DAMAGE TO VISIBLE PARTS OF THE WIND SYNTHESIZER DRIVER (INSTRUMENT BODY, KEYS, SURFACE, CONSOLE PANEL, KNOBS, CASE) ARE NOT COVERED BY THIS LIMITED WARRANTY UNLESS, IN THE OPINION OF COMPUTONE, INC., THE DAMAGE WAS THE RESULT OF FAULTY CONSTRUCTION.

Computone, Inc. warrants that the instrument supplied in conjunction with this limited warranty conforms to the following description and will be of merchantable quality.

THE WIND SYNTHESIZER DRIVER IS A MUSICAL INSTRUMENT DESIGNED TO BE PLAYED BY A MUSICIAN IN A MANNER DESCRIBED IN THE ACCOMPANYING INSTRUCTION MANUAL ENTITLED INSTRUCTION MANUAL, WIND SYNTHESIZER DRIVER AND THIS LIMITED WARRANTY APPLIES ONLY WHEN THE WIND SYNTHESIZER DRIVER IS SO USED.

The Wind Synthesizer Driver must be properly connected to a grounded power source operating within the voltage and frequency ranges specified on the label adjacent to the console power receptacle and connected to an external output system as described in the instruction manual.

USE OTHER THAN AS A MUSICAL INSTRUMENT OR USE OTHER THAN AS DESCRIBED ABOVE MAY VOID THIS LIMITED WARRANTY.

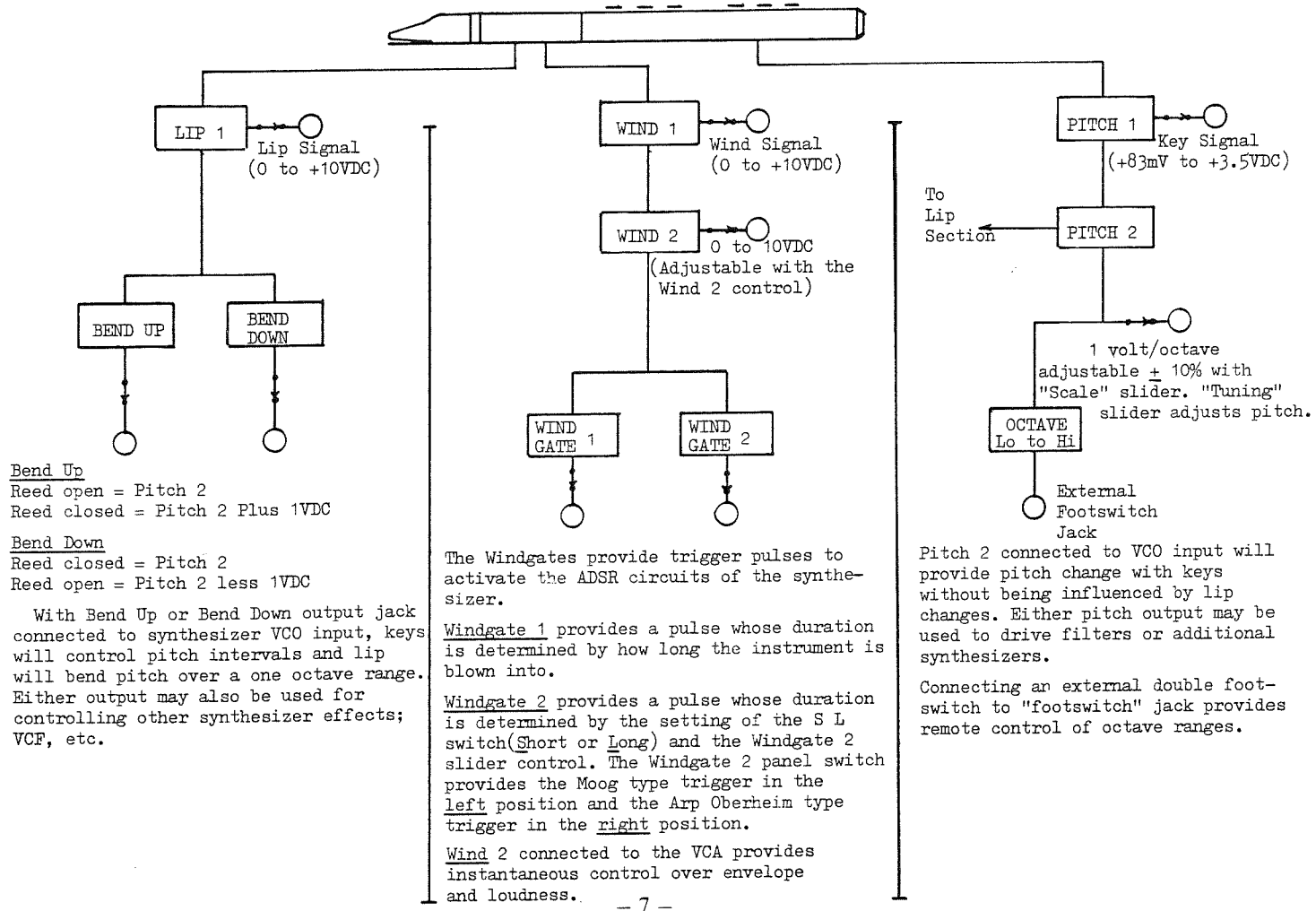
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DESIGN SPECIFICATIONS OF THE WIND SYNTHESIZER DRIVER MAY BE ALTERED FROM TIME TO TIME WITHOUT ADVANCE NOTICE. COMPUTONE, INC. ASSUMES NO OBLIGATION TO UPDATE EXISTING EQUIPMENT ALREADY IN USE.

The terms described above form the entire obligation and liability of Computone, Inc. to the consumer. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. No agent other than Computone, Inc. may alter this limited warranty or agree to terms not stated in this warranty.

This warranty gives you specific legal rights and you may have other rights which vary from State to State.

WIND SYNTHESIZER DRIVER PICTORIAL DIAGRAM



Fingering Chart

LOW REGISTER (MODIFIED BOEHM SYSTEM)

8va.....

MIDDLE REGISTER (MODIFIED BOEHM SYSTEM)

UPPER REGISTER (MODIFIED BOEHM SYSTEM)


BASIC PATCH

Hookup Procedure

1. Plug instrument body connector into receptacle on console marked "Body". The connector is keyed and will plug in only in one direction. Twist ferrule gently clockwise until threads engage the female receptacle on the console. Tighten finger-tight only.
2. Plug AC line cord into the receptacle on the right side of the console (will plug in only in one direction) and connect to 110-120 VAC, 60 Hz* properly grounded outlet.

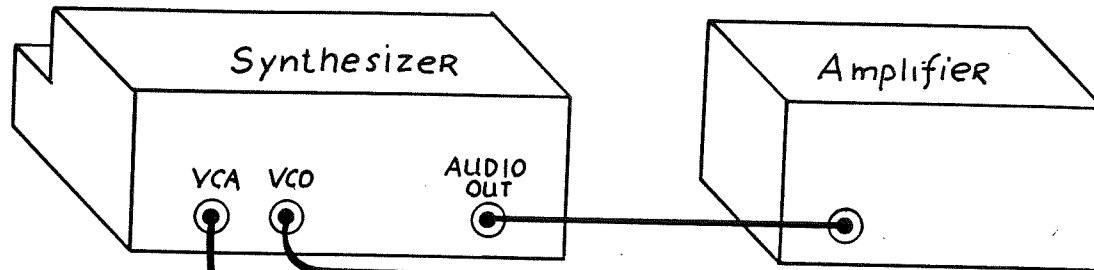
*(Overseas models require 220 VAC, 50-400 Hz.)
3. Hookup Driver console using guitar type cords to synthesizer as shown in diagram. Connect audio output of synthesizer to amplifier.
4. Switch on (to the right) "Pitch 2" and "Wind 2" output switches. In Accessory section, switch octave switch to "mid" position.
5. Switch on power to Wind Synthesizer Driver, synthesizer, and amplifier and allow to warm-up for five minutes.

Tuning Procedure

1. Turn Threshold control clockwise  until a tone is obtained from one of the synthesizer oscillators. Use approximately the middle of the tunable range of the oscillator. Move the Wind 2 slider up full.
2. In the Accessory section of the Wind Synthesizer Driver, switch the low-mid-high octave switch back and forth while moving the Scale slider control until exact octaves are obtained. (Should occur at approximately the center of the scale control's range)
3. Using an external tuning device or another instrument, adjust the tuning control for proper pitch (A=440 Hz). With the octave switch in its "mid" position, the middle C of the instrument body should play middle C.
4. Back-off the threshold control until the tone just disappears. Blow into the instrument body and check that the intonation is correct over the 3 octave range.

Note: For blowing comfort, reduce the Wind 2 control while blowing alternately soft and loud notes until it feels comfortable to you. Be sure that the external synthesizer is set for maximum output and that the external amp volume control is at least up $\frac{1}{4}$ turn.

5. In the Trim section locate the "A" screwdriver adjustment. Clockwise rotation of the "A" trim provides for the fastest attack capability with wind attack (staccato). Counter-clockwise rotation of the "A" trim slows down the wind attack speed of the console. Adjust for personal comfort. Start full clockwise at fastest setting and fastest tonguing.



Wind Synthesizer-Driver Computone Incorporated Norwell, Mass.

Pitch Control **Lip Control** **Wind Control** **Trim** **Outputs** **Accessory** **Body**

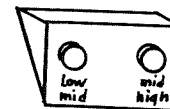
patch 1 patch 2 wind gate 1
 wind 1 wind 2 wind gate 2
 lip 1 bend down bend up

low mid high

patch
 VCA
 AUDIO

US Pat No. 3,757,833 Made in U.S.A.

BASIC PATCH



OCTAVE
FOOTSWITCH
(optional)

BEND UP PATCH

1. Turn off all switches in the Outputs section.
2. Connect Wind 2 to the VCA input and the Bend Up output jack to the VCO input of the external synthesizer as shown on the diagram.
3. Turn on the "Wind 2" and "Bend Up" output switches.
4. Check that the "R" screwdriver adjustment is set as described in the Instruction Manual under Bend Up (page 3).
5. Starting with the "Bend Up" slider control set to 0, raise the control gradually while blowing into the instrument and relaxing and tightening your lip on the reed. Use a $\frac{1}{4}$ or $\frac{1}{2}$ tone variation to start with until you become familiar with the proper lip position. The instrument will be at the proper pitch when played with a loose embouchure.

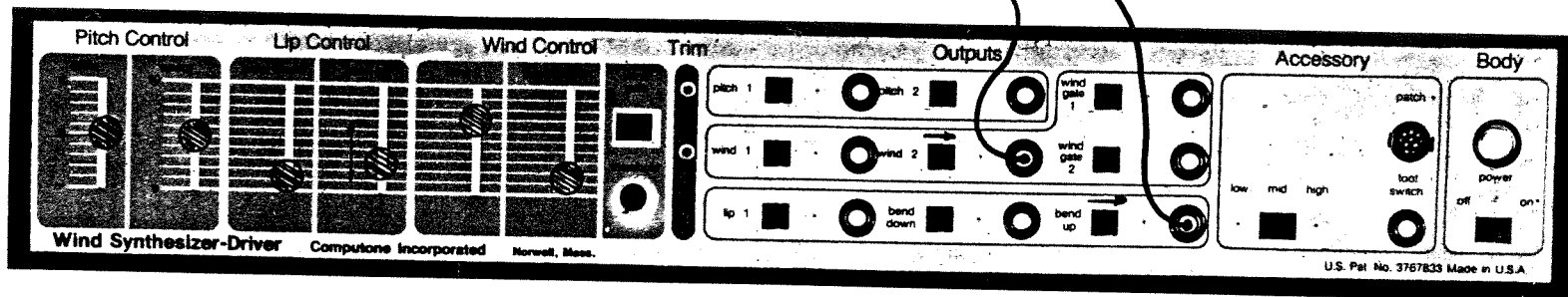
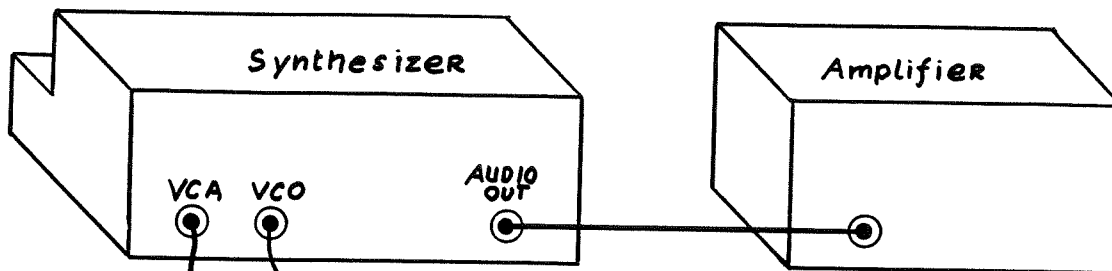
To use the Bend Down patch, remove the Bend Up connection and connect the Bend Down output jack to the synthesizer VCO.

The instrument will now play in pitch with a tight embouchure and allow you to bend the note down in pitch an amount determined by the setting of the "Bend Down" slider control.

Practise a vibratto with $\frac{1}{2}$ tone bend.

A $\frac{1}{4}$ or $\frac{1}{2}$ tone pitch shift with full lip motion is ideal for conventional playing. This enables the player to maintain a tonal center much in the same manner as with acoustic single reed instruments. Subtle tuning of the instrument or, gliding in and out of pitch, is also easily accomplished with a $\frac{1}{4}$ or $\frac{1}{2}$ tone glissando adjustment.

Note: On MOOG synthesizers it is necessary to short out the "S-Trig" input plug at the rear of the console. Use the Cinch-Jones plug provided by the manufacturer. If the plug is not available hold down the lowest note on the synthesizer keyboard and weight it so as to keep it on.



BEND UP

FILTER DRIVE PATCH

1. Turn off all switches in the Outputs section.
2. Connect "Wind 2" to VCA and VCF inputs on the external synthesizer. Use a single plug to double plug cable for patching. (Available in most Radio, Hi-Fi stores.) Connect "Bend Up" output jack to VCO.
3. Turn on Wind 2 and Bend Up output switches.
4. Increase the Filter Modulation on the external synthesizer as you blow into the instrument. Experiment with different settings of filter frequencies and resonance.

Note: If you wish to use the ADSR of the synthesizer to control the synthesizer filter, disconnect "Wind 2" from the VCF (leave on "Wind 2" connection to VCA) and connect "Windgate 2" to the Gate input of the synthesizer. (Consult your synthesizer manual for correct settings on your synthesizer.)

Turn "Windgate 2" switch to the right for an ARP, Oberheim or Eu type gate. Turn "Windgate 2" switch to the left for a MOOG gate.

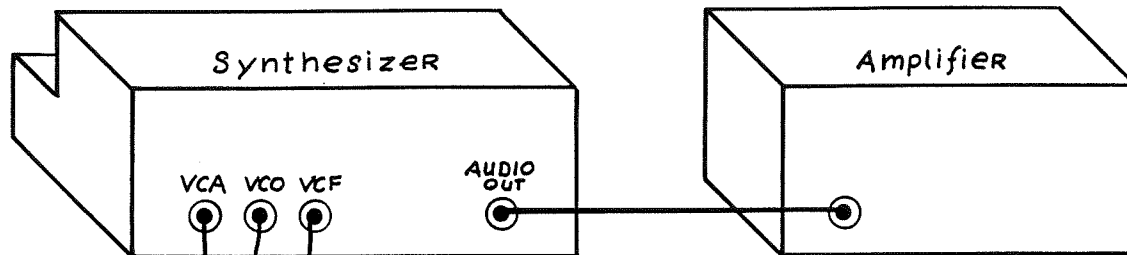
Now as you blow into the instrument, a gate pulse will activate the synthesizer as you reach a

certain wind level. The duration of the gate will be determined by the setting of Windgate 2 slider and Windgate switch. If you stop blowing into the instrument the gate will cease.

Most new synthesizers will require no modification to accept the Wind Synthesizer Driver inputs. If the inputs are not available consult your dealer or the manufacturer or your synthesizer. Modifications are usually simple and inexpensive on newer synthesizers.

There are, obviously, a number of variations from the simple patches shown. The limits lie within the sophistication of your synthesizer and the boundaries of your imagination.

Remember, since the lip, wind, and pitch voltages are all available as DC control voltages, their use is not limited to their named function. For example, you may use the lip, wind, or pitch outputs to change filter frequency, resonance, pitch, noise, or any other voltage controlled effect while, at the same time, use the wind, lip, and pitch voltages for their obvious functions.



Wind Synthesizer-Driver **Computone Incorporated** **Norwell, Mass.** **U.S. Pat. No. 3767833 Made in U.S.A.**

Pitch Control		Lip Control		Wind Control		Trim	Outputs			Accessory		Body					
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	wind 1 <input type="checkbox"/>	<input type="checkbox"/>	wind 2 <input type="checkbox"/>	<input type="checkbox"/>	wind gate 2 <input type="checkbox"/>	<input type="checkbox"/>	foot switch <input type="checkbox"/>	power <input type="checkbox"/>			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	lp 1 <input type="checkbox"/>	<input type="checkbox"/>	bend down <input type="checkbox"/>	<input type="checkbox"/>	bend up <input type="checkbox"/>	<input type="checkbox"/>	low <input type="checkbox"/>	md <input type="checkbox"/>	high <input type="checkbox"/>	off <input type="checkbox"/>	on <input type="checkbox"/>

FILTER DRIVE

TECHNIQUE

Wind Technique

Developing a proper blowing technique when playing the Wind Synthesizer Driver is essential to its mastery. The Wind Synthesizer Driver wind section is a mechanical system that has definite physical limits. Blowing too hard into the mouthpiece will cause the wind system to "bottom" thereby eliminating any additional effects through changes in wind pressure. The wind levels required to achieve a particular result become more obvious as the player gains proficiency with the Wind Synthesizer Driver. Blowing gently in the early stages of playing enables the player to obtain more quickly the variations in sounds available.

Lip Technique

Traditional lip technique is not necessary since the body is not acoustic. Variations in lip configuration and/or facial muscles have no effect on intonation or timbre unless programmed by the player. Proper positioning of the reed lever is essential in order to obtain reed effects from the synthesizer. Be sure that the reed lever is operating properly as described in the instruction manual.

The external fiber cane reed of the Wind Synthesizer Driver serves two important purposes. First, it acts as a self-springing lever to modulate or control the air stream reaching the wind transducer. Secondly, it engages the reed lever, the position of which determines the magnitude of the electrical signal reaching the lip circuits. A fiber cane material reed is used since it lasts a great deal longer than cane and is not easily

damaged. The jaw should be held loosely and comfortably while experimenting with the amount of glissando (pitch bend) available.

Psychology of Imitation

Although it is not key to your understanding of the instrument it is, nevertheless, an interesting exercise to see just how close you can come to imitating other instruments. If you are attempting to imitate a trumpet or French Horn, for example, you must think as that horn player would as you play.

Pick a tune that is normally associated with that instrument and be careful that you articulate and phrase as the musician would on that particular instrument. Attempting a violin sound, for example, obviously requires substantially different phrasing and attack than for a French Horn. You will find as you progress that the actual sound quality produced is sometimes not nearly as important as the phrasing and attack characteristics that you impart to the Wind Synthesizer Driver.

CARE AND MAINTENANCE

The Wind Synthesizer Driver is a quality instrument of rugged construction that should give many years of faithful service if properly cared for. It should be treated as you would any fine musical instrument.

Special Precautions:

1. Do not attempt to take body section apart.
2. Be sure you are plugged into a properly grounded power source within the specifications indicated on the label next to the Power Connector on the console.
3. Do not use excessive force on any connectors.
4. Avoid spilling liquids or foodstuffs on the instrument body or control console.
5. Consult with the factory before attempting repairs.
6. Turn off the appropriate switch in the Outputs section if you are changing your patch.

The barrel joint or upper section of the body contains the wind and lip electronic sensing systems. The main body contains the pitch determining circuits and interpose logic circuits. IMPORTANT! Do not attempt to twist or remove the sections of the body

other than as described under removal of mouth-piece or the reed lever adjustment.

Each key is actually a switch that consists of a silver pad (mounted under each key) which completes the circuit through a silver contact mounted on an insulated pad on the body when a key is depressed.

Note: The pivot rod lubricant and pad adhesive used are conductive. Therefore, no repairs of the mechanical part of the body should be attempted except by the factory or by an authorized service center.

CLEANING THE CONTACTS

Although the contacts are silver material and excellent conductors, surface contamination may occur (because of pollutant in the air) resulting in erratic or noisy key activity. Cleaning may be quickly accomplished as follows:

Using a reasonably clean or new dollar bill, (or business card) fold in half and slide under each key between the pad and the contact on the body. Press gently down on the key and at the same time gently slide the dollar bill out from between the two contacts. Be sure to clean all contacts including the octave keys. In severe cases, where a coating on the key contacts is not removed by simple cleaning, it may be necessary to use a piece of very fine emery or crocus cloth in place of the paper.

MOUTHPIECE AND REED

The mouthpiece of the Wind Synthesizer Driver is a modified tenor saxophone mouthpiece. The reed used is plastic and has been trimmed at its base to fit the Wind Synthesizer Driver. Should the reed require replacement, care should be exercised to insure that the reed lever is not bent out of position. The proper adjustment of the reed lever may be checked as follows:

- a) Set up Driver as described in Bend Down patch. Move Bend Down slider up full (10).
- b) Turn the "Threshold" control clockwise until a tone is obtained from the amplifier.
- c) Place your thumb on the external reed and slowly close it shut. As you close the reed the pitch should increase. With the external reed nearly bottomed on the mouthpiece facing, move the Bend Down slider control full up and full down. No change in pitch should occur. If the pitch changes with the reed fully shut, the reed lever requires adjustment as described in Reed Lever Adjustment.

REED LEVER ADJUSTMENT

Note: The Reed Lever should not require adjustment unless it has been accidentally bent out of position.

CAUTION Do not attempt to adjust the reed lever without following these instructions carefully. Always be careful not to bend or force the reed lever in any way when cleaning the mouthpiece or changing reeds. Forcing the reed lever out of its normal position may damage the internal reed lever mechanism necessitating factory repair.

1. Connect "Bend Down" output to synthesizer VCO and "Wind 2" output to VCA. Turn on Wind Synthesizer Driver and turn up "Threshold" control until a tone is heard. Move "Bend Down" slider control up to maximum.
2. Remove the ligature and reed. With your thumb, push the reed lever flat against the inside of the mouthpiece and listen for a change in pitch. Release the reed lever and repeat until you are able to see where the reed lever tonal activity occurs.
3. With the reed lever in the closed position (fig. 2) turn the control up full and back to zero. No change in pitch should be noticed. If the pitch does change, the reed lever has been bent inwards slightly towards the mouthpiece. If so, proceed as follows:
 - a) Grasp the mouthpiece taking care not to disturb the reed lever, twist slightly back and forth and remove.

b) Holding the instrument body with the rear of it (Thumb Keys) facing you, grip the bottom of the reed lever with a pair of small pliers and with your thumb and forefinger, bend the reed lever very slightly away from you. Replace the mouthpiece taking care not to disturb the reed lever and repeat #3 (see fig. 4).

4. If step 3 appears satisfactory but no tonal change is obtained when replacing the mouthpiece and reed, the reed lever is bent too far towards the inside of the mouthpiece. If so repeat step 3b but bend the reed lever slightly towards you.

The reed lever adjustment appears complex but it is not. Once done correctly it is simple and quick to repeat any time it is required. The final test for correct reed lever position is to replace the mouthpiece, ligature and reed and move the reed with your lip while varying the amount of "Bend Down" and observe if the response is as described in #3. It should not be necessary to repeat the reed adjustment unless the reed lever has been accidentally bent out of position.

The proper position for the external reed (unlike in conventional single reeds) is approximately 1/8 inch below the tip of the mouthpiece. (With the reed adjusted too close to the tip of the mouthpiece, the air flow may be restricted or shut-off with a tight embouchure.)

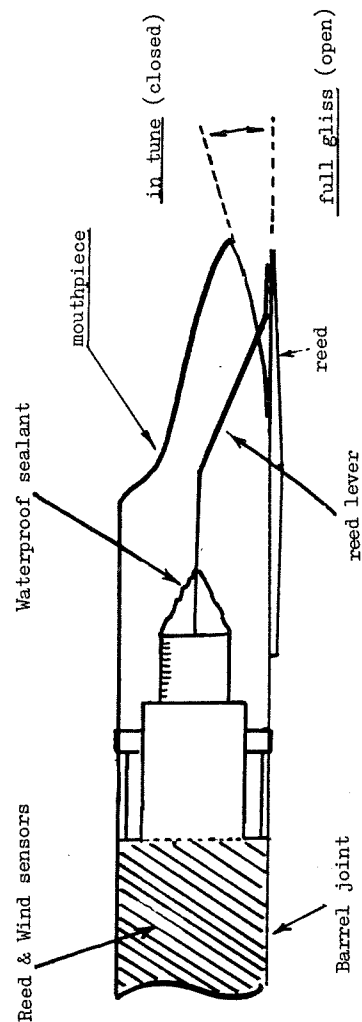


Fig. 1 Cutaway view of mouthpiece