RETROAKTIV

▮▢MPG-70

OWNER'S MANUAL

SUPER JX PROGRAMMER ▮▢MPG-70
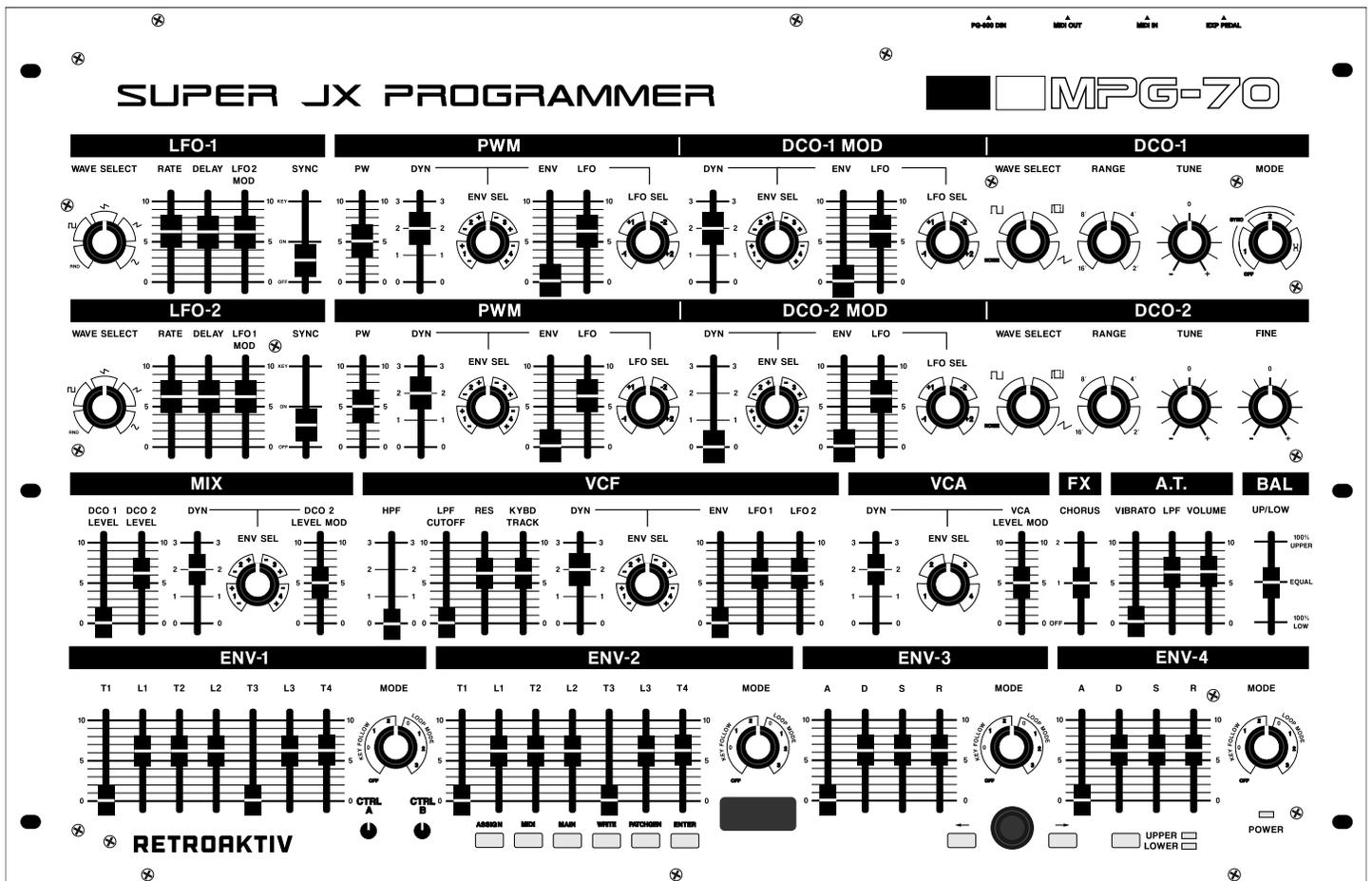
MANUAL VERSION 1.0 for MPG-70 OS 1.0

PANEL DESCRIPTION:

ASSIGNABLE CONTROLLER P
(EXPRESSION PEDAL) 16

MIDI IN 16

MIDI OUT 15

6-PIN DIN
DATA/POWER CABLE 14

SUPER JX PROGRAMMER   MPG-70

13 OLED DISPLAY

7 WRITE BUTTON

6 PATCH GENERATOR BUTTON

5 WRITE BUTTON

4 MAIN BUTTON

3 MIDI BUTTON

2 ASSIGN BUTTON

1 ASSIGNABLE CONTROLLER A & B

12 POWER INDICATOR

11 UPPER/LOWER BUTTON

CURSOR LEFT BUTTON 8

DATA ENTRY ENCODER 9

CURSOR RIGHT BUTTON 10

FEATURES:

• MPG-70 can control all of the tone parameters featured in the Vecoven firmware upgrade, as well as all of the 44 tone parameters featured on the classic PG-800.

• PG-800 serial communication or MIDI can be used to communicate with the Super JX, MKS-70, or JX-8P, allowing for the MPG-70 to control any stock or vecoven modified units. MIDI CC, SYSEX, or PG-800 serial output can be used to control Vecoven modified JX units.

• The programmer features a MAIN and AUX channel, allowing for multiple units to be controlled individually or simultaneously.

• Assignable controllers A, B, and EXP PEDAL can be programmed to control up to 5 JX tone parameters simultaneously, allowing for more expressive real time controls of the synthesizer.

• UPPER and LOWER voices can be edited individually or simultaneously, which streamlines the patch creation process significantly.

• A full featured RANDOM TONE GENERATOR allows for quick generation of new sounds. New tones can be completely random, or users may select a tone category such as PAD, POLY, BASS, BELL/METAL, and COMPLEX. Each section of the synth can be masked so that the RTG will not affect the masked sections of the synth when generating a new tone.

• MANUAL and SCRATCH TONE GENERATOR function can transmit the current position of all sliders, or generate a basic tone which serves as a basic starting place when creating a new sound. SCRATCH TONE GENERATOR can generate multiple types of tones, including basic dual DCO, basic LFO pulse width modulation, and basic SYNC tones.

• ASSIGN A, B, and P, as well as MIDI settings can be saved as defaults for quickly recalling preferred settings on power-up

• Unit features a sloped mixing board style enclosure making it ideal for setting up on a desktop, or can be mounted in any 19" rack.

GETTING STARTED:

The MPG-70 is powered from the JX synthesizer using the 6P DIN cable included with the programmer. To power up the unit, connect the DIN cable to the PG-800 port on the JX and the PG-800 port of the MPG-70. It is recommended that the DIN cable is plugged into the JX and the MPG-70 before turning the synthesizer on. This will prevent the MPG-70 from receiving intermittent power when booting up.

Once powered, the MPG-70 will load the operating system and display the MPG-70 splash screen and the version of the OS that is currently loaded into the programmer.   The unit will boot with the default MIDI communication settings loaded. To communicate with the JX, select the protocol, model of synth to be controlled, and MIDI channel (if using MIDI) in the MIDI menu. Once these settings are selected, the programmer will communicate with the synthesizer.

MENU NAVIGATION:

The MPG-70 will display the **MAIN** menu screen when booted up.   Menus can be selected by using the buttons to the left of the display.   On menu pages that feature the cursor, move the cursor using the **LEFT** and **RIGHT** buttons. To change a parameter value in a menu, use the black rotary encoder dial.

T1 L1 T2 L2 T3 L3 T4 MODE
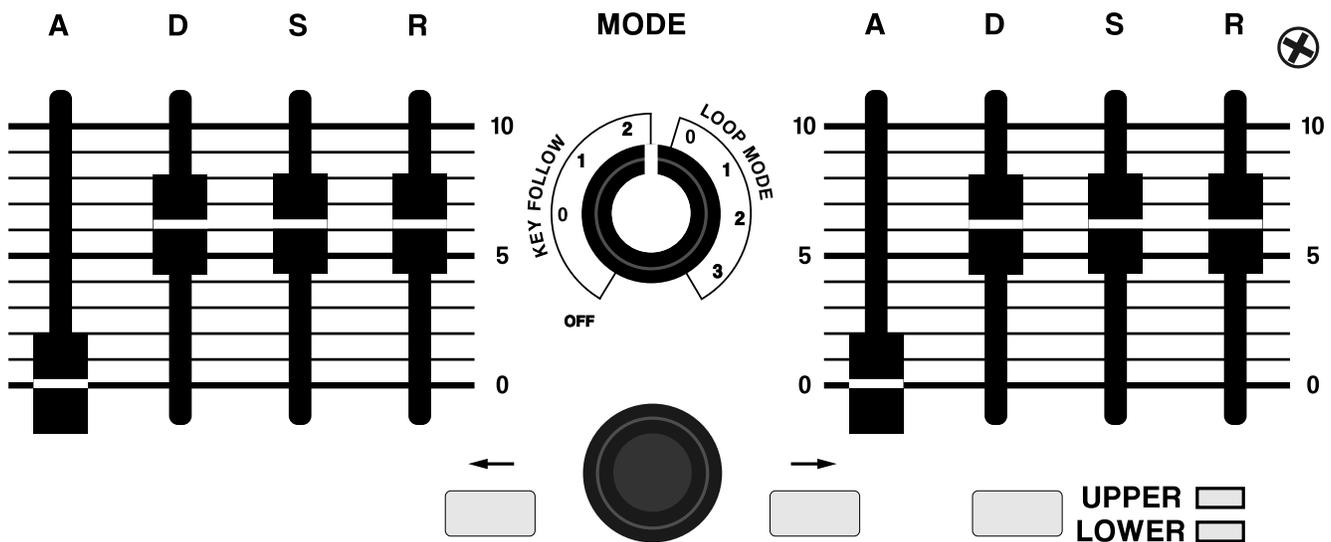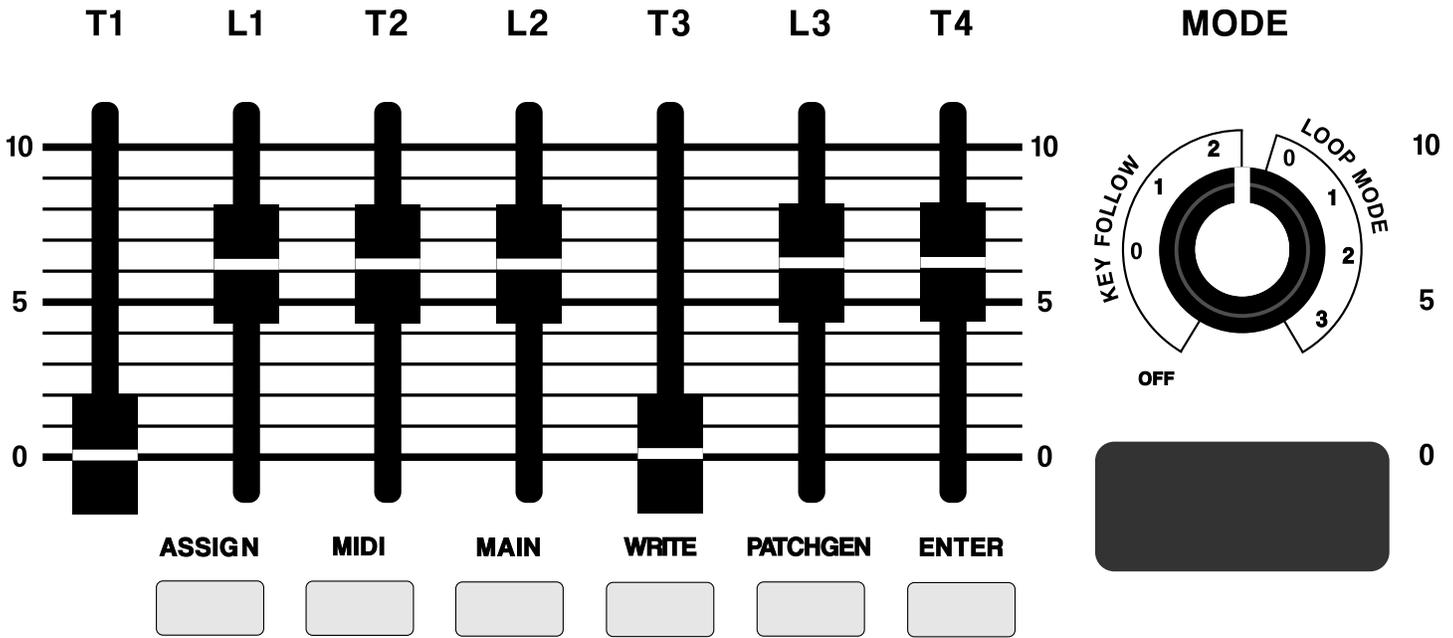
The buttons to the left of the OLED display have various functions:

• **ASSIGN BUTTON** - Pressing **ASSIGN** will enter the **ASSIGNABLE CONTROLLER** pages. Pressing **ASSIGN** once will display **ASSIGN A**. Pressing again will display **ASSIGN B**. Pressing again will display **ASSIGN P**. Use the rotary encoder to navigate through pages within each **ASSIGN**.

• **MIDI BUTTON** - Pressing **MIDI** will enter the MIDI menu. Use the **MIDI** menu to set the unit type, communication protocol, and MIDI channel of the **MAIN** and **AUX** controller channels.

• **MAIN BUTTON** - If the current menu page is not **MAIN**, or **PATCH MENU 1 & 2**, pressing MAIN will return to the main parameter display screen, which displays the current controller channel, the upper/lower/both status, the parameter currently being edited, and the value of that parameter. If on the **MAIN** screen and the **MAIN** button is pressed, **PATCH MENU 1** is displayed on the screen. Pressing **MAIN** while on **PATCH MENU 1** will navigate to **PATCH MENU 2**. Pressing **MAIN** again will return to the **MAIN** screen.

• **WRITE BUTTON** - The **WRITE** button has multiple functions, depending on which menu page is currently being displayed. Pressing **WRITE** when on the **MAIN** menu page will open a dialog asking if the current JX tone should be written in the JX memory. Pressing **WRITE** when in the MIDI menu will save the current MIDI settings as the default settings on boot-up.

• **PATCHGEN BUTTON** - Pressing **PATCHGEN** will open up the **PATCH GENERATOR MENU**. Pressing once will display the **RANDOM TONE GENERATOR MENU**. Pressing again will open
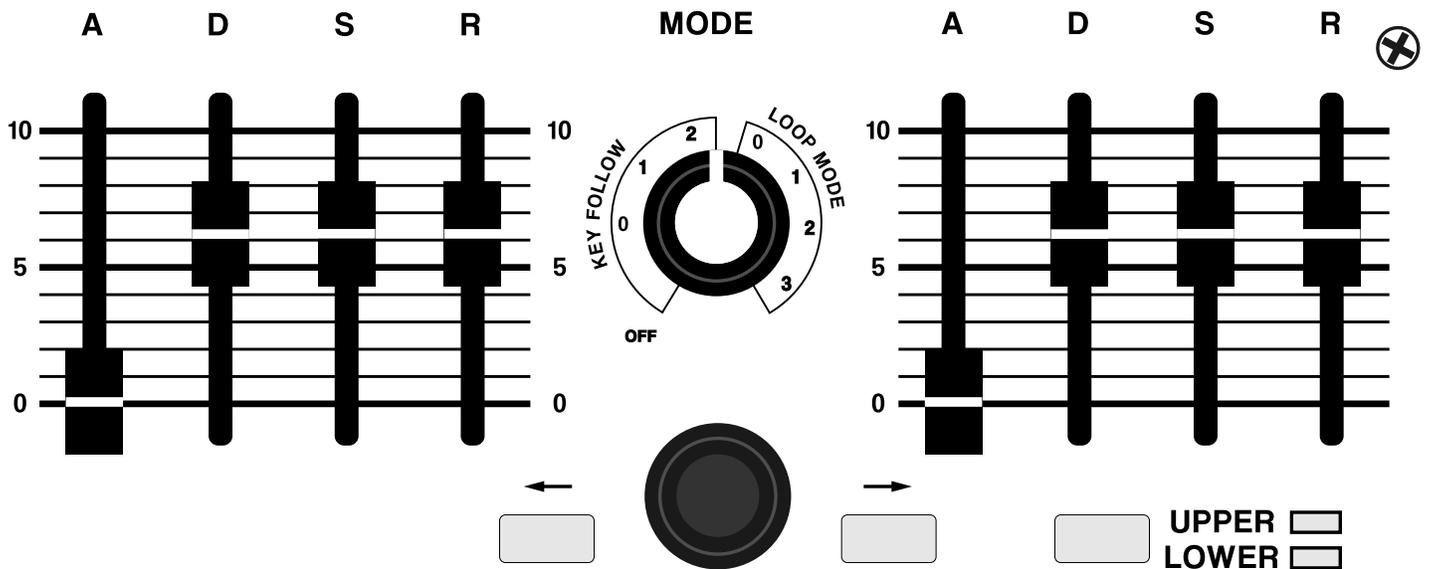
The SUPER JX and MKS-70 have two synthesizer voice boards; the **UPPER** and the **LOWER**. The original PG-800 programmer did not allow the user to select which of these voice boards was being edited from the controller, rather it needed to be toggled on the JX front panel. The MPG-70 has eliminated the need for this by allowing the **UPPER** and **LOWER** boards to be selected using the **UPPER/LOWER** button. To edit the **UPPER** and **LOWER** voices simultaneously, press the encoder down and press the **UPPER/LOWER** button. Both LEDs will be lit, indicating that **BOTH** are now selected. The exit this mode, simply press **UPPER/LOWER** again.

The rotary encoder is used to dial in parameter values in the various menus. Several of the parameters have values ranging between 0 and 127. Turning the encoder right will increment the currently highlighted parameter value. Turning the encoder left will decrement it. To increment by +/- 10, push the encoder button down while turning it. This allows users to quickly dial in numeric values on the fly.

MIDI MENU:

The **MIDI MENU** is used to set the communication protocol that the programmer will use to communicate with the synthesizer. There are 6 separate parameters in the MIDI menu:

• **MAIN MIDI CH** - This selects the MIDI channel of the main programmer channel. (1-16) Since the MIDI SYSEX and MIDI CC both contain the information indicating whether **UPPER/LOWER/BOTH** are selected, a separate channel for the **UPPER** and **LOWER** voice boards is not needed.

- **MAIN PROTOCOL** - This parameter selects which language is used to communicate with the synth. The following options are available:

  MIDI SYSEX - System exclusive messages can be used to communicate with any Super JX, MKS-70, or JX-8P. The system exclusive strings are 10 bytes in length.

  MIDI CC - CC messages can only be used to communicate with a Super JX or MKS-70 that has the Vecoven firmware upgrade. CC messages are 6 bytes in length and are the fastest way to send data to the JX.

  PG-800 Serial - This method of communication used the PG-800 DIN cable to send bytes of serial data to the JX through the PG-800 port. This is the slowest of the three protocols. This language can be used to communicate with any model.

- **UNIT TYPE** - This parameter tells the programmer which model of JX it will be communicating with on the **MAIN** channel. Select **VJX** to program a Super JX/MKS-70 with Vecoven firmware. Select **SJX** to program a stock Super JX/MKS70. Select **8P** to communicate with a JX-8P. **If using PG-800 protocol with a Vecoven JX, you must press enter with the PG-800 protocol highlighted.** This will initiate a handshake that tells the JX that it's going to receive special serial data for the new envelopes, new LFOs, and the PWM parameters.

- **AUX MIDI CHANNEL** - This selects the **AUX MIDI** channel (1-16)

- **AUX PROTOCOL** - This parameter selects which language is used to communicate with the synth. The following options are available:

  MIDI SYSEX - System exclusive messages can be used to communicate with any Super JX, MKS-70, or JX-8P.

  MIDI CC - CC messages can only be used to communicate with a Super JX or MKS-70 that has the Vecoven firmware upgrade.

- **AUX UNIT TYPE** - This parameter tells the programmer which model of JX it will be communicating with on the **AUX** channel.

The MPG-70 will boot using the MIDI settings that are currently the default. To store the current MIDI settings, press **WRITE** while in the MIDI menu. The setting storage will be confirmed by a "SETTINGS SAVED" message. Once stored in memory, the unit will boot with the saved settings, saving the user from needing to configure the MIDI page each time the unit is powered up.

There are two MIDI ports on the rear panel of the MPG-70, MIDI IN and MIDI OUT. The MPG-70 will merge any incoming MIDI data from the MIDI IN port with outgoing controller messages, which eliminates the need for a MIDI merger if playing the JX from an external controller keyboard or DAW while using the MPG-70 to edit.

Plug the MIDI OUT jack into the MIDI IN of the JX to use MIDI messages to edit the JX.

MAIN MENU:

Pressing the **MAIN** button once when not on the **MAIN** menu or **PATCH MENU** will return to the MAIN parameter screen, which shows the current controller channel (MAIN, AUX, or ALL) and the parameter being edited.

When the MPG-70 boots, the default channel is the **MAIN** channel. To switch to the **AUX** channel, press the **MAIN** button while holding the **ENCODER BUTTON** down. The word **AUX** will be displayed in the lower left corner of the **MAIN** screen. No any parameter changed on the MPG will be transmitted to the synth connected to the **AUX** channel. To control the **MAIN** and **AUX** channel simultaneously (**ALL**), press **ENCODER-MAIN** again. The ENCODER-MAIN button combination will cycle through **MAIN - AUX - ALL** each time the cobinatin is pressed.

If on the **MAIN** menu, and the **MAIN BUTTON** is pressed, this will navigate to **PATCH MENU PAGE 1**.   The patch menu is tailored to work with the Vecoven JX. **PATCH MENU 1** contains the following parameters:

• **PATCH TYPE** - This selects the type of patch. (DUAL, WHOLE, SPLIT, UPPER, LOWER, XFADE, T-VOICE)

- **UPPER ASSIGN** - This selects the key assign mode of the upper voice board (POLY 1, MONO 1, UNISON 1, POLY 2, MONO 2, UNISON 2)

- **LOWER ASSIGN** - This selects the key assign mode of the lower voice board (POLY 1, MONO 1, UNISON 1, POLY 2, MONO 2, UNISON 2)

- **UPPER TONE** - Selects the upper tone number.

- **LOWER TONE** - Selects the lower tone number.

- **SPLIT POINT** - This sets the split point of the patch if SPLIT patch type is selected. For overlapping split points, use the JX PATCH menu on the synthesizer.

- **UPPER/LOWER DETUNE** - Sets the detuning amount between the upper and lower voice boards.

- **LOWER TRANSPOSE** - Sets chromatic tuning of the lower voice board.

- **UPPER TRANSPOSE** - Sets chromatic tuning of the upper voice board.

If on the **PATCH MENU 1** page, pressing **MAIN** again will display the **PATCH MENU 2** page. **PATCH MENU 2** contains the following parameters:

- **GLIDE AMOUNT** - Sets portamento rate.

- **UPPER GLIDE ON/OFF** - Turns glide on for the upper voice board.

- **LOWER GLIDE ON/OFF** - Turns glide on for the lower voice board.

- **PATCH TOTAL VOLUME** - Sets the main volume of the current patch.

PATCHGEN MENU:

RANDOM TONE GENERATOR:

Pressing the **PATCHGEN BUTTON** once will open the **RANDOM TONE GENERATOR**. (RTG) The RTG is a powerful sound creation tool and will work with any model of Super JX, MKS-70, or JX-8P and can use any protocol. The RTG can generate chaotic, totally random sounds, or it can use complex tone creation algorithms to generate musical tones of many types. The RTG has a masking feature which allows the user to "mask" sections of the synthesizer that should not be randomized. The amount of randomness can also be set if not using a tone category. (ANY selected) To fully utilize the RTG, it is important to understand how each of the RTG sections works. The RTG menu contains the following parameters:

• **TYPE** - This allows the user to select the type of random tone to be created. Selecting **ANY** will generate a completely random tone, where the amount of randomness can be set using the **AMOUNT** parameter at the bottom of the screen.   There are multiple categories of tone types that can be created, including **PAD 1** (good for string, vox, atmospheric pads), **POLY 1** (Good for making synth brass, poly comping synths, and synths with quicker attacks), **BELL** (metallic tones, chimes, gongs, bells), **BASS** (Cellos, synth basses, acoustic basses, bassy pads), **PAD 2**(Good for creating complex sounds with rhythmic LFOs, strange pads, atmosppheric textures). As OS updates occur, more RTG categories will be added to the firmware.

• **DCO** - This setting will mask the following parameters if set to **MSK**. (Masking on) DCO1 & 2 TUNE, DCO 2 FINE, DCO SYNC, DCO 1 & 2 RANGE, DCO 1 & 2 WAVE, MIX LEVEL 1 & 2, MIX ENV SEL, MIX ENV AMT, MIX ENV DYN. These parameters will not be affected by the RTG if this setting is set to MSK.

• **PMOD** - This setting will mask the following parameters if set to **MSK**. DCO 1 & 2 LFO MOD, DCO 1 & 2 ENV MOD, DCO 1 & 2 LFO SEL, DCO 1 & 2 ENV SEL, DCO 1 & 2 ENV DYN.

• **VCF** - THis setting will mask the following parameters if set to **MSK**. VCF CUTOFF & RES, VCF TRACKING, HPF.

- **FMOD** - This setting will mask the following parameters. VCF ENV SEL, VCF LFO 1 & 2 AMT, VCF ENV DYN.

- **VCA** - This setting is always masked due to the potential for causing damage to speakers or worse, ears if the volume is suddenly increased. This parameter affects only the VCA LEVEL parameter.

- **AMOD** - This setting will mask the following parameters. VCA ENV SEL, VCA DYN.

- **LFO** - This setting will mask all LFO1 and LFO2 settings.

- **ENV** - This setting will mask all ENV 1 - 4 settings.

- **PWM** - This setting will mask all PWM settings for DCOs 1 and 2.

- **AMOUNT** - If **ANY** is selected as the RTG type, then this setting will set the maximum amount of randomness of of the RTG. Due to the complex algorithms used when generating pads, synths, basses, etc., it is sometimes not possible to adhere to the **AMOUNT** setting and still have sound generated. The MPG-70 uses complex algorithms to make sure that every patch generated when using categories will make noise. While the **AMOUNT** setting will still affect parameters in every category, it is necessary to override the **AMOUNT** setting in many cases when categories are selected.

- When on the RTG page, it is often desireable to reset all 11 parameters to the default settings. Rather than manually doing this, simply **pressing the encoder button and PATCHGEN will reset all parameters to their defaults.**

MANUAL:

Pressing **PATCHGEN** while on the RTG page will navigate to the **MANUAL** page. If on **MANUAL** page, pressing **ENTER** will transmit the position of all sliders and knobs on the MPG-70.

SCRATCH TONE GENERATOR:

Often times when using a synthesizer that has almost 100 knobs and sliders, creating a basic starting point, or a "blank canvas" can be a tedious exercise. Nobody wants to spend ten minutes setting up a basic starter-tone. The MPG-70 has a **SCRATCH TONE GENERATOR** to solve this issue. By simply selecting the type of "starter tone" one wants and pressing **ENTER**, a lot of time can be saved.

The STG has three distinct starter tones: **BASIC DUAL DCO** is a starter tone where both DCOs are tuned in unison, the VCF is 100% open, RES is off, and all envelopes are set to a GATE style of envelope.

BASIC LFO PWM is the same as the BASIC DUAL DCO, with the exception of both DCOs being set to PWM and each DCO's PWM is modulated by a separate sine wave LFO. This is a perfect way to begin creating a patch that utilizes PWM features enabled by the Vecoven firmware.

BASIC SYNC will generate a classic-style SYNC tone that serves as a perfect starting point for programs that utilize the JX's unique SYNC functions.

ASSIGN A, B, and P:

The MPG-70 has a unique real time controller feature that allows users to create complex real-time controls that can affect up to 5 JX parameters simultaneously to create expressive sounds that most never heard from a JX. The **ASSIGN** menu is a powerful and unique feature of the MPG-70 that sets it apart from almost every other JX controller on the market.

Pressing **ASSIGN** will cycle through the three separate assignable controllers, **CTRL A**, **CTRL B,** and **CTRL P**. **CTRL A** and **CTRL B** are mini potentiometer controls on the MPG-70 front panel.   **ASSIGN P** is controlled by an external expression pedal controller that can

be connected using the 1/4" jack on the rear panel.

The **ASSIGN** button will cycle through the three **ASSIGN**s. To navigate the individual pages within each assign (Up to 5 layers per assign can be created), highlight the **LYR** parameter at the top of the assign page and use the encoder dial to navigate the **LYR** pages.

Pressing **WRITE** while on an assign page will delete the current **ASSIGN** layer. Pressing **ENTER** will add a new layer, with 5 layers per **ASSIGN** being the maximum.

Each assign page contains the following parameters:

• **LYR** - The **LYR** parameter indicates the current **ASSIGN LYR**, as well as how many **LAYER**s the current **ASSIGN** contains. Turning the encoder when the **LYR** parameter is highlighted will cycle through the layer pages within the current assign.

• **PARAMETER** - This selects the tone parameter being controlled by the current **ASSIGN** layer. Any of the 84 tone parameters can be selected.

• **MIN** - This sets the minimum value of the current layer's selected parameter. For example, setting the **MIN** value to 50, and **MAX** value to 127 would result in a value of 50 when the **ASSIGN CTRL** is at its minimum (fully counter-clockwise in the case of **CTRL A & B**, or pedal at its minimum), and as the **CTRL** is turned clockwise, the valie would increment to 127.

• **MAX** - This sets the maximum value of the current layer parameter.

• **INV** - This will invert the values of the current layer. For example, if the **MIN** is set to 40 and the **MAX** is set to 80, and **INV** is **OFF**, (Not inverted) then turning the **CTRL** from 0% (fully counter clockwise) to 100% will increment the current layer parameter from 40 to 80 as the **CTRL** is turned clockwise. Using the same example, if the **INV** setting is set to ON, the current layer parameter value would be 80 when the **CTRL** is at 0% (Fully counter clockwise) and would decrement to 40 as the **CTRL** is turned clockwise.

By layering multiple **ASSIGN LYR** pages, complex effects can be created, such as increasing the filter cutoff while decreasing the resonance and increasing DCO 1 and 2 LFO amounts. The possibilities are endless.

The default state of the **ASSIGN**s when the unit boots are as follows:

ASSIGN A - CROSSFADE This setting will crossfade between MIX 1 and MIX 2 channels.

ASSIGN B - VCF LFO CROSSFADE This setting will crossfade between VCF LFO 1 amount and VCF LFO 2 AMOUNT.

ASSIGN P - FILTER PEDAL This setting will allow an external expression pedal to control VCF CUTOFF.

To save an individual **ASSIGN (A, B, or P)** press **ENCODER** and **ASSIGN** while on the **ASSIGN** that is being stored in memory. There are three user memory slots for **ASSIGN**s, one for each of the three **ASSIGN**s. To load the factory preset **ASSIGN**, press **ENCODER BUTTON** +**LEFT BUTTON** while on the **ASSIGN** that is being loaded from memory. To load the user **ASSIGN**, press **ENCODER BUTTON** + **RIGHT BUTTON**.

For example, to save an **ASSIGN A** setup, press **ASSIGN BUTTON** until the current assign is displayed as **ASSIGN A**. Now press **ASSIGN BUTTON** while holding the **ENCODER BUTTON** down. A dialog will indicate that the current **ASSIGN** has been stored. To recall the factory **ASSIGN A** setting, be sure that **ASSIGN A** is the currently selected **ASSIGN**, then press **LEFT** while holding **ENCODER BUTTON** down. To recall the **ASSIGN A** that was just saved in user memory, press **RIGHT** while holding the encoder button down. A dialog will indicate that an **ASSIGN** has just been loaded.

DIMENSIONS:

- MPG-70 is a 7U rackmountable controller with a mixing desk style steel enclosure. The unit can be rackmounted in any 19″ rack system or can be used as a desktop controller. The unit measures 19″ wide x 12.25″ high. The rear enclosure is 3.25″ high and slopes down to 2″ in height at the front of the unit. The MIDI and DIN jacks are located in the rear panel of the programmer, and are set back in a recessed cavity to allow for easy access and rackmounting without occupying unecessary rack space.

NOTES:

This project would not have been possible without the hard work of Fred Vecoven for his fantastic PWM firmware upgrade for the super JX. He has implemented many features requested by us to allow this product to work seamlessly with his firmware upgrade. Special thanks to Guy Wilkinson at Super Synth Projects for acting as technical advisor throughout the development of this project. Guy's feature suggestions, technical advice and design review made this product possible. Guy also offers an excellent replacement for the original display found on the Super JX and MKS70, as well as a robust drop in power supply replacement board. To get more information about these to products, visit Guy's site at http:// www.supersynthprojects.com.

For information about Fred Vecoven's PWM firmware upgrade, visit his site at http:// www.Vecoven.com

For information about this product and other Retroaktiv products, visit our website at http:// www.retroaktivsynthesizers.com.